**ROAD DEVELOPMENT AGENCY**

# Bidding Document for Procurement of Works

# (DESIGN AND BUILD)

## TENDER FOR THE EXPANSION OF SHIMABALA TOLL PLAZA.

Issued on: **Tuesday, 9th December, 2025**

Tender No: **RDA/CE/ONB/005/2025**

Client: **ROAD DEVELOPMENT AGENCY (RDA)**

**ZAMBIA**

# Road Development Agency
# Invitation for Bids (IFB)

**Tender No. RDA/CE/ONB/005/2025 - TENDER FOR THE EXPANSION OF SHIMABALA TOLL PLAZA.**

The Agency has received funds from the Government of the Republic of Zambia and intends to apply proceeds of these funds to payments under the contract for the proposed TENDER FOR THE EXPANSION OF SHIMABALA TOLL PLAZA.

The Procurement Department on behalf of the Agency now invites bids from eligible Contractors for a **TENDER FOR THE EXPANSION OF SHIMABALA TOLL PLAZA.** The bidding documents shall be accessed from the **Government Electronic Procurement System (e-GP**) on the Zambia Public Procurement Web Site https://eprocure.zppa.org.zm/epps/home.do. The Document can be obtained at non-refundable fee of **K500.00 each** to be paid electronically in the e-GP System. **HOWEVER, HARDCOPY BIDS WILL NOT BE ACCEPTED.**

***All foreign bidders MUST partner with Zambian contractors registered with the National Council for Construction (NCC)***

***The required NCC is Grade 1, Category R.***

Bids shall be valid for a period of 90 days after Bid opening and must be accompanied by a Bid Securing Declaration. The Bid Securing Declaration should be as in the sample format provided.

Bids shall be submitted in accordance with the Instructions to bidders contained in the bidding documents. All Bids, clearly marked

"**RDA/CE/ONB/2025 - TENDER FOR THE EXPANSION OF SHIMABALA TOLL PLAZA" to be submitted electronically in the EGP System** not later than **Wednesday, 31st December, 2025 at 10:30 hour's local time**. The bids received will be opened immediately thereafter. **NOTE THAT LATE BIDS SHALL NOT BE ACCEPTED.**

Head
Chief Procurement Manager
**ROAD DEVELOPMENT AGENCY**

# Standard Bidding Document

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# PART 1 – Bidding Procedures

# Section 1 - Instructions to Bidders

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# Section I - Instructions to Bidders

## A. General

**1. Scope of Bid**

1.1 The Client, as **indicated in the BDS**, issues this Bidding Document for the procurement of the Works as specified in Section 6 (Client's Requirements). The name, identification, and number of contracts of this bidding 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;
(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;
(d) the term "Project Manager" refers to the officer, body or institution appointed under Section 76 of the Public Procurement Act No.8 of 2020 as Contract Manager;
(e) "Government" refers to the Government of the Republic of Zambia, any Procuring Entity or the relevant approvals authority as defined in the Public Procurement Act No.8 of 2020; and
(f) "ZPPA" refers to the Zambia Public Procurement Authority.

**2. Source of Funds**

2.1 The Procuring Entity **indicated in the BDS** has applied for or received financing (hereinafter called "funds") toward the cost of the project or programme **named in the BDS**. The Client intends to apply a portion of the funds to eligible payments under the contract(s) for which this Bidding Document is issued.

2.2 Payments by the Client will be made only at the request of the Project Manager.

**3. Fraud and Corruption**

3.1 It is the Government's policy to require that Clients (including beneficiaries of the funds), as well as bidders, suppliers, and contractors and their agents (whether declared or not), personnel, subcontractors, sub-Contractors, service providers and suppliers, under Government-financed contracts, observe the highest standard of ethics during the procurement and execution

of such contracts.[1] In pursuance of this policy, the Government:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(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[2];

(ii) "fraudulent practice" 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[3];

(iii) "collusive practice" is an arrangement between two or more parties[4] designed to achieve an improper purpose, including to influence improperly the actions of another party;

(iv) "coercive practice" 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[5];

(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 Government investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any

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1 *In this context, any action taken by a bidder, supplier, contractor, or any of its personnel, agents, sub-Contractors, sub-contractors, service providers, suppliers and/or their employees to influence the procurement process or contract execution for undue advantage is improper.*

2 *"Another party" refers to a public official acting in relation to the procurement process or contract execution]. In this context, "public official" includes Government staff and employees of other organizations taking or reviewing procurement decisions.*

3 *"Party" refers to a public official; the terms "benefit" and "obligation" relate to the procurement process or contract execution; and the "act or omission" is intended to influence the procurement process or contract execution.*

4 *"Parties" refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels.*

5 *"Party" refers to a participant in the procurement process or contract execution.*

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 Government's inspection and audit rights provided for under sub-clause 3.1 (e) below.

(b) 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 in competing for the contract in question;

(c) will cancel the funding allocated to a contract if it determines at any time that representatives of the Client- engaged in corrupt, fraudulent, collusive, or coercive practices during the procurement or the execution of that contract, without the Client having taken timely and appropriate action satisfactory to the Government to remedy the situation; and

(d) will sanction a firm or an individual, at any time, in accordance with prevailing sanctions procedures, including suspending or barring a bidder in accordance with Sections 95, 96 and 97 of the Public Procurement Act No.8 of 2020 and regulations 230 to 240 of the Public Procurement Regulations of 2022: (i) to be awarded a Government-financed contract; and (ii) to be a nominated[b] sub-contractor, Contractor, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Government-financed contract. A bidder or supplier aggrieved by such a decision, may appeal in accordance with Section 101 of the Public Procurement Act No.8 of 2020.

3.2 In further pursuance of this policy, Bidders shall permit the Government to inspect any accounts and records and other documents relating to the Bid submission and

[b] A nominated sub-contractor, Contractor, manufacturer or supplier, or service provider (different names are used depending on the particular bidding document) is one which either has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that are accounted for in the evaluation of the bidder's pre-qualification application or the bid; or (ii) appointed by the Borrower.

contract performance, and to have them audited by auditors appointed by the Government.

3.3 Furthermore, bidders shall be aware of the provision stated in GCC Sub-Clauses 22.2 and 56.2 (h).

**4. Eligible Bidders**

4.1 A Bidder may be a natural person, private entity, or government-owned entity—subject to ITB 4.6—or any combination of them in the form of a joint venture, under an existing agreement, or with the intent to constitute a legally-enforceable joint venture. Unless otherwise **stated in the BDS**, all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms.

4.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of an eligible country, in accordance with Section 5 (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 subcontractors or suppliers for any part of the Contract including related services.

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

(a) they have a controlling partner 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 that puts them in a position to have access to information about or influence on the Bid of another Bidder, or influence the decisions of the Client regarding this bidding process; or

(e) a Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which the party is involved. However, this does not limit the

inclusion of the same subcontractor in more than one bid; or

(f) a Bidder participated as a Contractor in the preparation of the design or technical specifications of the contract that is the subject of the Bid; or

(g) a Bidder has been hired (or is proposed to be hired) by the Client as Engineer for the contract.

4.4 A Bidder that has been sanctioned by ZPPA in accordance with the above ITB 3.1 (d), shall be ineligible to be awarded a Government-financed contract, or benefit from a Government-financed contract, financially or otherwise, during such period of time as the ZPPA shall determine

4.5 A statutory corporation or body or company in which Government has a majority or controlling interest shall be eligible only if they meet the provisions of Section 51 of the Public Procurement Act No.8 of 2020.

4.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Client, as the Client shall reasonably request.

4.7 In case a prequalification process has been conducted prior to the bidding process, this bidding is open only to prequalified Bidders.

4.8 Firms shall be excluded if:

(a) as a matter of law or official regulation, the Government prohibits commercial relations with that country, provided that Cooperating Partners involved are satisfied that such exclusion does not preclude effective competition for the supply of goods or related services required; or

(b) 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, Government prohibits any import of goods or contracting of works or services from that country or any payments to persons or entities in that country.

**5. Eligible Materials, Equipment and Services**

5.1 The materials, equipment and services to be supplied under the Contract shall have their origin in eligible source countries as defined in ITB 4.2 above and all expenditures under the Contract will be limited to such materials, equipment, and services. At the Client'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 Document

**6. Sections of Bidding Document**

6.1 The Bidding Document consist of Parts 1, 2, and3, which include all the Sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB 8.

**PART 1 Bidding Procedures**
- Section I - Instructions to Bidders (ITB)
- Section II - Bid Data Sheet (BDS)
- Section III - Evaluation and Qualification Criteria
- Section IV - Bidding Forms
- Section V - Eligible Countries

**PART 2 Requirements**
- Section VI - Works Requirements

**PART 3 Conditions of Contract and Contract Forms**
- Section VII - General Conditions (GC)
- Section VIII - Particular Conditions (PC)
- Section IX - Contract Forms

6.2 The Invitation for Bids issued by the Client is not part of the Bidding Document.

6.3 The Client 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 Client in the Invitation for Bids.

6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. 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 Client in writing at the Client's address **indicated in the BDS** or raise his inquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Client will respond in writing to any request for clarification, provided that such request is received prior to the deadline for submission of bids, within a period **given in the BDS**. The Client 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 Client 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 encouraged 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 Client 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 Client and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

7.4 The Bidder's designated representative is invited to attend a pre-bid meeting, if **provided for in the BDS**. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

7.5 The Bidder is requested, as far as possible, to submit any questions in writing, to reach the Client not later than one week before the meeting.

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 Client 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 Client may amend the Bidding Document by issuing 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 Client 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 Client may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 22.2

## 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 Client 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 Client, shall be written in the language **specified in the BDS**. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language **specified in the BDS**, in which case, for purposes of interpretation of the Bid, such translation shall govern.

**11. Documents Comprising the Bid**

11.1 The Bid shall comprise the following:

(a) Letter of Bid;

(b) completed Schedules, in accordance with ITB 12 and 14, or **as stipulated in the BDS**;

(c) Bid Security or Bid Securing Declaration, in accordance with ITB 19;

(d) alternative bids, at Bidder's option and if permissible, in accordance with ITB 13;

(e) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;

(f) documentary evidence in accordance with ITB 17 establishing the Bidder's qualifications to perform the contract;

(g) Technical Proposal in accordance with ITB 16;

(h) In the case of a bid submitted by a joint venture (JV), the JV agreement, or letter of intent to enter into a JV including a draft agreement, indicating at least the parts of the Works to be executed by the respective partners; and

(i) Any other document **required in the BDS**.

**12. Letter of Bid and Schedules**

12.1 The Letter of Bid, Schedules, and all documents listed under Clause 11, shall be prepared using the relevant forms in Section IV (Bidding Forms), if so provided. 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 **indicated 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 Client's design as described in the Bidding Document and shall further provide all information necessary for a complete evaluation of the alternative by the Client, 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 best-evaluated Bidder conforming to the basic technical requirements shall be considered by the Client.

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 (Client's 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 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 IV, Bidding Forms. In case of admeasurement 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 Client 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 Bid shall be the total price of the Bid, excluding any discounts offered.

14.4 Unconditional discounts, if any, and the methodology for their application shall be quoted in the Letter of Bid, in accordance with ITB 12.1.

14.5 If so indicated in ITB 1.1, 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 14.3, 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 Schedule of Adjustment Data in Section IV (Bidding Forms) and the Client 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 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total bid price submitted by the Bidder.

**15. Currencies of Bid and Payment**

15.1 The currency(ies) of the bid shall be as **specified in the BDS**.

15.2 Bidders may be required by the Client to justify, to the Client's satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the prices shown in the appropriate form(s) of Section IV, in which case a detailed breakdown of the foreign currency requirements shall be provided by Bidders.

**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**

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

**Qualifications of the Bidder**

in the corresponding information sheets included in Section *IV* (Bidding Forms).

17.2 Domestic Bidders, individually or in joint ventures, applying for eligibility for a 7½-percent margin of domestic preference shall supply all information required to satisfy the criteria for eligibility as described in ITB 33.

**18. Period of Validity of Bids**

18.1 Bids shall remain valid for the period **specified in the BDS** after the bid submission deadline date prescribed by the Client. A bid valid for a shorter period shall be rejected by the Client as nonresponsive.

18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Client 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 for a corresponding 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.

18.3 In the case of fixed price contracts, if the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial bid validity, the Contract price shall be adjusted by a factor specified in the request for extension. Bid evaluation shall be based on the Bid Price without taking into consideration the above correction.

**19. Bid Security**

19.1 Unless otherwise **specified in the BDS**, the Bidder shall furnish as part of its bid, in original form, either a Bid Securing Declaration or a bid security **as specified in the BDS**. In the case of a bid security, the amount shall be **as specified in the BDS**.

19.2 A Bid Securing Declaration shall use the form included in Section IV Bidding Forms.

19.3 If a bid security is specified pursuant to ITB 19.1, the bid security shall be, at the Bidder's option, in any of the following forms:

(a) an unconditional guarantee, issued by a bank *or surety*;

(b) an irrevocable letter of credit;

(c) a cashier's or certified check; or

(d) Another security **indicated in the BDS.**

from a reputable source from an eligible country. If the unconditional guarantee is issued by an insurance company or bonding company located outside the Client's Country, it shall have a correspondent financial institution located in the Client's Country. 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 substantially similar format approved by the Client prior to bid submission. In either case, the form must include the complete name of the Bidder. The bid security shall be valid for twenty-eight days (28) beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.

19.4 Any bid not accompanied by an enforceable and substantially compliant bid security or Bid Securing Declaration, if required in accordance with ITB 19.1, shall be rejected by the Client as nonresponsive.

19.5 If a bid security is specified pursuant to ITB 19.1, the bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's furnishing of the performance security pursuant to ITB 41.

19.6 If a bid security is specified pursuant to ITB 19.1, the bid security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required performance security.

19.7 The bid security may be forfeited or the Bid Securing Declaration executed:

**(a)** if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, except as provided in ITB 18.2 or

**(b)** if the successful Bidder fails to:

(i) sign the Contract in accordance with ITB 40; or

(ii) furnish a performance security in accordance with ITB 41.

19.8 The Bid Security or the Bid Securing Declaration of a JV shall be in the name of the JV that submits the bid. If the JV has not been constituted into a legally-enforceable JV, at the time of bidding, the Bid Security or the Bid Securing Declaration shall be in the names of all future partners as named in the letter of intent mentioned in ITB 4.1.

19.9 If a bid security is **not required in the BDS**, and

(a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid Form, except as provided in ITB 18.2, or

(b) if the successful Bidder fails to: sign the Contract in accordance with ITB 40; or furnish a performance security in accordance with ITB 41;

the Client may**, if provided for in the BDS,** declare the Bidder disqualified to be awarded a contract by the Client for a period of time **as stated in the BDS**.

**20. Format and Signing of Bid**

20.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB 11 and clearly mark it "ORIGINAL". 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.

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.

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 Bidders may always submit their bids by mail or by hand. When so **specified in the BDS**, bidders shall have the option of submitting their bids electronically. Procedures for submission, sealing and marking are as follows:

(a) Bidders submitting bids by mail or by hand shall enclose the original and each copy of the Bid, including alternative bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as "ORIGINAL", "ALTERNATIVE" and "COPY." These envelopes containing the original and the copies shall then be enclosed in one single envelope. The rest of the procedure shall be in accordance with ITB sub-Clauses 22.2 and 22.3.

(b) Bidders submitting bids electronically shall follow the electronic bid submission procedures **specified in the BDS**.

21.2 The inner and outer envelopes shall:

(a) bear the name and address of the Bidder;

(b) be addressed to the Client as **provided in the BDS** pursuant to ITB 22.1;

(c) bear the specific identification of this bidding process indicated in accordance with ITB 1.1; and

(d) Bear a warning not to open before the time and date for bid opening.

21.3 If all envelopes are not sealed and marked as required, the Client 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 Client at the address and no later than the date and time **indicated in the BDS**.

22.2 The Client 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 Client and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

**23. Late Bids**

23.1 The Client shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Client after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.

**24. Withdrawal, Substitution, and Modification of Bids**

24.1 A Bidder may withdraw, substitute, or modify its bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2, (except that withdrawal notices do not require copies). The corresponding substitution or 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," "SUBSTITUTION," "MODIFICATION;" and

(b) Received by the Client prior to the deadline prescribed for submission of bids, in accordance with ITB 22.

24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

24.3 No bid may be withdrawn, substituted, 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 Letter of Bid or any extension thereof.

**25. Bid Opening**

25.1 The Client shall open the bids in public at the address, date and time **specified in the BDS** in the presence of Bidders` designated representatives and anyone who choose to attend. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 21.1, shall be as **specified in the BDS**.

25.2 First, 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 "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding bid being substituted, and the substituted bid shall not be opened,

but returned to the Bidder. No bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked "MODIFICATION" shall be opened and read out with the corresponding bid. No bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at bid opening. Only envelopes that are opened and read out at bid opening shall be considered further.

25.3 All other envelopes shall be opened one at a time, reading out: the name of the Bidder and the Bid Price(s), including any discounts and alternative bids and indicating whether there is a modification; the presence of a bid security or Bid securing Declaration, if required; and any other details as the Client may consider appropriate. Only discounts and alternative offers read out at bid opening shall be considered for evaluation. No bid shall be rejected at bid opening except for late bids, in accordance with ITB 23.1.

25.4 The Client shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per contract if applicable, including any discounts and alternative offers; and the presence or absence of a bid security, if one was required. 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. A copy of the record shall be distributed to all Bidders.

## E. Evaluation and Comparison of Bids

**26. Confidentiality**

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 Client in the evaluation of the bids or Contract award decisions may result in the rejection of its bid.

26.3 Notwithstanding ITB 25.2, from the time of bid opening to the time of Contract award, if any Bidder wishes to contact

the Client 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 bids, and qualification of the Bidders, the Client 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 Client shall not be considered. The Client's request for clarification and the response shall be in writing. No change in the prices or substance of the bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Client in the evaluation of the bids, in accordance with ITB 31.

27.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Client's request for clarification, its bid may 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. Determination of Responsiveness**

29.1 The Client's determination of a bid's responsiveness is to be based on the contents of the bid itself, as defined in ITB11.

29.2 A substantially responsive bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,

(a) if accepted, would:

(i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or

(ii) limit in any substantial way, inconsistent with the Bidding Document, the Client'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.

29.3 The Client 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 6 (Client's Requirements) have been met without any material deviation, reservation or omission.

29.4 If a bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Client and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

**30. Nonconformities, Errors, and Omissions**

30.1 Provided that a bid is substantially responsive, the Client may waive any nonconformities in the bid.

30.2 Provided that a bid is substantially responsive, the Client may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the bid. Failure of the Bidder to comply with the request may result in the rejection of its bid.

30.3 Provided that a bid is substantially responsive, the Client shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price may 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. Correction of Arithmetical Errors**

31.1 Provided that the bid is substantially responsive, the Client 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 Client there is an

obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

(b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) if there is a discrepancy between 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) and (b) above.

31.2 If the Bidder that submitted the best-evaluated bid does not accept the correction of errors, its bid shall be declared non-responsive.

**32. Conversion to Single Currency**

32.1 For evaluation and comparison purposes, the currency (ies) of the bid shall be converted into a single currency as **specified in the BDS**.

**33. Margin of Preference**

33.1 A margin of preference shall not apply, **unless otherwise specified in the BDS**.

33.2 Domestic bidders shall provide all evidence necessary to prove that they meet the following criteria to be eligible for a 7½ percent margin of preference in the comparison of their bids with those of bidders who do not qualify for the preference. They should:

(a) be registered within the country of the Client's country ;

(b) have majority ownership by nationals of the country of the Client's country;

(c) not subcontract more than 10 percent of the Contract Price, excluding provisional sums, to foreign contractors.

33.3 The following procedure shall be used to apply the margin of preference:

(a) Responsive bids shall be classified into the following groups:

(i) Group A: bids offered by domestic bidders and joint ventures meeting the criteria of ITB Sub-Clause 33.2; and

(ii) Group B: all other bids.

(b) For the purpose of further evaluation and comparison of bids only, an amount equal to 7½ percent of the evaluated Bid prices determined in accordance with ITB Sub-Clause 33.2 shall be added to all bids classified in Group B.

**34. Evaluation of Bids**

34.1 The Client shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

34.2 To evaluate a bid, the Client shall consider the following:

(a) the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities for admeasurement contracts or Schedule of Prices for lump sum contracts, but including Daywork items, where priced competitively;

(b) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;

(c) price adjustment due to discounts offered in accordance with ITB 14.3;

(d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 32;

(e) adjustment for nonconformities in accordance with ITB 30.3;

(f) application of all the evaluation factors indicated in Section III (Evaluation and Qualification Criteria);

34.3 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 considered in bid evaluation.

34.4 If this Bidding Document allows Bidders to quote separate prices for different contracts, and to award multiple contracts to a single Bidder, the methodology to determine the best-evaluated price of the contract combinations, including any discounts offered in the Letter of Bid, is

specified in Section III (Evaluation and Qualification Criteria).

34.5 If the bid for an admeasurement contract, which results in the best-evaluated Bid Price, is seriously unbalanced, front loaded or substantially below updated estimates in the opinion of the Client, the Client may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Client may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Client against financial loss in the event of default of the successful Bidder under the Contract.

**35. Comparison of Bids**

35.1 The Client shall compare all substantially responsive bids in accordance with ITB 34.2 to determine the best-evaluated bid.

**36. Qualification of the Bidder**

36.1 The Client shall determine to its satisfaction whether the Bidder that is selected as having submitted the best-evaluated and substantially responsive bid meets the qualifying criteria specified in Section III (Evaluation and Qualification Criteria).

36.2 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.

36.3 An affirmative determination of qualification shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Client shall proceed to the next best-evaluated bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.

**37. Client's Right to Accept Any Bid, and to Reject Any or All Bids**

37.1 The Client 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.

## F. Award of Contract

**38. Award Criteria**

38.1 Subject to ITB 37.1, the Client shall award the Contract to the Bidder whose offer has been determined to be the best-evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

**39. Notification of Award**

39.1 Prior to the expiration of the period of bid validity, the Client shall notify the successful Bidder, in writing, via the Letter of Acceptance included in the Contract Forms, that its bid has been accepted. At the same time, the Client shall also notify all other Bidders of the results of the bidding; results identifying the bid and the following information: (i) name of each Bidder who submitted a Bid; (ii) bid prices as read out at Bid Opening; (iii) name and evaluated prices of each Bid that was evaluated; (iv) name of bidders whose bids were rejected and the reasons for their rejection; and (v) name of the winning Bidder, and the Price it offered, as well as the duration and summary scope of the contract awarded.

39.2 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

39.3 The Client shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 39.1, requests in writing the grounds on which its bid was not selected.

**40. Signing of Contract**

40.1 Promptly upon notification, the Client shall send the successful Bidder the Contract Agreement.

40.2 Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Client.

**41. Performance Security**

41.1 Within twenty-eight (28) days of the receipt of notification of award from the Client, the successful Bidder shall furnish the performance security in accordance with the conditions of contract, subject to ITB 34.5, using for that purpose the Performance Security Form included in Section IX (Contract Forms), or another form acceptable to the Client. If the performance security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Client.

41.2 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 Client may award the Contract to the next best-evaluated Bidder whose offer is substantially responsive and is determined by the Client to be qualified to perform the Contract satisfactorily.

41.3 The above provision shall also apply to the furnishing of a domestic preference security if so required.

**42. Adjudicator**

42.1 The Client proposes the person **named in the BDS** to be appointed as Adjudicator under the Contract, at the hourly fee **specified in the BDS**, plus reimbursable expenses. If the Bidder disagrees with this proposal, the Bidder should so state in his Bid. If, in the Letter of Acceptance, the Client does not agree on the appointment of the Adjudicator, the Client will request the Appointing Authority designated in the Particular Conditions of Contract (PCC) pursuant to Clause 23.1 of the General Conditions of Contract (GCC), to appoint the Adjudicator.

# Section II - Bid Data Sheet (BDS)

## A. Introduction

| | |
|---|---|
| **ITB 1.1** | The Client is:<br>**THE ROAD DEVELOPMENT AGENCY**<br>**CORNER OF FAIRLEY/GOVERNMENT ROAD**<br>**P.O. BOX 50003**<br>**LUSAKA-ZAMBIA.** |
| **ITB 1.1** | The name of the bidding process is: **TENDER FOR THE EXPANSION OF SHIMABALA TOLL PLAZA**<br>The identification number of the bidding process is: RDA/CE/ONB/005/2025 |
| **ITB 2.1** | **The Client is: The Road Development Agency** |
| **ITB 2.1** | The name of the Project is: **TENDER FOR THE EXPANSION OF SHIMABALA TOLL PLAZA** |
| **ITB 4** | Bidding will be conducted through Open National Bidding procedures in accordance with Section 39 of the Public Procurement Act No.8 of 2020 |
| **ITB 4.1(a)** | The individuals or firms in a JV shall be jointly and severally liable. |

## B. Bidding Documents

| | |
|---|---|
| **ITB 7.1** | For **clarification purposes** only, the Client's address is:<br>Attention: **THE CHIEF PROCUREMENT MANAGER**<br>Street Address***:***<br>**ROAD DEVELOPMENT AGENCY - HQ**<br>**CORNER OF GOVERNMENT/FAIRLEY ROAD**<br>**P.O. BOX 50003**<br>City: **LUSAKA**<br>Country: **ZAMBIA**<br>Telephone: **+260-211-253088/254838/253801**<br>Facsimile number: **+260-211-253404/251420**<br>Electronic mail address: ssimweleba@roads.gov.zm. 0970 122 656 |

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|---|---|
| **ITB 7.2** | Requests for clarification should be received by the Client **no later than 14 days before the closing date.**<br><br>A **mandatory site visit** shall be organized by the Client. A pre-bid meeting shall be held after the site visit.<br><br>**Time: 10:00 hours**<br><br>**Date: Friday, 19th December, 2025**<br><br>**Venue: Shimabala Toll Plaza** |

## C. Preparation of Bids

| | |
|---|---|
| **ITB 10.1** | The language of the bid is: **ENGLISH** |
| **ITB 11.1** | The following forms shall be submitted with the bid: Letter of Bid, Bill of Quantities/ Schedules of Prices, Table(s) of Adjustment Data, Form of Bid-Securing Declaration, Technical Proposal Forms, Form PER – 1: Proposed Personnel, Form PER – 2: Resume of Proposed Personnel, Forms for Equipment, Form ELI 1.1, Form ELI 1.2 (Party to JV Information Sheet if JV), Form CON – 2 (Historical Contract Non-Performance), Form CON – 2 (Historical Contract Non-Performance include separate list for non-performance contracts where APPLICABLE), Financial Situation Forms (Historical Financial Performance), Form FIN – 3.2 (Average Annual Turnover), Form FIN3.3 (Financial Resources), Experience (General Experience), Form EXP – 2.4.2(a) (Specific Experience – (a) all completed works shall include proof of completion, (b) ongoing works shall include proof through copy of approved IPC or signed page of the contract), Form EXP – 2.4.2(a) (cont.) (Specific Experience (cont.)), Form EXP – 2.4.2 (b) (cont.) (Specific Experience in Key Activities (cont.)), the Bidder shall provide the information requested in the corresponding Information Sheets and neglecting to do shall cause disqualification. Alteration of the above bid forms shall cause disqualification. |
| **ITB 11. 1 (a)** | The Bidder shall submit with its bid the following additional documents:<br><br>a) Valid National Council for Construction Certificate, Category R Grade 1<br><br>b) Latest valid Tax Clearance and VAT Registration Certificates from Zambia Revenue Authority<br><br>c) Latest valid National Pensions Social Security Certificate - NAPSA<br><br>d) Information regarding litigation status should be from bidders' Advocate(s) A written statement by the bidder himself or any other person shall not be accepted |

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|---|---|
| | c) Historical Contract Non-Performance Item 2.2.1 must be fully and adequately filled.<br><br>d) PACRA Certified and valid Beneficial Ownership Declaration of the firm<br><br>e) Bidders shall mandatorily provide a detailed list of non-performing contracts including reasons for non-performance. Attempts to conceal information shall lead to disqualification. In case of such omission the Ministry shall reject such bid, without thereby incurring any liability to the Bidder. In case of such an annulment, the bid submitted and specifically, bid securities, shall be promptly returned to the Bidder.<br><br>f) Bid validity for 90 days from date of submission<br><br>g) PACRA Registration Certificate<br><br>h) Workers Compensation certificate<br><br>i) Dully signed Bid letter |
| **ITB 11.1 (b)** | The following schedules shall be submitted with the bid:<br><br>• Priced Bill of Quantities<br>• Preliminary Concept Design of the roads consistent with Minimum dimensions as shown in the "Client's Requirements" - Typical Drawings or dimensions.<br>• Quality Assurance Plan<br>• Project Risk Management Plan<br>• 20% Subcontracting Proposal<br>• Personnel and Equipment inventories<br>• Mobilization Schedule & Construction Schedule<br>• Work Plan, Method Statements and Site Organization |
| **ITB 13.1** | Alternative bids shall not be permitted; |
| **ITB 13.2** | Alternative times for completion **shall not be** permitted.<br><br>If alternative times for completion are permitted, the evaluation method will be as specified in Section III (Evaluation and Qualification Criteria). |
| **ITB 13.4** | Alternative technical solutions shall be permitted for the following parts of the Works: **Pavement layers and road dimensions (carriageway and shoulder widths)** |

| | |
|---|---|
| **ITB 14.6** | The prices quoted by the Bidder are **NOT** subject to adjustment during the performance of the Contract. |
| **ITB 15.1** | The prices shall be quoted by the bidder in: Zambian Kwacha **(ZMW)** |
| **ITB 18.1** | The Bid shall be valid for **150** days after the date of bid closing. |
| **ITB 19.1** | Bid shall include a Bid Securing Declaration or a surety using the form for bid securing Declaration included in Section XI Security Forms. |
| **ITB 19.3 (d)** | **Not applicable** |
| **ITB 20.1** | In addition to the original of the bid, the number of copies is: **Four (4).**<br>Bidders **shall also submit an electronic copy of their bid in pdf format on a CD-ROM and Flash Drive in addition to the hardcopies.** |
| **ITB 20.2** | The written confirmation of authorization to sign on behalf of the Bidder shall be: a **Power of Attorney**<br>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 all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution shall also be submitted. |

**D. Submission and Opening of Bids**

| | |
|---|---|
| **ITB 21.1** | **Not applicable** |
| **ITB 21.1 (b)** | If bidders shall have the option of submitting their bids electronically, the electronic bidding submission procedures shall be: **E-GP System** |
| **ITB 22.1** | For **bid submission purposes** only, the Client's address is:<br><br>E-GP System<br>Contact Number: +260-211-253088<br>City: LUSAKA |

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|---|---|
| | **ZAMBIA**<br>**The deadline for bid submission is:**<br>**Date: Wednesday, 31st December, 2025**<br>**Time: 15:00 hours** |
| **ITB 25.1** | The bid opening shall take place at:<br>E-GP System<br>City: LUSAKA<br>**Country: ZAMBIA**<br>**Date: Wednesday, 31st December, 2025**<br>Time: Immediately after bid submission deadline |
| **ITB 25.1** | If electronic bid submission is permitted in accordance with ITB 21.1, the specific bid opening procedures shall be: **E-GP System** |

## E. Evaluation and Comparison of Bids

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|---|---|
| **ITB 32.1** | **Not applicable** |
| **ITB 33.1** | **Not applicable** |
| **ITB41.1** | The Standard Form of Performance Security acceptable to the Client shall be an Unconditional Bank Guarantee. **Performance Bonds from Insurance companies will be accepted**<br>The Bank Guarantee or the Bond from Insurance companies shall be unconditional (on demand) (see Section X: Security Forms) and shall be in an amount not less than ***10 %*** of the Contract Price. |
| ITB 42.1 | The Adjudicator proposed by the Client is a person to be nominated by the Chartered Institute of Arbitrators (Zambia)<br>The hourly fee for this proposed Adjudicator shall be ZMW 650.00. |

# Section III – Evaluation and Qualification Criteria

This section contains all the criteria that the Client shall use to evaluate bids and qualify Bidders if the bidding was not preceded by a prequalification exercise and post qualification is applied. In accordance with ITB 34 and ITB 36, no other methods, criteria and factors shall be used. The Bidder shall provide all the information requested in the forms included in Section 4 (Bidding Forms).

**Table of Criteria**

**Evaluation**

*In addition to the criteria listed in ITB 34.2 (a) – (e) the following criteria shall apply under ITB 34.2 (f):*

**i. 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 (Client's Requirements).*

**ii. Multiple Contracts**

*Pursuant to Sub-Clause 34.4 of the Instructions to Bidders, if Works are grouped in multiple contracts, evaluation will be as follows:* ***Not applicable***

**iii. Completion Time**

*An alternative Completion Time, if permitted under ITB 13.2, will be evaluated as follows:* ***Not applicable***

**1.4 Technical Alternatives**

*Technical alternatives, if permitted under ITB 13.4, will be evaluated as follows:*

***Evaluation of Alternative Technical Proposals will include an assessment of the Bidder's technical capacity to mobilize key equipment and personnel for the contract consistent with the Alternative Proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section VI (Client's Requirements) to ensure a fit-for-purpose product.***

**1.5 Margin of Preference [Applicable for OIB only]**

*If a margin of preference shall apply under ITB 33.1, the procedure will be as follows as:* ***Not applicable***

# 2. Qualification

| **Factor** | **2.1 Eligibility** | | | | | |
|---|---|---|---|---|---|---|
| **Sub-Factor** | Criteria | | | | | **Documentation Required** |
| | **Requirement** | **Bidder** | | | | |
| | | **Single Entity** | **Joint Venture, Consortium or Association** | | | |
| | | | **All partners combined** | **Each partner** | **At least one partner** | |
| 2.1.1 Nationality | Nationality in accordance with ITB 4.2. | Must meet requirement | Existing or intended JV must meet requirement | Must meet requirement | N / A | Form ELI –1.1 and 1.2, with attachments |
| 2.1.2 Conflict of Interest | No- conflicts of interests as described in ITB 4.3. | Must meet requirement | Existing or intended JV must meet requirement | Must meet requirement | N / A | Letter of Bid |
| 2.1.3 Ineligibility | Not having been declared ineligible by ZPPA as described in ITB 4.4. | Must meet requirement | Existing JV must meet requirement | Must meet requirement | N / A | Letter of Bid |
| 2.1.4 Government Owned Entity | Compliance with conditions of ITB 4.5 | Must meet requirement | Must meet requirement | Must meet requirement | N / A | Form ELI –1.1 and 1.2, with attachments |
| 2.1.5 Ineligibility based on a United Nations resolution or Zambian law | Not having been excluded as a result of the laws of Zambia or official regulations, or by an act of compliance with UN Security Council resolution, in accordance with ITB 4.8 | Must meet requirement | Existing JV must meet requirement | Must meet requirement | N / A | Letter of Bidder |
| 2.1.6 NCC Registration | Registration with NCC in accordance with ITB 4.2 | Must meet requirement | Existing JV must meet requirement | Must meet requirement | N / A | Certificate of Registration |

| **Factor** | **2.2 Historical Contract Non-Performance** | | | | | |
|---|---|---|---|---|---|---|
| **Sub-Factor** | Criteria | | | | | **Documentation Required** |
| | **Requirement** | **Bidder** | | | | |
| | | **Single Entity** | **Joint Venture, Consortium or Association** | | | |
| | | | **All partners combined** | **Each partner** | **At least one partner** | |
| 2.2.1 History of non-performing contracts | Non-performance of a contract did not occur within the last **five (5)** years prior to the deadline for application submission, based on all information on fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the Dispute Resolution Mechanism under the respective contract, and where all appeal instances available to the bidder have been exhausted. | Must meet requirement by itself or as partner to past or existing JVA | N/A | Must meet requirement by itself or as partner to past or existing JVA | N/A | Form CON – 2 |
| 2.2.2 Pending Litigation | All pending litigation shall in total not represent more than **fifteen percent (15%)** of the Bidder's net worth and shall be treated as resolved against the Bidder. | Must meet requirement by itself or as partner to past or existing JVA | N/A | Must meet requirement by itself or as partner to past or existing JVA | N/A | Form CON – 2 |
| 2.2.3 Beneficial Ownership | Bidders shall be required to submit a PACRA certified, updated and accurate beneficial ownership information of the Entity | Must meet requirement by itself or as partner to past or existing JVA | Applicable | Must meet requirement by itself or as partner to past or existing JVA | N/A | Form CON – 2 |

| **Factor** | **2.3 Financial Situation** | | | | | |
|---|---|---|---|---|---|---|
| **Sub-Factor** | Criteria | | | | | **Documentation Required** |
| | **Requirement** | **Bidder** | | | | |
| | | **Single Entity** | **Joint Venture, Consortium or Association** | | | |
| | | | **All partners combined** | **Each partner** | **At least one partner** | |
| 2.3.1 Historical Financial Performance | Non-performance of a contract did not occur within the last **five (5)** years prior to the deadline for application submission, based on all information on fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the Dispute Resolution Mechanism under the respective contract, and where all appeal instances available to the bidder have been exhausted. | Must meet requirement by itself or as partner to past or existing JVA | N/A | Must meet requirement by itself or as partner to past or existing JVA | N/A | Form FIN – 3.1 with attachments |
| 2.3.2. Average Annual Turnover | Minimum average annual construction turnover calculated as total certified payments received for contracts in progress or completed, within the last five (5 years) – **ZMW 900 million** | Must meet requirement | N/A | N/A | Must meet the requirement | Form FIN –3.2 |

| **Factor** | **2.3 Financial Situation** | | | | | |
|---|---|---|---|---|---|---|
| **Sub-Factor** | Criteria | | | | | **Documentation Required** |
| | **Requirement** | **Bidder** | | | | |
| | | **Single Entity** | **Joint Venture, Consortium or Association** | | | |
| | | | **All partners combined** | **Each partner** | **At least one partner** | |
| 2.3.3. Financial Resources | Submission of audited balance sheets for the last five (5) years to demonstrate:<br>(a) the current soundness of the bidder's financial position and its prospective long-term profitability, and<br>(b) The Bidder must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet:<br>(i) The following cash-flow requirement:<br>**ZMW 150 Million ,** and<br>(ii) The overall cash flow requirements for this contract and its current commitments. | Must meet requirement | N/A | N/A | Must meet the requirement | Form FIN –3.3 |

| ***Factor*** | ***2.4 Experience*** | | | | | |
|---|---|---|---|---|---|---|
| ***Sub-Factor*** | *Criteria* | | | | | ***Documentation Required*** |
| | ***Requirement*** | ***Bidder*** | | | | |
| | | ***Single Entity*** | ***Joint Venture, Consortium or Association*** | | | |
| | | | ***All partners combined*** | ***Each partner*** | ***At least one partner*** | |
| **2.4.1DESIGN Experience** | Experience of contractor's personnel in the roles of ROAD-DESIGNER for at least the last three (3) years prior to Bid submission deadline, and with activity in at least 6 months each year | Must meet requirement | N/A | N/A | Must meet requirements | Form EXP-4.1 |
| 2.4.2 Specific Experience | **Participation of Contractor's personnel as ROAD-DESIGNER in at least 3 contracts within the last five (5) years, with** a total value of at least **ZMW 4.5 million** or equivalent, that have been successfully and substantially completed and that are similar to the proposed Works. Similarity shall be based on the physical size, complexity, methods, technology or other characteristics as described in Client's Requirements.<br><br>Participation as contractor, management contractor, or subcontractor, **in at least three (3) contracts within the last ten (10) years, together with a** | Must meet requirement | N/A | N/A | Must meet requirements | Form EXP 2.4.2(a) |

| ***Factor*** | ***2.4 Experience*** | | | | | |
|---|---|---|---|---|---|---|
| ***Sub-Factor*** | *Criteria* | | | | | ***Documentation Required*** |
| | ***Requirement*** | ***Bidder*** | | | | |
| | | ***Single Entity*** | ***Joint Venture, Consortium or Association*** | | | |
| | | | ***All partners combined*** | ***Each partner*** | ***At least one partner*** | |
| | **value of at least ZMW 50 Million, that have been successfully and substantially completed and that are similar to the proposed Works. The similarity shall be based on the physical size, complexity, methods/technology as described in Section VI, Client's Requirements.** | | | | | |
| 2.4.3 Specific Experience in Key Activities (Construction) | b) For the above or other contracts executed during the period stipulated in 2.4.2 above, minimum Design-experience of the contractor and his personnel in the following key activities:<br>• Drainage structures.<br>• Earthworks<br>• Embankments.<br>• Bridge/crossing-points construction.<br>• Road furniture. | Must meet requirements | N/A | N/A | Must meet requirements | Form EXP-2.4.2(b) |

| ***Factor*** | ***2.4 Experience*** | | | | | |
|---|---|---|---|---|---|---|
| ***Sub-Factor*** | *Criteria* | | | | | ***Documentation Required*** |
| | ***Requirement*** | ***Bidder*** | | | | |
| | | ***Single Entity*** | ***Joint Venture, Consortium or Association*** | | | |
| | | | ***All partners combined*** | ***Each partner*** | ***At least one partner*** | |
| **2.4.4 General Construction Experience** | Experience under contracts in the role of contractor, subcontractor, or management contractor for at least the last six (6) years prior to Bid submission deadline, and with activity in at least nine (9) months each year. | Must meet requirement | N/A | N/A | Must meet requirements | Form: General Construction Experience |

## Personnel

Qualifications and experience of the following key site management and technical personnel proposed for the Contract are required:

## PHASE I – DESIGN

### 1. Team Leader/Highway Engineer

He/She shall have a **minimum** of a Master's Degree in Highway or Civil Engineering with a minimum of 15 years' experience in road design and construction. (Any higher qualifications in a relevant field will be an added advantage). He/She shall be a registered member of a recognized professional body and registered to practice by an appropriate body such as the Engineers' Registration Board (E.R.B) or similar professional bodies. He/She shall have at least 5 years' experience in carrying out feasibility studies and engineering designs of road construction projects. He/She shall have relevant experience including a working knowledge of the disciplines involved in such studies (in particular geometric design, pavement design and materials investigation, cost engineering and safety issues) as well as experience in managing feasibility studies and project design for similar assignments based on SATCC, particularly in coordinating a multidisciplinary team of experts.

He will also be familiar with FIDIC and/or other internationally recognized forms of Contract procedures and administration. He/She should have at least 5 years' experience in road construction works in developing countries, preferably in Southern Africa. Experience in Zambia will be an added advantage.

### 2. Pavement/Materials Engineer

He/She shall have a **minimum** of a Bachelor's Degree in Highway or Civil Engineering (Any higher qualifications in a relevant field will be an added advantage) and a minimum of 10 years relevant experience in pavement design and road engineering materials both in the field and laboratory. He/She shall be a registered member of a recognized professional body and registered to practice by an appropriate body such as the Engineers Registration Board (E.R.B) or similar professional bodies.

He/She shall have experience in soil and materials testing both in the laboratory and in the field, especially related to road construction. He/She should have at least 5 years' experience in **rigid pavement design and construction works** and materials technology. Experience in Zambia will be an added advantage.

### 3. Drainage Expert

He/She shall have a **minimum** of a Bachelor's Degree in Highway or Civil Engineering (any higher qualifications in a relevant field will be an added advantage) with a minimum of 10 years' experience in similar assignments and responsibility. He/She

shall have specific experience in the design of highway drainage/bridge structures and in carrying out hydrological studies.

He/She shall be a registered member of a recognized professional body and registered to practice by an appropriate body such as the Engineers Registration Board (E.R.B) or similar professional bodies. He/She should have at least 8 years' experience in Highway Drainage/Bridge Structures and should have carried out hydrological studies in developing countries, preferably in Southern Africa. Experience in Zambia will be an added advantage.

**4. Surveyor**

He/She shall have a **minimum** of a Bachelor's Degree in Geomatic Engineering or Land Surveying. He/she shall be a member of a professional body such as the Engineering Institution of Zambia (E.I.Z) and registered to practice by an appropriate body such as the Engineers Registration Board (E.R.B) and the Surveying Institute of Zambia or similar professional bodies. He/she shall have a minimum of 7 years relevant experience in topographic surveys in highway engineering works for road projects using computerized survey software for longitudinal and cross-sections profiles for existing and new proposed alignments.

He/She should have at least 5 years' experience in field surveying in developing countries, preferably in Southern Africa. Experience in Zambia will be an added advantage.

**5. Environmental Specialist**

He/She shall have a **minimum** of a Degree in Environmental Management, Natural Resource Management or equivalent with minimum 7 years' experience in similar works.

He/She should have at least 5 years' experience in environmental management in developing countries, preferably in Southern Africa. Experience in Zambia will be an added advantage.

**Phase II – CONSTRUCTION**

**1. Contracts Manager**

He/she shall be responsible for all Contract Management, Planning, Scheduling, Site Organization, Quality Assurance and related duties.

**Minimum Qualification:**

- He/She shall have a Bachelor's Degree in Civil/Highway Engineering or similar qualification, with 15 years professional experience of which at least 8 as Contract Manager on similar works; and
- He/She shall be a registered member of EIZ and registered to practice by the Engineers Registration Board (E.R.B) or similar professional body.

**2. Subcontract(s) Manager**

- He/She shall be responsible for the management of all the sub-Contracts, comprising project management, Contract management, financial management and operations management and related duties including training/mentorship.

**Minimum Qualification:**

- He/She shall have a Bachelor's Degree in Civil/Highway Engineering, with 10 years professional experience of which at least 5 years' experience as site agent on similar works.
- He/She shall be a registered member of EIZ and registered to practice by the Engineers Registration Board (E.R.B) or a similar professional body.
- He/She shall be fluent in both written and spoken English language.

**3. Materials/Geotechnical Engineer**

He/She shall be responsible for all aspects of materials quality controls including sampling/testing and certifying the quality control (QC) for the works and maintaining proper records.

**Minimum Qualification:**

- He/She shall have a Bachelor's Degree in Civil/Highway Engineering with 10 years' experience on road construction projects of which 5 years on similar projects.
- He/She shall be a registered member of a recognized professional body and registered to practice by an appropriate body such as the Engineers Registration Board (E.R.B) or similar professional body.

**4. Site Engineer/Agent**

He/She shall be responsible for all technical aspects of the project implementation, measurement, quality controls and documentation.

**Minimum Qualification:**

- He/She shall have a Bachelor's Degree in Civil /Highway Engineering with 10 years' experience on road and bridge construction projects of which five 5 years on similar projects; and
- He/She shall be a registered member of EIZ and registered to practice by the Engineers Registration Board (E.R.B) or similar professional body.

**5. Materials Foreman**

He/She shall be responsible for all aspects of quality controls including sampling/testing and certifying the quality control (QC) for the works.

**Minimum Qualification:**

- He/She shall have Diploma Civil/Highway Engineering with 8 years' experience on roads construction projects of which 5 years on similar projects involving concrete works.
- He/She shall be a registered member of EIZ or similar professional body.

**6. Surveyor**

He/She shall be responsible for laying out alignment and providing /monitoring all levels and tolerance during the construction works.

**Minimum Qualification:**

- He/She shall have a Bachelor's Degree in Geomatic/Civil Engineering with 10 years' work experience including specific experience as surveyor on road construction projects with 8 years' experience.
- He/She shall be a registered member of a recognized professional body and registered to practice by an appropriate body such as the Surveyors Institute of Zambia (SIZ) and/or EIZ.

**7. Earthworks foreman**

He/She shall be responsible for construction of embankment fill, pavement layers, compaction control and base stabilization control.

**Minimum Qualification:**

- Diploma in civil engineering with 8 years' work experience as roadwork foreman on roads, dams and/or bridge project.
- He/She shall be a registered member of EIZ or a recognized professional body.

**8. Laboratory Supervisor**

He/She shall be responsible for carrying out all laboratories testing and on-site sampling/testing of materials and works.

**Minimum Qualifications**

- He/She shall have a Diploma in civil engineering/materials testing and 8 years' experience with concrete and soil testing.
- He/She shall be a registered member of EIZ.

All bidders shall provide details of the proposed key personnel and their experience records in the relevant qualification information forms included in section IV.

| No. | Position | Total Work Similar Experience (years) | In Similar Works Experience (years) |
|---|---|---|---|
| 1 | Contract Manager | 15 | 8 |

| | | | |
|---|---|---|---|
| 2 | Subcontract(s) Manager | 10 | 5 |
| 3 | Materials/Geotechnical Engineer | 10 | 5 |
| 4 | Site Engineer/Agent | 10 | 5 |
| 5 | Materials Foremen | 8 | 5 |
| 6 | Surveyor | 7 | 8 |
| 7 | Earthworks Foreman | 8 | 8 |
| 8 | Laboratory Supervisor | 8 | 8 |

**EQUIPMENT**

The minimum number of essential equipment to be made available for the Contract by the successful Bidder shall be:

- 10 No. Tipper Trucks (15 $m^3$),
- 1 Low-bed and horse
- 5 No. Water browser (13 000 litres)
- 2 No. Self-propelled graders (Cat140H or equivalent)
- 4No. Flat wheel vibrating roller (steel drums) with 10 to 20 ton capacity
- 2No. Pneumatic rollers (20t)
- 2 No. Pedestrian rollers
- 5 No. Plate compactors
- 5 No. Front-end loader with 2 to 3 $m^3$ capacity
- 2 No. Bulldozer D8
- 2 No. excavators (Cat 322 or similar)
- 2 No. T.L.B (tractor, loader, backhoe) 48Kw capacity
- 10 No. Poker Vibrators
- 7 No. Concrete mixers (9 cubic feet,8hp)
- 2 No. Tractor and trailer
- 4 No. concrete dumpers (6m3 capacity)
- 1 No. 50 KVA generator
- 1 No. 30T mobile crane
- 10 No. water pumps & accessories
- And any other essential equipment that the bidder may identify which is essential for the successful execution of the project.

# Section IV - Bidding Forms

## Table of Forms

# Letter of Bid

*The Bidder must prepare the Letter of Bid on stationery with its letterhead clearly showing the Bidder's complete name and address.*

***Note: All italicized text is for use in preparing this form and shall be deleted from the final products.***

Date: _____
Bidding No.: _____
Invitation for Bid No.: _____

To:

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:
_____;

(c) The total price of our Bid, excluding any discounts offered in item (d) below is: _____;

(d) The discounts offered and the methodology for their application are: _____;

(e) Our bid shall be valid for a period of _____ *[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 price adjustment provisions apply, the Table(s) of Adjustment Data shall be considered part of this Bid;[6]

(g) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Document;

(h) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from eligible countries;

---

[6] *Include if price adjustment provisions apply in the Contract in accordance with PCC Sub-Clause **13.8 Adjustments for Changes in Cost**.*

(i) 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;

(j) 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, other than alternative offers submitted in accordance with ITB 13;

(k) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible by ZPPA or by an act of compliance with a decision of the United Nations Security Council;

(l) We are not a government owned entity / We are a government owned entity but meet the requirements of ITB 4.5;[7]

(m) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract:[8]

| Name of Recipient | Address | Reason | Amount |
|---|---|---|---|
| | | | |
| | | | |

(n) 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;

(o) We understand that you are not bound to accept the best-evaluated bid or any other bid that you may receive; and

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

_____

Name: .....

In the capacity of: .....

Signed: .....

Duly authorized to sign the Bid for and on behalf of: .....

Date: .....

[7] ***Use one of the two options as appropriate.***
[8] ***If none has been paid or is to be paid, indicate "none".***

# Schedules

## Bill of Quantities/ Schedules of Prices

| S/N | Description | Unit | Quantity | Rate | Amount (ZMW) |
|---|---|---|---|---|---|
| 1 | Professional Fees for Design | Lump.sum | 1 | | |
| 2 | Preliminary and General Items (Fixed) | Lump.sum | 1 | | |
| 3 | Preliminary and General Items (Value related) | Lump.sum | 1 | | |
| 4 | Preliminary and General Items (Time related) | mnths | 18 | | |
| 5 | Provision of residential and Office accommodation for the Engineer | Lump.sum | 1 | | |
| 6 | Maintenance of the residential and Office accommodation for the Engineer | mnths | 18 | | |
| 7 | Accommodation of Traffic | Prov. Sum | 1 | | |
| 8 | Earthworks | $m^3$ | 700,000 | | |
| 9 | Base/Wearing course (200mm) | $m^3$ | 200,000 | | |
| 10 | Drainage and Structures | Prov. Sum | 1 | | 10,000,000 |
| 11 | Testing and Quality Control | Prov. Sum | 1 | | 1,500,000 |
| 12 | Ancillary Roadworks | Prov. Sum | 1 | | 8,000,000 |
| | Sub-Total | | | | |
| | | | | | |
| | Add Contingency @5% | | | | |
| | | | | | |
| | Sub-Total | | | | |
| | | | | | |
| | VAT @ 16% | | | | |
| | | | | | |
| **GRAND TOTAL** | | | | | |

# Form of Bid Security (Bank Guarantee)

_____ *[Bank's Name, and Address of Issuing Branch or Office]*

**Beneficiary:** _____ *[Name and Address of* Client*]*

**Date:** _____

**BID GUARANTEE No.:** _____

We have been informed that _____ *[name of the Bidder]* (hereinafter called "the Bidder") has submitted to you its bid dated _____ (hereinafter called "the Bid") for the execution of _____ *[name of contract]* under Invitation for Bids 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 _____ *[name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of _____ *[amount in figures]* (_____) *[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 its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or

(b) having been notified of the acceptance of its Bid by the Client during the period of bid validity, (i) fails or refuses to execute the Contract Form, if required, or (ii) fails or refuses to furnish the performance security, in accordance with the ITB.

This guarantee will expire: (a) if the Bidder is the successful Bidder, upon our receipt of copies of the contract signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; and (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy your notification to the Bidder of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of the Bidder's bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

_____

[signature(s)]

# **Form of Bid Security** (Bid Bond)

BOND NO. _____

BY THIS BOND *[name of Bidder]* as Principal (hereinafter called "the Principal"), and *[name, legal title, and address of surety],* **authorized to transact business in** *[name of country of* Client*],* as Surety (hereinafter called "the Surety"), are held and firmly bound unto *[name of* Client*]* as Obligee (hereinafter called "the Client") in the sum of *[amount of Bond]*[9] *[amount in words]*, for the payment of which sum, well and truly to be made, we, the said Principal and Surety, bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has submitted a written Bid to the Client dated the ___ day of _____, 20__, for the construction of *[name of Contract]* (hereinafter called the "Bid").

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal:

(a) withdraws its Bid during the period of bid validity specified in the Form of Bid; or

(b) having been notified of the acceptance of its Bid by the Client during the period of Bid validity; (i) fails or refuses to execute the Contract Form, if required; or (ii) fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders;

then the Surety undertakes to immediately pay to the Client up to the above amount upon receipt of the Client's first written demand, without the Client having to substantiate its demand, provided that in its demand the Client shall state that the demand arises from the occurrence of any of the above events, specifying which event(s) has occurred.

The Surety hereby agrees that its obligation will remain in full force and effect up to and including the date 28 days after the date of expiration of the Bid validity as stated in the Invitation to Bid or extended by the Client at any time prior to this date, notice of which extension(s) to the Surety being hereby waived.

IN TESTIMONY WHEREOF, the Principal and the Surety have caused these presents to be executed in their respective names this ____ day of _____ 20__.

Principal: _____ Surety:

_____

Corporate Seal (where appropriate)

_____

_____

[9] The amount of the Bond shall be denominated in the currency of the *Client*'s country or the equivalent amount in a freely convertible currency.

_

*(Signature)*

*(Printed name and title)*

*(Signature)*

*(Printed name and title)*

# Form of Bid-Securing Declaration

Date: *[insert date (as day, month and year)]*
Bid No.: *[insert number of bidding process]*
Alternative No.: *[insert identification No if this is a Bid for an alternative]*

To: *[insert complete name of* Client*]*

We, the undersigned, declare that:

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

We accept that we will automatically be suspended from being eligible for bidding in any contract with Government for the period of time of **36 months** starting **from the bid submission date***,* if we are in breach of our obligation(s) under the bid conditions, because we:

(a) have withdrawn our Bid during the period of bid validity specified in the Letter of Bid; or

(b) having been notified of the acceptance of our Bid by the Client during the period of bid validity, (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the ITB.

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

Signed: *[insert signature of person whose name and capacity are shown]*

In the capacity of *[insert legal capacity of person signing the Bid-Securing Declaration]*

Name: *[insert complete name of person signing the Bid-Securing Declaration]*

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

Dated on _____ day of _____, _____ *[insert date of signing]*

Corporate Seal (where appropriate)

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

# Technical Proposal

## Technical Proposal Forms

- **Personnel**
- **Design Methodologies/Concepts/Standards**
- **Equipment**
- **Site Organization**
- **Method Statement**
- **Mobilization Schedule**
- **Construction Schedule**
- **Risk Management Plans/Quality management Plans**
- **Others**

# Forms for 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 III (Evaluation and Qualification Criteria). The data on their experience should be supplied using the Form below for each candidate.

| | |
|---|---|
| **1.** | **Title of position** |
| | **Name** |
| **2.** | **Title of position** |
| | **Name** |
| **3.** | **Title of position** |
| | **Name** |
| **4.** | **Title of position** |
| | **Name** |
| **5.** | **Title of position** |
| | **Name** |
| **6.** | **Title of position** |
| | **Name** |
| **etc.** | **Title of position** |
| | **Name** |

## Form PER – 2: Resume of Proposed Personnel

The Bidder shall provide all the information requested below. Fields with asterix (*) shall be used for evaluation.

| | | |
|---|---|---|
| **Position*** | | |
| **Personnel information** | **Name *** | **Date of birth** |
| | **Professional qualifications** | |
| **Present employment** | **Name of** Client | |
| | **Address of** Client | |
| | **Telephone** | **Contact (manager / personnel officer)** |
| | **Fax** | **E-mail** |
| | **Job title** | **Years with present** Client |

Summarize professional experience 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* |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
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| | | |
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| | | |
| | | |

# Forms for 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 III (Evaluation and Qualification Criteria). A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder. The Bidder shall provide all the information requested below, to the extent possible. Fields with asterisk (*) shall be used for evaluation.

| **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** | |

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** | **Telex** |
| **Agreements** | **Details of rental / lease / manufacture agreements specific to the project** | |
| | | |

# 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 1.1**

# Bidder Information Sheet

Date: _____
Bidding No.: _____
Invitation for Bid No.: _____
Page _____ of _____ pages

| |
|---|
| 1. Bidder's Legal Name |
| 2. In case of JV, legal name of each party: |
| 3. Bidder's actual or intended Country of Registration: |
| 4. Bidder's Year of Registration: |
| 5. Bidder's Legal Address in Country of Registration: |
| 6. Bidder's Authorized Representative Information<br>Name:<br>Address:<br>Telephone/Fax numbers:<br>Email Address: |
| 7. Attached are copies of original documents of:<br>☐ Articles of Incorporation or Registration of firm named in 1, above, in accordance with ITB Sub-Clauses 4.1 and 4.2.<br>☐ In case of JV, letter of intent to form JV including a draft agreement, or JV agreement, in accordance with ITB Sub-Clauses 4.1<br>☐ In case of government owned entity from the Client's country, documents establishing legal and financial autonomy and compliance with the principles of commercial law, in accordance with ITB Sub-Clause 4.5. |

**Form ELI 1.2**

# Party to JV Information Sheet

Date: _____
Bidding No.: _____
Invitation for Bid No.:_____
Page _____ of_ _____ pages

| |
|---|
| 1. Bidder's Legal Name: |
| 2. JV's Party legal name: |
| 3. JV's Party Country of Registration: |
| 4. JV's Party Year of Registration: |
| 5. JV's Party Legal Address in Country of Registration: |
| 6. JV's Party Authorized Representative Information<br>Name:<br>Address:<br>Telephone/Fax numbers:<br>Email Address: |
| 7. Attached are copies of original documents of:<br>□□□ Articles of Incorporation or Registration of firm named in 1, above, in accordance with ITB Sub-Clauses 4.1 and 4.2.<br>□ In case of government owned entity from the Purchaser's country, documents establishing legal and financial autonomy and compliance with the principles of commercial law, in accordance with ITB Sub-Clause 4.5. |

**Form CON – 2**

# Historical Contract Non-Performance

Bidder's Legal Name: _____ Date: _____

JV Partner Legal Name: _____ _____

Bidding No.: _____

Page _____ of _____ pages

| Non-Performing Contracts in accordance with (Evaluation and Qualification Criteria) | | | |
|---|---|---|---|
| □□□Contract non-performance did not occur during the stipulated period, in accordance with Sub-Factor 2.2.1 of Section III (Evaluation and Qualification Criteria)<br>□□□Contract non-performance during the stipulated period, in accordance with Sub-Factor 2.2.1 of Section III(Evaluation and Qualification Criteria). | | | |
| Year | Outcome as Percent of Total Assets | Contract Identification | Total Contract Amount (current value, US$ equivalent) |
| _____ | _____ | Contract Identification:<br>Name of Client:<br>Address of Client:<br>Matter in dispute: | _____ |
| Pending Litigation, in accordance with Section III (Evaluation and Qualification Criteria) | | | |
| □□□No pending litigation in accordance with Sub-Factor 2.2.2 of Section III(Evaluation and Qualification Criteria)<br>□ Pending litigation in accordance with Sub-Factor 2.2.2 of Section III(Evaluation and Qualification Criteria), as indicated below | | | |
| Year | Outcome as Percent of Total Assets | Contract Identification | Total Contract Amount (current value, US$ equivalent) |
| _____ | _____ | Contract Identification:<br>Name of Client:<br>Address of Client:<br>Matter in dispute: | _____ |
| _____ | _____ | Contract Identification:<br>Name of Client:<br>Address of Client:<br>Matter in dispute: | _____ |

**Form CCC**

# 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.

| Name of contract | Client, contact address/tel/fax | Value of outstanding work (current ZMW equivalent) | Estimated completion date | Average monthly invoicing over last six months (ZMW/month) |
|---|---|---|---|---|
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| etc. | | | | |

# Financial Situation

## Historical Financial Performance

Bidder's Legal Name: _____ Date: _____

JV Partner Legal Name: _____Bidding No.: _____

Page _____ of _____ pages

To be completed by the Bidder and, if JV, by each partner

| Financial information in ZMW equivalent | Historic information for previous _____ (__) years (ZMW equivalent in 000s) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Year 1 | Year 2 | Year 3 | Year … | Year n | Avg. | Avg. Ratio |
| Information from Balance Sheet | | | | | | | |
| Total Assets (TA) | | | | | | | |
| Total Liabilities (TL) | | | | | | | |
| Net Worth (NW) | | | | | | | |
| Current Assets (CA) | | | | | | | |
| Current Liabilities (CL) | | | | | | | |
| Information from Income Statement | | | | | | | |
| Total Revenue (TR) | | | | | | | |
| Profits Before Taxes (PBT) | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| |
|---|
| |

☐ Attached are copies of financial statements (balance sheets, including all related notes, and income statements) for the years required above complying with the following conditions:

- Must 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 accountant
- 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)

**Form FIN – 3.2**

# Average Annual Turnover

Bidder's Legal Name: _____ Date: _____

JV Partner Legal Name: _____Bidding *No*.: _____

Page _____ of _____ pages

| Annual turnover data (construction only) | | |
|---|---|---|
| Year | Amount and Currency | ZMW equivalent |
| | _____ | _____ |
| | _____ | _____ |
| | _____ | _____ |
| | _____ | _____ |
| | _____ | _____ |
| *Average Annual Construction Turnover | _____ | _____ |

*Average annual turnover calculated as total certified payments received for work in progress or completed over the number of years specified in Section III(Evaluation and Qualification Criteria), Sub-Factor 2.3.2, divided by that same number of years.

**Form FIN3.3**

# Financial Resources

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

| Source of financing | Amount (ZMW equivalent) |
|---|---|
| 1. | |
| 2. | |
| 3. | |
| 4. | |

## Experience

# General Experience

Bidder's Legal Name: ______________________________ Date: ______________________

JV Partner Legal Name: ______________________________Bidding No.: _________________

Page _______ of _______ pages

| Starting Month / Year | Ending Month / Year | Years * | Contract Identification | Role of Bidder |
|---|---|---|---|---|
| ______ | ______ | | Contract name:<br>Brief Description of the Works performed by the Bidder:<br>Name of Client:<br>Address: | _________ |
| ______ | ______ | | Contract name:<br>Brief Description of the Works performed by the Bidder:<br>Name of Client:<br>Address: | _________ |
| ______ | ______ | | Contract name:<br>Brief Description of the Works performed by the Bidder:<br>Name of Client:<br>Address: | _________ |
| ______ | ______ | | Contract name:<br>Brief Description of the Works performed by the Bidder:<br>Name of Client:<br>Address: | _________ |
| ______ | ______ | | Contract name:<br>Brief Description of the Works performed by the Bidder:<br>Name of Client:<br>Address: | _________ |
| ______ | ______ | | Contract name:<br>Brief Description of the Works performed by the Bidder:<br>Name of Client:<br>Address: | _________ |

*List calendar year for years with contracts with at least nine (9) months activity per year starting with the earliest year

**Form EXP – 2.4.2(a)**

# Specific Experience

Bidder's Legal Name: _____ Date: _____

JV Partner Legal Name: _____Bidding No.: _____

Page _____ of _____ pages

| **Similar Contract Number: ___ *[insert specific number]* of ___*[insert total number of contracts* required.** | **Information** | | |
|---|---|---|---|
| Contract Identification | _____ | | |
| Award date<br>Completion date | _____<br>_____ | | |
| | | | |
| Role in Contract | ☐ Contractor | ☐ Management Contractor | ☐ Subcontractor |
| Total contract amount | _____ | | ZMW_____ |
| If partner in a JV or subcontractor, specify participation of total contract amount | _____ % | _____ | ZMW_____ |
| Client's Name: | _____ | | |
| Address:<br><br>Telephone/fax number:<br>E-mail: | _____<br>_____<br>_____<br>_____ | | |

**Form EXP – 2.4.2(a) (cont.)**

## Specific Experience (cont.)

Bidder's Legal Name: _____ Page _____ of _____ pages
JV Partner Legal Name: _____

| **Similar Contract No. __*[insert specific number]* of ___*[insert total number of contracts]* required** | **Information** |
|---|---|
| Description of the similarity in accordance with Sub-Factor 2.4.2(a) of Section III (Evaluation and Qualification Criteria): | |
| Amount | _____ |
| Physical size | _____ |
| Complexity | _____ |
| Methods/Technology | _____ |
| Physical Production Rate | _____ |

**Form EXP – 2.4.2(b)**

# Specific Experience in Key Activities

Bidder's Legal Name: _____ Date: _____

JV Partner Legal Name: _____Bidding No.: _____

Subcontractor's Legal Name: _____ Page _____ of _____ pages

| | Information | | |
|---|---|---|---|
| Contract Identification | _____ | | |
| Award date<br>Completion date | _____<br>_____ | | |
| Role in Contract | ☐ Contractor | ☐ Management Contractor | ☐ Subcontractor |
| Total contract amount | _____ | | ZMW_____ |
| If partner in a JV or subcontractor, specify participation of total contract amount | _____ % | _____ | ZMW_____ |
| Client's Name: | _____ | | |
| Address:<br><br>Telephone/fax number:<br>E-mail: | _____<br>_____<br>_____ | | |

**Form EXP – 2.4.2 (b)(cont.)**

## Specific Experience in Key Activities (cont.)

Bidder's Legal Name: _____ Page _____ of _____ pages
JV Partner Legal Name: _____
Subcontractor's Legal Name: _____

| | Information |
|---|---|
| Description of the key activities in accordance with Sub-Factor 2.4.2(b) of Section III (Evaluation and Qualification Criteria): | |
| | |
| | |
| | |
| | |
| | |

# Section V - Eligible Countries

**Eligibility for the Provision of Goods, Works and Services**

1. In accordance with Section 89 of the Public Procurement Act No. 8 of 2020 and Clause 155 of the Public Procurement Regulations of 2011, the Government permits firms and individuals from all countries to offer goods, works and services for Government-financed projects. As an exception, firms of a Country or goods manufactured in a Country may be excluded if:

   (i): as a matter of law or official regulation, Government prohibits commercial relations with that Country, provided that Cooperating Partners involved are satisfied that such exclusion does not preclude effective competition for the supply of the Goods or Works required, or

   (ii): 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 Government prohibits any import of goods from that Country or any payments to persons or entities in that Country.

2. For the information of bidders, at the present time firms, goods and services from the following countries are excluded from this bidding:

_____
_____

_____
_____

# PART 2 – Client’s Requirements

# Section VI - Client's Requirements

## Table of Contents

# Specifications

## SECTION X – SPECIFICATIONS & PERFORMANCE REQUIREMENTS (TECHNICAL SPECIFICATIONS)

## SECTION X. SPECIFICATIONS & PERFORMANCE REQUIREMENTS

### Preface

The Specifications & Performance Requirements (also referred as Technical Specifications) to be used for this Contract are in three Parts as follows:

Part 1. The General Specification is the Draft SATCC Standard Specification for Road and Bridge Works, September 1998, (reprinted July *2001),* prepared by the Division of Roads and Transport Technology, CSIR, and hereinafter referred to as the Standard Specifications

- **Any other specifications/standards as accepted in the inception/design reports approved by the RDA.**

Part 2. The Specifications of Particular Application

Part 3. Environmental Guidelines for Road Rehabilitation and Maintenance Works, 1997 published by and available from the Ministry of Transport and Communications, Lusaka, Zambia.

Part 1, The SATCC Standard Specification and Part 3, The Environmental Guidelines for Road Rehabilitation and Maintenance Works, 1997 are not included in this volume but may be obtained from Road Development Agency. Part 2 is bound into this document.

The Specifications of Particular Application (SPA) shall complement, amend or supplement the Standard Specification for Roads and Bridges. Whenever there is conflict, the provisions of SPA shall prevail over the General SATCC Specification.

The Contractor shall also execute the Works generally in accordance with Part 2, Section C, the Special Environmental Specifications and Part 3, Environmental Guidelines of these specifications. In the event of any differences between the Special Environmental Specifications and the Environmental Guidelines, the former shall take precedence.

### Equivalency of Standards and Codes

Wherever reference is made in the contract to specific standards and codes to be met by the materials, plant, and other supplies to be furnished, and work to be performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes currently 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 which ensure a substantially equal or higher performance than the standards and codes specified will be accepted subject to the Project Manager's prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the Contractor and submitted to the Project Manager at least 28 days prior to the date when the Contractor desires the Project Manager's approval. In the event

the Project Manager determines that such proposed deviations do not ensure substantially equal performance, the Contractor shall comply with the standards specified in the documents.

## Part 1: GENERAL SPECIFICATIONS OF PARTICULAR APPLICATION

The General Specifications is the Draft SATCC Standard Specification for Road and Bridge Works, September 1988, (reprinted July 2001), prepared by the Division of Roads and Transport Technology, CSIR, and hereinafter referred to as the Standard Specifications is not included in this document.

## Part 2: SPECIFICATIONS OF PARTICULAR APPLICATION

All the requirements of Part 1 of the Technical Specifications relating to materials, quality and workmanship, together with all tests specified shall be adhered to except where modified by the terms of these Specifications of Particular Application as set forth hereinafter. The same section number of part 1 is followed for modification of corresponding section in part 2 with a prefix “B”. The role of the Engineer in part 1 will be performed by the Project Manager defined in General Conditions of Contract.

The terminology used in the SATCC Standard Specifications for alterations, modifications or additions is “Project Specifications” and all reference in this Part 2 to Specifications of Particular Application will be referred to as Project Specifications.

- **Any other specifications/standards as accepted in the inception/design reports approved by the RDA.**

## SECTION A: GENERAL

## A1 MISCELLANEOUS

The Standard Specifications that form part of this Contract have been written to cover all phases of work normally required for road and bridge contracts, and may therefore cover items of work not applicable to this particular Contract.

The Project Specifications form an integral part of the Contract Documents, supplement the Standard Specifications, and take precedence in the event of discrepancies with the Standard Specifications, the Bill of Quantities or the Drawings as per GCC Cl. 2.3.

# A2 DESCRIPTION OF THE WORKS

## A2.1 Introduction

The project is for the TENDER FOR THE UPGRADING TO GRAVEL STANDARD OF APPROXIMATELY 175 KM ROADS IN LIUWA PLAINS NATIONAL PARK IN THE WESTERN PROVINCE-ZAMBIA.

The primary objective of this initiative is to enhance the tourism potential of Liuwa Plain National Park by improving accessibility and connectivity to key tourist attractions, airstrips, and local accommodations. This approach aligns with the principles of sustainable development, aiming to minimize adverse environmental impacts while fostering economic growth and community engagement.

### Current State and Proposed Alignment

At present, there are no established roads along the proposed alignment within Liuwa Plain National Park. The introduction of new road infrastructure is critical to improving access to the park's unique attractions and unlocking its tourism potential.

The project roads are as follows:

1. **(R95)**: Extends from Silanda Bridge in a northeast direction, covering an approximate distance of 50 kilometers, terminating approximately 5km beyond Kuuli;
2. **(RD459)**: Extends from Silanda Bridge in a northwest direction, spanning approximately 50 kilometers, terminating near Kasindu Village;
3. Tapo - Lulambo via Mutalaiti, Ng'anga, Kaama and Ndau, covering approximately 50km in Mongu district, including construction of steel truss bridge at Km3.5; and
4. Limulunga to Makuku Primary School via Nangila, covering approximately 25km.

### Strategic Importance

The development of these roads will facilitate:

- **Enhanced Tourist Access**: Improved connectivity to park entry points, scenic locations, and accommodations will make the park more accessible to both domestic and international tourists.
- **Support for Sustainable Tourism**: The project is designed to adhere to environmental conservation principles, ensuring minimal disruption to the park's ecosystem while promoting eco-friendly tourism practices.
- **Community Benefits**: Improved road infrastructure will provide surrounding communities with better access to markets, healthcare, and education, fostering regional socio-economic development.
- **Increased Park Revenue**: Enhanced accessibility is expected to boost visitor numbers, generating additional revenue that can be reinvested in park conservation and management.

By prioritizing sustainable infrastructure development, this project aims to position Liuwa Plain National Park as a premier eco-tourism destination while safeguarding its unique natural heritage for future generations.

The project has been split into two phases:

**PHASE I: DETAILED ENGINEERING DESIGN**
**PHASE II: CONSTRUCTION**

The Client envisages that the two phases shall run one after the other. The duration for Phase I shall be 6 months and that for phase II shall be 18 months. The total project duration is 60 months with a Defects Liability Period of 36 Months (3 Years).

### A2.2 Project Description

The Project involves the Design and Construction of 175 km road in Liuwa Plain National Park. The Government has recognized the socio-economic significance of the proposed roads and therefore intends to construct the roads premised on the following;

- Currently there are no proper roads round the park to allow the easy transportation of goods and services to villages, schools and health facilities within the plains.
- The terrain is mainly sandy which makes it difficult for vehicles to access the tourist attractions.
- The road will form part of the access route to Lukulu District once it completed.

The principal items of works and services to be carried out will include but not limited to the following:

1. Detailed designs of the pavement and underlying layers for the road
2. Clearing and grubbing
3. Earthworks (and embankments) Construction
4. Base Construction
5. Culverts and crossing-points construction
    - Installation of appropriate drainage structures.
6. Road traffic signs
7. Ancillary works and

## A3. DESCRIPTION OF WORKS

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### A3.1 Nature of the Work

The description of the project as provided in this section is merely an outline of the Contract Works/services and shall not be regarded as limiting the amount of work to be done by the contractor under this contract. The nature of the work required under this project is summarized in sections as follows:

**PHASE I: DETAILED ENGINEERING DESIGN**

## A3.2 SCOPE OF SERVICES

### A3.2.1 General

The specific assignment under these Terms of Reference is to carry out the required detailed engineering designs including environmental studies for the project roads.

The anticipated services would comprise:

1. Traffic investigations and analysis
2. Development of traffic control, deviations, traffic management plans and supervision of their execution.
3. Surface pavement evaluation and residual pavement strength evaluation and analysis.
4. Investigations and testing of road construction materials for both suitability and quantification planning
5. Detailed Hydrological surveys, hydraulic analysis and design of drainage structures
6. Soil tests on the existing roads layers in accordance with SATCC specifications and requirements. Some of the tests to be undertaken include the Dynamic Cone Penetration Test to determine CBR, Grading and the determination of Atterberg Limits.
7. Topographical surveys of the road and related accesses.
8. Detailed designs of roads including all aspects of geometric design of road, pavement, culverts, access design (junction design) and crossing-points/bridges.
9. Detailed Engineering investigation of soil samples, traffic, road alignment, existing pavement (if any) including subgrade, geometry, safety, lighting facilities, pedestrian facilities, drainage, existing services e.g. water and sewer pipes, power lines along the listed roads (if any).
10. Provision of adequate safety features including improved road marking and traffic signs. Pedestrian facilities where appropriate to include Pelican Crossings (Push Buttons) and Zebra Crossings depending entirely of the requirements of each transportation scheme..
11. Environmental impact assessment to identify characteristics likely to have a significant impact on the environment. A relocation plan therefore of utility services will be conducted and a Resettlement Action Plan prepared.
12. Preparation of detailed working drawings using CAD containing all details required for construction including generation of standard drawings for ancillary works
13. Any extra items which can be identified on site as ancillary works;
14. Preparation of a detailed cost estimates (Bills of Quantities).
15. Stakeholder Management and sensitization throughout the project lifecycle.

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### A3.2.2 Quality Assurance Plan

The Contractor shall prepare the Quality Assurance Plan (QAP) with the following sub-items;

- Works Method Statement

- Health, Environment and Safety Issues during construction
- Non-Conformance Reports
- Surfacing Trial Sections

The RDA shall review the QAP which is expected to have comprehensive details.

### A3.2.3. Preliminary Engineering Studies

### A3.2.4. Existing Data Collection

The Design Team shall collect and review all relevant existing data relating to the Project, which should help them in the desk studies, including but not limited to:

- Maps and aerial photographs
- Weather and rainfall data
- Traffic surveys
- Geological
- Geotechnical
- Hydrological data
- Geo-hydrological
- Water sources
- Locations of existing and proposed utilities.
- Location, quality/quantity of borrow pits along the route.
- Location of accommodation.

### A3.2.5. Preliminary Road Reconnaissance

The Design Team shall, concurrently, initiate and conduct a preliminary road reconnaissance survey to prepare inventories of:

1. Road and pavement widths;
2. Route Alignment Adjustment;
3. Condition and structure, using DCP results as a guide;
4. Drainage ditches, drainage structures and their hydraulic sufficiency;
5. Embankment soils and known sources of road construction materials;
6. Utility locations and positions i.e. chainages, offsets, heights and depth;
7. Significant roadside land-use impacting on non-motorized road use,
8. Road safety audit (including road furniture, signalization and traffic barriers); and
9. An environmental review of identified and/or potentially new impacts and shall present this as an Environmental Impact Statement.

#### *a) Drainage Ditches and Structures*

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The road inventory should locate and establish the lengths and types of roadside ditches, noting any obvious deficiencies or damaged conditions. Similarly, the lengths, type and condition (both structural and functional) of cross culverts should be established.

**The Contractor should carry out a step-by-step determination of road operating climatic regime (Wet or dry as per SATCC Table 4.1)**

***b) Embankment Soils, Pavement Structure and Construction Materials***

The pavement condition survey will be complemented with a preliminary sample of auger-holes or test pits, using the DCP results as a guide, sufficient to establish representative existing pavement structure and underlying embankment composition and to assist in defining the limits of homogeneous pavement sections.

The Contractor shall carry out construction materials investigations and report on:

- Materials sources and suitability for intended use;
- Nature and distance (hauling difficulties) to the point of intended use;
- Materials handling experience, extra processing needed i.e. crushing, blending, screening and washing.
- Estimated compacted volumes and cost per unit volume; and
- Possibility and methodology–recycling in the event of re-working.

This inventory will serve to define sections of material scarcity or high transport costs where additional exploration might be justified during later engineering phases.

Similarly the Design Team shall for all identified construction material (gravel and aggregates) source, provide the following:

- Borrow pits and Quarry site location maps detailing haul schedules (free haul, overhauls, loose and compacted volumes);
- Classification of materials against the required Specifications;
- The extent of material coverage for use in fills, pavement layers or surfacing;
- The cement dosage anticipated in case of treated gravel from test results conducted on the material.

***c) Utilities***

The inventory should (i) confirm any reported locations of utilities, and (ii) record any additional utility locations, establishing, in cases, the nature and type of utility and any limitations these might impose on roadwork (including possible needs for utility relocation).

***d) Roadside Features and Road Safety***

The reconnaissance inventories will include the location and extent of significant roadside land use, particularly as it impacts on non-motorized road use and related safety issues.

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The roadside details shall include: Land owner name and address, area of affected land, and any other information necessary for land expropriation

These inventories will constitute inputs to a complete road safety audit which should also consider aspects such as inferior road geometry, poor sight distances, inclement weather and slippery pavements, inadequate junctions or provisions for turning, pedestrians, slow moving traffic, informal shopping etc and, in particular, any history of accident or known “black-spots”.

### A3.2.6. Control (Reference) Surveys

The Design Team shall promptly initiate and carry out the surveys needed to:

- Establish a reference traverse along the selected route, tied into the Zambian National Grid, while re-computing the existing road centre line or re-establishing the PIs, beginning of Curves (BCs) and end of Curves (ECs) on horizontal curves;
- Mark temporary centerline stations at 50m intervals with permanent survey stations (preferably steel pegs in concrete) at reasonable perpendicular offsets either side of the centerline taking into consideration urban properties, restriction; and
- Establish permanent benchmarks at every 1km interval at a reasonable offset LHS perpendicular to the centerline.

These surveys, to which, eventually, all other gathered data should be tied, would serve the needs of the preliminary engineering design; later detailed engineering and construction; and any land acquisition. The survey reference points and bench marks should be tied into Zambian National Grid (using at least 3 trigonometric points) and should be permanently set in appropriately marked, properly protected, reinforced concrete monuments.

### A3.2.7. Traffic Studies

To determine the type and volume of future traffic the Contractor shall analyse all existing statistical data on traffic in the area served by the road. Additional traffic counts and origin and destination studies are required to determine/ confirm the nature of the traffic and the present volume of the freight and passenger movements on the road under study. The necessary additional counts and the Contractor shall undertake other field investigations. In addition the Contractor shall describe and quantify existing and potential traffic, including an analysis of anticipated increase in economic and social activities and generation factors in the area served by the road based on the economic development of the region and the future needs of highway transport that will result from:

- Population growth and changes in rural and urban population distribution;
- National and regional economic growth;
- Development of industry, agriculture, fishing, timber production and tourism in particular within the project area;
- Development of animal husbandry / game management; and
- Effect of the improvement of the road on social services, medical facilities and schools.

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Kindly note that the collection of traffic information on these roads, will be the sole responsibility of the design Contractor. The Contractors will conduct a programme of traffic volume/classification counts to be served on the project roads in relation to the various vehicle types which would comprise this traffic. **The Contractor shall carry out vehicle dimensions studies in the traffic compositions and derive the "design vehicle" based on 85-percentile**

**statistical analysis**. Such additional traffic counts will be 5-day 2-way counts inclusive of three weekdays, a Saturday and Sunday, (i.e. beginning on Wednesday and ending on Sunday) as required by the HMS. The Contractor will justify any recommendations for modifications. **The effect of peak period i.e. public holidays, harvesting seasons, school opening/school closing, wildebeest migration and other ceremony periods should be taken into consideration.**

Based on the above findings the Design Team shall make traffic forecasts for the design period and general forecasts of future traffic for the remaining economic life of the road. These forecasts shall be given at low, medium and high growth rates.

The Design Team will also plan and conduct axle load surveys in agreement with the Road Development Agency, to determine VEF (Vehicle Equivalence Factor) and overloading patterns, which together with traffic volume projections will determine the required pavement strength. Traffic volumes (present and projected), traffic classification results and axle load survey results will be presented in the Draft Final Report.

### A3.2.8. Existing Subgrade Strength

The Design Team will conduct or arrange to carry out the following:

- Visual Condition Surveys (Preliminary Assessments);
- Demarcate homogenous sections;
- Carry out DCP tests to a minimum design depth of 800mm at every 100m interval repeatedly at left, center and right along the direction of the road alignment. The interval can be reduced depending on the ground conditions and the length under consideration;
- Delineation of section based on DCP results to come up with uniform sections;
- Carry out trial pits at every 1km interval (or a minimum of 6 test points at every uniform section) for CBR assessments; and
- Do a correlation of DCP results converted to design moisture content, against CBRs.

### A3.2.9. Preliminary Engineering Analysis

#### *a) Physical Analysis*

The Design Team shall process the data gathered considering, to the extent possible, alternatives of upgrading the roads to bituminous double seal thus providing cost alternatives for economic analysis and, in addition, should prioritize possible solutions according to economic considerations and recognizing the importance of safety, comfort and convenience of the road users.

The analysis of possible solutions and their costs should consider annual maintenance implications and, should include, but not necessarily be limited to, alternative proposals for:

Appropriate drainage measures at identified locations of flooding/drainage problems. Provisional estimates of requirements should be confirmed using hydrological studies. Particular attention must be paid to drainage ditches in urban areas where suitable consideration should be given to pedestrian requirements. Provision of guardrails, road traffic marking and signs should conform to the SATCC standards.

***b) Construction Quantity and Cost Estimates***

The Design Team will prepare work quantity estimates as the basis for cost estimation and should estimate unit prices and estimated costs of alternatives using:

- Transport distance from known material sources;
- Costs for recently completed ICB/NCB works on other road projects (up-dated); and/or
- Labour, equipment and material cost composition including indirect cost mark-ups (broken down into local and foreign components).
- Percentage of cost structures for price escalation

The total estimated costs should include the provision of detours, improvement of haul roads in addition to the costs of mobilization and contractor's overheads (indirect costs) each separately estimated.

The Design Team should, in addition, compare the estimated material requirements for pavement construction with the availability of such material from known sources. Based on this Supply vs. Demand analysis, recommend justified cost-effective solutions for any additional materials exploration and testing needed.

## A3.3 Engineering Design Requirements

### A3.3.1 Horizontal and vertical alignments:

The horizontal alignment of the road centerline-line shall best possible and optimum alignment taking all route determination considerations like safety, economic, environmental, social and political factors. Permanent survey marks (steel pegs in concrete) shall be established at 50m interval off-set on 15m either side of the proposed road center line, and at other critical points like Beginning of Curves, End of Curves and at every Benchmark (1km intervals). Cross-section levels used to generate Digital Terrain Models (DTMs) shall be taken at every 25m interval along the centerline (or at sudden change of slope) at incremental offsets of 5m perpendicular to the centerline. 92

All points shall have x-y-z coordinates values and tied to the National Survey Grid of Zambia, to which the road alignment is linked.

The survey should allow for provision of lay-byes, bus bays, road widening and other traffic appurtenances anticipated within the road servitude

The Design Team should propose an optimum vertical alignment which account for the following:

- Selected road design standard, type, safety and design speed;
- Coordination and harmonization with the horizontal alignment;
- Economic utilization of the earthworks in accordance with the existing terrain; and
- Functionality amongst motorized and non-motorized traffic (conflict, road user costs, safety, etc)

### A3.3.2 Earthworks and Pavement Layers

Engineering Analysis shall be undertaken using the results of the soils and materials tests to determine the gradients of the slopes, compaction requirements, seal bituminous double seal pavement design and other engineering treatment dictated by available natural materials.

A clear empirical method used to come up with a proposed pavement structure/design shall be summarized under the following:

- Traffic studies review and traffic design project over a 20-year pavement useful life
- Geotechnical investigations, testing, analysis, and determination of insitu bearing capacity (Design CBR or Design Subgrade)
- Derivation of road operating environment (weather and climatic conditions).
- Derivation of the best option for the bituminous double seal pavement.

The Design Team shall use one or more of the following Pavement Design Methods that are considered appropriate for this Project.

- Republic of Zambia Ministry of Housing and Infrastructure Development Low Volume Roads Manual Volume 1 Pavement Design
- Republic of Zambia Ministry of Housing and Infrastructure Development Low Volume Roads Manual Volume 2 Geometric Design and Road Safety
- AASHTO 1993
- SATCC Pavement Design Guide 1998
- TRL Pavement Design Guide, 1999
- Any other specifications and standards as approved by the Client in the inception report.

In addition to the above empirical approaches, the Design Team is free to use the Mechanistic approach of pavement design for comparison purposes.

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### A3.3.3 Drainage Design

All existing data and the results of the field investigations for soils, hydrological, etc. shall be assessed and used as the basis for the design of drainage structures and bridges. Detailed hydraulic computations and structural designs shall be fully documented with raw filed data included in Design Reports as appendices. The drainage design shall be clearly presented in the following steps:

- Location with justification of proposed drainage structure;

- Derivation and computation of catchment areas from suitably scaled topo-maps or aerial photos;
- Derivation of Peak Discharges from catchment areas using justifiable flood return period;
- Determination of drainage structure's waterway areas (sizing) using empirical formulas or nomographs.

Detailed designs shall be prepared for all drainage structures and bridges, and shall be specified as standard type structures, which shall be fully designed. Plans, elevations (where needed) and cross-sections of cross culverts; urban ditch, retaining wall details and bridges, should also be presented on separate sheets, to appropriate scales. These should include reinforcing-bar details and quantities.

### A3.3.4Traffic Design

A detailed Engineering analysis shall be prepared to specify the design of the necessary traffic control features. This analysis will include detailed traffic assignment, including where appropriate design traffic forecasts for major intersections. Based on the traffic assignment, the Design Team shall:

- Carry out traffic flow studies;
- Conduct intersection/junction capacity analysis;
- Design intersections or accesses with all control, safety and direction flow features

### A3.3.5 Detailed Engineering Design

The detailed engineering design stage of the assignment shall commence once the Client's comments on the Preliminary Design Report have been received. Included in these comments will the Client's recommendation on which of the proposed technical solutions presented by the Design Team is to be carried forward to detailed design.

Provided that the Preliminary Design Report covers all aspects required by the terms of reference there shall be no need to resubmit it in response to the Client's comments, which shall be implemented in the Draft Final Design Report.

### A3.3.6 Detailed Engineering Documents

(i) Plans and Drawings

Proposed road alignment Tache-plans or Longitudinal lay-out Plan to a scale of horizontal scale of 1:2000 should clearly present the following:

- Chainages at every 200m interval and the extent of road servitude or surveyed road corridor, and at beginning and end of each curve
- 200m by 200m square coordinate grid
- Contours lines at 1.0m height intervals
- Curves with information such as Curve No., Point of Intersection angle, Tangent distance, Length of Circular curve. BC and EC chainages, Proposed Radius (m), direction of curvature, and Coordinates of PI

- Locations of all distinct water ways, existing utilities, existing features, control monuments, junctions/intersection, etc
- Land use, owners' names and cadastral boundaries, existing built up structures within the servitude

As-Built Details – on the upper-most top of each long-section sheet i.e. above the Tache-Plan, there should be provision to fill-in as-built details. This should be a grid / graph sheet on same horizontal scale and chainages with the vertical profile, comprising sub-titles in each row as: Distance (km + m); Base Material (Borrow Pit No, Thickness, Density); Sub-base Material (Borrow Pit No, Thickness, Density), Subgrade Material (Borrow Pit No, Thickness, Density); Bridges & Culverts, Utilities and Date complete/Open to Traffic

The Design Team should provide a sample plan sheet with their Initial Report for comment/approval by the RDA. The Design Team should make any revisions required before producing the final plans. Other details of drawings are as follows:

**Table A3-1: Drawing Details**

| | |
|---|---|
| Traverse and Road Location | 1: 2000 |
| Scale for Plan (Horizontal) | 1:2000 |
| Profile: | 1:200 |
| Vertical alignment showing the following details:<br>• Running centre line chainages (km+m), Original ground levels at LHS, CL and RHS,<br>• Finished/Designed road levels and related Subgrade road levels at LHS, CL and RHS, Side drains cut and fill slopes.<br>• Horizontal alignment data, vertical alignment data,<br>• Proposed drainage structures with their sizes, catchment area and flow directions<br>• Pavement Deign showing all the layer works<br>• Subgrade design class and Design CBR, and<br>• Existing soil survey showing in-situ material/soil classification in horizons up to a depth of 1.0m<br>Natural drainage description longitudinally i.e. sections of Poor (P), Average (A) and Good (G) drainage. | |
| Typical pavement cross section and all details | 1:25 |
| Typical culverts drawings | 1:50 |
| Junction drawings | 1:200 |

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Traffic Appurtenances and Axillary Details: The Design Team shall present to appropriate scales some typical drawings of pavement cross-sections, junctions, road signs, carriageway markings, guard rails, erosion protection works, drainages structures, and other road safety structures, together with their schedule (location, size and quantities)

Structural Details: plans, elevations (where needed) and cross-sections of new cross culverts, culvert extensions and bridges; urban ditch and/or retaining wall details, should also be presented on separate sheets, to appropriate scales. These should Steel detailing and bar-bending schedules.

Soils and Pavement: test pits, soil samples and pavement core results should be presented and keyed to their locations. Separately, map locations of borrow pits as well as larger scale maps of each needed borrow pit and quarry, showing Location, material classification against Specs, and anticipated harvest quantitiesshould be shown.

(ii) Network analysis/ Work scheduling

The Design Team shall prepare a work schedule clearly showing the minimum equipment required and production rate for major items, to successfully complete the works including combination of plant and equipment and number of work gangs /fleet etc.

(iii) Bills of Quantities:

The Design Team should review and refine the preliminary bills of quantities to reflect the quantities needed for the works as approved in the Inception Report and identified during the detailed engineering preparation. All field measurements, raw data and calculations sheets used to generate the works quantities shall be appended at the end of the design report. The reference number of the Technical Specifications for individual pay/work items concerned shall be clearly stated.

(iv) Cost Estimates:

The Design Team should review and refine the preliminary estimates of the unit rates to reflect any modifications needed due to the factors identified during the detailed engineering preparation. The Design Team shall be responsible for taking adequate precautions to safeguard the confidentiality of these cost estimates.

(v) Technical Specifications:

The Design Team should up-date the RDA and SATCC standard technical specifications by providing “Specifications of Particular Application”, to the extent necessary to reflect the needs of rehabilitation and/or repair works. Particular attention should be given to including provisions for the environmental mitigation measures stipulated in the environmental assessment in the Initial Report. Technical Specification shall be so constituted that the work method, required quality and measurement method shall be clearly defined for each of the pay/work items in the Bill of Quantities.



(vi) Quality Assurance

The Design Team shall show the internal quality assurance system that will ensure both completeness and the quality of the report.

### A3.3.9 Environmental Impact Assessment

In line with the provisions of Statutory Instrument No. 28 of 1997, the Design Team is expected to undertake an Environmental Impact Assessment (EIA) by preparing an Environmental Project Brief (EPB). In undertaking the EPB preparation, the Design Team shall consider the following:

- A description of the baseline conditions of the affected road/bridge;
- The objectives and nature of the project and reasonable alternatives;
- The main activities that will be undertaken during site preparation, and construction;
- The anticipated socio-economic impact of the project and the number of people that the project will resettle or employ, directly, during construction;
- The expected environmental impact of the project;
- The expected effect on the bio-diversity, natural lands and geographical resources and the area of land and water that may be affected through time and space; and
- A description of mitigation measures and any monitoring programmes to be implemented.

The Design Team shall submit two (02) hard copies and a soft copy of the draft EPB Report to RDA for onward transmission to the Zambia Environmental Management Agency (ZEMA) for review. The Design Team will be expected to cost the EPB preparation.

In consideration of the provisions of SI No. 28 of 1997, the Design Team shall assess all probable impacts (both positive and negative) of the proposed works. The study shall focus on but not limited to the following:

- Detailed description of the baseline environmental conditions along the proposed alignment;
- Analysis of likely impacts on the bio-physical and socio-economic environments; and
- Formulation of remedial measures

The study will consider among other issues, impacts on the following components: -

- Valued Ecosystem components;
- Socio-economic, socio-cultural and/or archaeological components of the environment;
- Aesthetic values of the environment (such as visual impacts);
- Land-use;
- Impacts on environmental media/resources such as air, water(both surface and ground) and soil; and
- Bio/physical resources

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The EIA Expert is expected to advise the Design Team on environmental aspects that will require inclusion in the overall design for construction and operational works. Once the studies are complete, the Design Team shall

prepare and compile a final Environmental Project Brief (EPB), which will be submitted to the ZEMA for decision-making. **The Design Team shall submit ten (10) hard copies and a soft copy of the final EPB** to the RDA for onward submission to ZEMA.

The Design Team will also be expected to determine the effects of civil works on settled communities. Should the need to resettle some communities arise, the Design Team will be expected to conduct detailed evaluation of the resettlement program and prepare a Resettlement Action Plan, inclusive of **compensation**, mitigation and cost estimates. In carrying out these activities the Design Team shall use the provisions of the Resettlement Policy Framework developed by the Road Development Agency.

Notwithstanding the above, and in the event that no resettlement shall occur, the Design Team shall identify owners or occupiers of the land to be affected by the proposed road or bridge works, provide detailed assessment of how they will be affected, assess compensation for improvements likely to be affected or damaged and any other expense or loss which may reasonably be incurred or suffered by the owner/occupier of the land as a result of taking or dedication to public use of such land. In doing so, the provisions of The Public Roads Act, No. 12 of 2002 shall strictly be followed.

Further, the Design Team shall be expected to prepare an environmental management plan (EMP), including a monitoring and mitigation plan for the implementation of civil works. The monitoring and mitigation plan shall be costed. The Mitigation/Monitoring Plan shall clearly spell out lines of responsibility and the required resources.

### A3.3.10 CONTRACTOR'S PERSONNEL (DESIGN TEAM)

The Contractor shall provide the following number of key staff during the implementation of this project. The Contractor shall not change this establishment without prior approval by the Client.

**Table A3-2: Contractors Personnel**

| No. | Position | Expected Period of Employment |
|---|---|---|
| 1 | Team leader/Highway Engineer | 6 Man-months |
| 2 | Pavement/Materials Engineer | 6 Man-months |
| 3 | Drainage Expert | 3 Man-months |
| 4 | Surveyor | 5 Man-month |
| 5 | Environmental/Social Specialist | 2 Man-month |
| | **TOTAL** | **22 Man months** |



The total Man Months for Design (Phase I) is 22 Man-months.

### A3.3.11 SERVICES TO BE PROVIDED BY THE CLIENT

The RDA will make available to the Contractor all relevant reports and data in their possession, but the Contractor shall be fully responsible for the interpretation and use of the material in question.

The RDA will liaise with other Government offices as required in facilitating the Contractor's work in accordance with Client's Requirements.

The Contractor shall make their own arrangements for all office and living accommodation, transportation, supplies, surveys, investigations, testing, secretarial services, etc in connection with the services required by Client.

### A3.3.12 REPORTING REQUIREMENTS

The Client shall provide the Contractor with a standardized report structure for each of the following reports:

- Inception Report in including Quality Assurance Plan
- Environmental Project Brief
- Preliminary Design Report
- Draft Final Design Report
- Final Design Report

The delivery of the above-mentioned Reports is summarized in Table A3-3:

**Table A3-3: Deliverables**

| No. | Deliverable | Submission Date (From commencement – weeks) |
|---|---|---|
| 1 | Inception Report, Quality Assurance Plan, Methodology | 4 |
| 2 | Environmental Project Brief | 8 |
| 3 | Preliminary Design Report | 12 |
| 4 | Draft Final Design Report | 18 |
| 5 | Final Design Report | 22 |

**All Reports shall be submitted as follows:**

- 4-Hard copies: 1-copies to the RDA Regional Managers Office in Western Province and 3-copies to RDA Head Office.
- 2 flash drive soft copies: 1 to be submitted to the RDA Regional Managers Office in Western Province and 1 to be submitted to RDA Head Office.



### A3.3.13 Inception Report

The Inception Report shall be submitted within 4-weeks of the commencement of the assignment. It shall contain as a minimum:

1. Status of the Contractor's mobilization
2. Quality Assurance Plan (QAP) and internal quality assurance systems

3. Traffic Management Plan
4. An outline of how the EPB shall be prepared
5. Survey and Investigation Methodology
6. Key Personnel for the services
7. A revised implementation programme for the Design Activities.

### A3.3.14 Environmental Impact Assessment

The Contractor shall conduct the EIA study and submit the draft Environmental Project Brief (EPB) within 8 weeks. The draft EPB report shall be submitted two (2) hard copies and a soft copy on a flask drive; to RDA Headquarters of which one (01) copy will be transmitted to ZEMA for review. Once comments are received from RDA and ZEMA, the final EPB report shall be submitted in ten (10) hard copies and one soft copy to RDA Head Office for onward submission to ZEMA.

### A3.3.15 Preliminary Design Report

The Preliminary Design Report shall be submitted 12 weeks after the commencement of the Assignment. The reports shall contain as a minimum the following:

- Alignment Plan
- Longitudinal Plan
- Road Cross Sections
- Rigid Pavement Type
- Design Calculations
- Preliminary Cost Estimate
- Revised time schedule for the completion of the assignment
- Report on all activities performed

The submission should include appendices and drawings containing:

1. Copies of all word, excel, AutoCAD or other similar files used in compiling the report.
2. One complete copy of the report and all appendices and drawings contained in a single PDF file per volume.

The Client will issue comments on the Preliminary Design Report within 14 working days of receipt.

### A3.3.16 Draft Final Design Report

The Draft Final Design Report shall be submitted 18 weeks after the commencement of the Assignment.



The submission should include appendices and drawings containing:

a. Copies of all word, excel, AutoCAD or other similar files used in compiling the report.
b. One complete copy of the report and all appendices and drawings contained in a single PDF file per volume.

The Report should cover, but not limited to, the following items:

1. Executive Summary
2. Introduction
3. Methodology
4. Material Investigations
5. Design Standards and Specifications
6. Rigid Pavement and Geometric Design
7. Drainage: Structures and Design
8. Environmental Aspects
9. Traffic Management during execution of the Works
10. Road Maintenance Programme during operation of the asset
11. Works Implementation plans
12. Quality Assurance/Control
13. Detailed Cost Estimates
14. Conclusion and Recommendations

The Client will issue comments on the draft Design Report within 5 working days of receipt.

**A3.3.17 Final Design Report**

The Final Design Report shall be submitted 22 weeks after the commencement of the Assignment. The Report shall be submitted in the same format as the draft Final Report.

The submission should include appendices and drawings containing:

c. Copies of all word, excel, AutoCAD or other similar files used in compiling the report.
d. One complete copy of the report and all appendices and drawings contained in a single PDF file per volume.

**NOTE:**

The Contractor shall be responsible for accuracy of all the data used in project preparation and estimates prepared by him as part of the project. He shall indemnify the Client against any inaccuracies in the work.

**Phase II: Construction**

**A3.4.1Preliminary and General Activities, which will include:** 101

- Establishment of the Contractor on site;
- Establishment of temporary camp and providing the engineer's supervisory staff with offices and laboratories including all required equipment and supplementary staff
- Provision of housing and transport for the engineers supervisory staff

- Accommodation of traffic which will inter alia include the provision of a safety officer, whose duties and responsibilities are described in detail in Section 1500 of these project specifications
- Process control of materials and of workmanship
- Maintenance of the works during the 60-month Defects Liability Period

### A3.4.3 Road Related Works

- Construction of new road alignment and profile.
- Construction of a new base layer.
- Construction of drainage structures
- Embankment construction, if necessary
- Crossing-points construction

### A3.4.4 Ancillary Related Works

These shall include but not limited to the following;

- Construction of Lay-bys.
- Construction of kerb and channels where guard rails are provided on high fills.
- Erection of road signs
- Installation of guard rails
- Finishes for the road and road reserve

## A3.5 PAVEMENT LAYERS AND BORROW PITS

### A3.5.1 Pavement Layers

The pavement to be constructed shall be determined by the Contractor and approved by the Client.

### A3.5.2 Material Sources

An investigation regarding materials sources for fill and for pavement layers was carried out.
The Contractor is referred to Clause 3104 – Obtaining Borrow Material, in the "Standard Specifications for Road and Bridge Works" as well as the Special Specifications in this regard.
Clause B3402 contains a description of the materials requirements. The materials test results on the borrow pits, an indication of types of material available from the gravel sites are included in the factual materials report.
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All construction materials will be procured from commercial sources other than the re-use of selected sub grade layer.

**It must be noted that all information regarding the location and quality of potential construction material, given by the Client as part of this Contract or during construction, is given in good faith. It is not guaranteed for accuracy and the Contractor shall be responsible for ascertaining the necessary information himself regarding the sources, qualities and quantities of construction materials**

**available and required for the works to be constructed as per the contract requirements.**

## A4 DRAWINGS

The drawings that form part of the tender documents are to be used for tender purposes only. Any information in the possession of the Contractor that is required by the Project Manager to complete his as-built drawings must be supplied to the Project Manager before a certificate of completion will be issued. Only figured dimensions must be used and drawings must not be scaled unless required by the Project Manager. The Project Manager will supply any figured dimensions that may have been omitted from the drawings.

These drawings may be, amended, superseded or supplemented by further drawings as the Project Manager may, from time to time, consider necessary for the satisfactory completion of the works. It shall be the Contractor's responsibility to construct all works in conformity with the latest revision, amendment or superseding drawings current at the time of construction of such works, provided always that the Project Manager has given to the Contractor such reasonable prior notice of intention to revise, amend or supersede as the nature of the revision, amendment or super-session requires, and the necessary revised, amended or superseding drawings have been issued to the Contractor.

## A5 POWER SUPPLY AND OTHER SERVICES

The Contractor must make his own arrangements concerning the supply of electrical power and all other services. No direct payment will be made for the provision of electrical and other services. The cost of providing these services will be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

## A6 CONTRACTOR'S CAMP SITE

No arrangements have been made for the Contractor's camp. The Contractor shall provide a suitable site for his camp and for accommodating his labourers. There is no suitable Departmental land available for a campsite and the Contractor will have to negotiate by private treaty with the local authorities or landowners for the formal lease of such land.

Before the erection of his camp office, stores, plant, accommodation or any other facilities, the Contractor shall satisfy the Project Manager that he is familiar with and has taken due cognizance of any pertinent local by-laws, availability of services and statutory regulations. The Contractor's attention is specifically drawn to the regulations pertaining to the accommodation of labourers.

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The Contractor shall provide accommodation for the Project Manager's supervisory staff according to the requirements of Section 1400, including electricity and potable water. The Project Manager's accommodation may be erected within the Contractor's approved site, or at another suitable location close to the site.

The Contractor shall provide adequate portable toilet units along the road and at the bridge construction site for use by all his personnel during working hours. The units shall be within walking distance of the place of work.

## A7 SECURITY

The Contractor shall be responsible for the security of his camp and for his personnel and Constructional Plant on and around the Site of the Works.

## A8 WATER FOR CONSTRUCTION PURPOSES

The contractor will be solely responsible to obtain water for construction purposes and portable water for domestic use. No separate compensation will be made for procuring and obtaining water, which cost will be deemed to be included in the unit work rates. The Contractor shall source water for road construction from any source approved by the Project Manager

## A9 ENVIRONMENTAL MITIGATION

The Contractor must respect the Special Environmental Specifications, included as Part C in this document. The Contractor and his subcontractors shall comply with the following measures and requirements.

(a) An Environmental Supervisor (ES) who will be appointed by the contractor and approved by the Project Manager; will be in charge of the people at the construction site and will give instructions on the implementation of environmental aspects during all project phases. The ES will monitor and give recommendations on the application of good environmental management. His/her responsibilities will include:

- Monitoring and ensuring compliance of all the workers to the specific contractual regulations;
- Execution and monitoring of an environmental monitoring program;
- Ensuring that the existing natural forest and plantations and any wildlife along the route of the road are protected
- Continuous contact with the subcontractors and with local communities; Training of all the Contractor's workers on environmental awareness;
- Ensuring that all the disturbed areas during the construction phase are efficiently rehabilitated as soon as possible.

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(b) Reporting on Environmental Matters
The reporting on environmental matters shall be undertaken as follows:
The ES shall complete a project Start-Up inspection Sheet prior to the commencement of the contract (or at the site handover). This inspection Sheet will be attached to the minutes of the first site meeting and forwarded to the Environmental Control Officer if one is appointed, or the

Client;
The ES shall complete monthly Routine inspection Sheets (or more often if required), which will form the basis of the environmental reporting required at site meetings.
The ES shall complete a Site Closure Report on completion of the contract to be forwarded to the Project Manager or the Client;
Instructions and communications on site to the Contractor, concerning environmental matters, shall be recorded in the site instruction book/site diary.

(c) Management of Environmental Incidents

The management of environmental incidents will be based on adequate procedures based on a specific protocol of hazards and incidents notification. A report of all incidents will be presented and appropriate measures will be always taken to minimize any likely impact.
The Zambia Environmental Management Agency (ZEMA) will be informed on any *environmental* incident, in accordance with the legal requirements.
The notification of an environmental incident and/or accidents will include but will not be restricted to the following aspects:

- Location of the incident/emergency
- Relevant environmental authority
- Name and phone number of the designated contact person
- Time of the incident
- Suspected cause of the incident or emergency
- Environmental damage or disturbance caused or suspected to *have* been caused by the incident
- Action taken to avoid future occurrence of the incident and to mitigate the impact caused by this incident.
- The procedures for the presentation of environmental complaints will be elaborated within one month of the contract start date, by the contractor, to the approval of the Project Manager, and will be adhered to during the construction phase. The procedures shall contain among other entries the following:
- The title of the issue
- Date of registration of the issue
- Notifying and notified person's respective signatures
- Contact details of the person
- Description of the issue
- Proposed action to solve the problem
- Expected time to solve the problem

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- Responsible person for the closure of notifications
- Additional applicable annotations.

(d) State of Preparedness for Emergencies

Before the start of any field activity, a plan for emergency situations will be prepared by the contractor and submitted to the Project Manager for his approval. It will be elaborated according to the best practices used for this sector. Individual plans for emergency situations will be designed

for various operation aspects for example accidents and spills of chemicals. The approach with respect to notification and response to emergence will be based on ISO 14001 environmental management systems guidelines.

(e) The width of bush clearing is limited to 2m beyond the limits of the road prism.

(f) The Contractor's camp site must be located in an already cleared area. If this is not possible the area must be approved by the Client prior to any clearing.

(g) Suitable waste disposal areas must be provided to serve the construction camp site. The selection of these sites must be done taking due cognizance of environmental considerations as well as the surrounding communities.

(h) The Contractor's camp site must be rehabilitated after completion of the works.

(i) All borrow and other cleared areas must be *covered* by the topsoil originally *excavated* from these areas and the growth of natural grass *cover* must be promoted.

(j) No firewood may be collected by the Contractor or his personnel except from the areas cleared for construction.

(k) No wild life may be disturbed or killed by the Contractor or his personnel.

(l) Hazardous materials such as diesel, bituminous products, cement, etc must be transported, stored and applied in a controlled manner to eliminate or minimize the risk of contamination of the environment.

(m) Borrow areas must be accessed by a single access and must not be closer than 100m from the main road

(n) Borrow areas must be screened by natural *vegetation* or topographical features *wherever* possible. The location of the borrow areas must be finalized in consultation with the Project Manager.

(0) The ponding of depleted borrow areas may be considered in consultation with the Project Manager.

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(p) Natural drainage routes must be maintained through or around borrow areas.

No additional payment will be made for any of the *above* measures. The tendered rates for the work are considered to include full compensation for any additional actions to comply with the *above* requirements.

Failure of the Contractor to comply with the foregoing will be ample reason for the Project Manager to suspend all work until the environmental mitigation

measures are rectified.

## A10. ADDITIONAL REQUIREMENTS FOR CONSTRUCTION ACTIVITIES

### A10.1 Safety

The travelling public shall have the right of way on public roads. The Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

The Contractor shall nominate a safety officer who will be responsible at all times, including after hours, nights, weekends and public holidays, for the safety of the work area and the accommodation of traffic.

Failure to maintain road signs, warning signs and flicker lights in good working conditions shall constitute ample reason for the Client to suspend work until such road signs and road safety ancillaries have been repaired or reinstated to the Client's satisfaction.

The Contractor may not commence construction activities before adequate provision has been made to accommodate traffic in accordance with the requirements of the specifications and drawings.

### A10.2 Areas Available for Stockpiles

The Contractor shall arrange his own stockpile sites and shall ensure that he conforms to all relevant legislation and regulations which terms of compliance should be for the Contractor's cost. The sites must be approved by the Project Manager.

### A10.3 Dump Sites

The Contractor shall arrange his own dump sites and shall ensure that he conforms to all relevant legislation and regulations which terms of compliance should be for the Contractor's cost. The sites must be approved by the Project Manager. All dumping costs will be borne by the Contractor.

### A10.4 Bituminous Products

The Project Manager must approve storage sites for all bituminous products in the road reserve, or on private property prior to their being used. The containers used for storage must be free of leaks and placed on a firm surface. No spoiling of any bituminous products will be allowed in any area. Unused or rejected products will be removed from site and returned to the supplier. Solvents used for flushing spray tankers, will be treated likewise. No additional payment will be made for the preparation of storage sites and the disposal of materials.



### A10.5 Fauna and Flora

The Contractor shall cause no damage to fauna and flora. If, in the opinion of the Project Manager, this happens, the Project Manager is entitled to initiate

prosecution by the relevant authorities.

### A10.6 Accommodation of Traffic

Accommodation of traffic will be as follows:

Traffic accommodated on temporary gravel by-passes constructed within the road reserve parallel to the existing road where possible. The by-passes shall be maintained and watered regularly by the Contractor. Appropriate traffic signal for accommodation of traffic shall be used to ensure the safe passage of vehicles.

### A10.7 Traffic volumes

there are no existing traffic counts. The contractor's tendered rates for the relevant items in the schedule of quantities shall include full compensation for all possible additional costs that may arise from this. No claims for extra payment due to inconvenience as a result of the possible change of the modus operandi required to ensure satisfactory flow and safety of traffic at all times will be considered.

## A11 ACCESS TO SITE

### A11.1 Co-operation with others on the Site

All work shall be carried out in such a way as to allow access and afford all reasonable facilities for any other Contractor and his workmen and for the workmen of the Client and any other person who may be employed in the execution and/or operation at or near the site of any work in connection with the Contractor or otherwise.

The Contractor shall endeavor to co-operate with such persons and shall observe all the instructions and orders of the Project Manager in that connection.

In the preparation of his programme of Work the Contractor shall at all times take full account of and co-ordinate with the programming of work of other contractors.

### A11.2 Roads and Bridge Site to be kept Clean

The Contractor shall take great care and all reasonable precautions to ensure that roads, bridge site and thorough fares used by him either for the construction of the works or for the transport of plant, labour and materials are kept clean of any dirt. If, in the opinion of the Project Manager, as a result of the action of construction plant or transport the roads become dirtied the Contractor shall take all necessary and immediate steps to clean the affected roads. The Contractor shall at all times keep the roadway passable with minimal mobility inconveniences to road users and the general public.

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### A11.3 Programme and Method of Working

The Contractors programme of works shall be submitted to the Project Manager in terms of the General Conditions of Contract. The programme of works shall be comprehensive and contain, amongst other things, all main tasks, logical links between tasks, critical path, number of teams and equipment per task, task duration, planned production rates and non-working days. The programme shall be updated and submitted to the Project Manager at least monthly or at such other intervals as the Project Manager may request.

The method of working to be adopted shall be such as to permit the satisfactory completion of the Works and to limit disturbance and damage to a minimum. Standard MTENR/latest environmental guidelines applicable to the Zambia's road sector must be strictly adhered to.

Construction plant and equipment used in the execution of the Works shall be of a design and be used in a manner approved by the Project Manager. The Project Manager may at any time withdraw his approval and the Contractor shall immediately adopt another method of working and if such change shall be required to achieve satisfactory progress or workmanship the Contractor shall have no claim against the Client for costs incurred by him in changing the method of working or in the provision and use of other plant.

### A11.4 First Aid

The Contractor's attention is drawn to the fact that the work has to be executed in an area where poisonous snakes may be present and where malaria is prevalent. It is a requirement of this contract that the Contractor shall provide and maintain, as part of his establishment on site, comprehensive first aid facilities which must include complete first aid kits with snake-bite serum at strategic points on the operational areas of the works. Used or out dated articles and serum must be replaced from time to time as necessary. Suitable anti-malaria tablets must also be kept on site.
It is a further requirement of this Contract that a registered qualified first aid person must be stationed on the site. He or she should be equipped with the necessary equipment to provide assistance for <u>any</u> medical emergency that may occur on site. Apart from supplies like drips, blood plasma etc., he or she must have apparatus such as ventilators, officiators etc. as part of his / her equipment.
The cost of above (labour and equipment) must be 'included in the Contractor's rates and no additional payment will be made for such obligations.

## A12 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

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It must be noted that the extension of time resulting from abnormal rainfall shall not be regarded as an event for which additional compensation can be claimed. This means that no additional payments what so ever will be made, including no additional payments under any obligations, regardless of the length with which the contract period may be extended due to abnormal rainfall. However, the flooding of the rivers which will subsequently affect the flooding of the working site may be one of the exceptional circumstances and this decision will

be made by the Project Manager. The Contractor must be aware that some of his access roads and haul roads may pass through flood prone areas, and must take this into account.

## A13 OWNERSHIP OF ITEMS SUPPLIED UNDER SECTION 1400 FOR USE BY THE PROJECT MANAGER'S SITE PERSONNEL

Note must be taken of the second last paragraph under "General: Method of Payment" on page 1400-8 of the Standard Specifications.

This paragraph shall also be deemed to mean that the ownership of all the items provided under section 1400, as specified in the project specifications, shall revert back to the Contractor at the end of the Contract Period, unless otherwise indicated in the Technical Specifications.

## A14 TENDER SECURITIES

Note that tender securities provided by certain banks may not be acceptable. The bank from which the tender security is obtained will be subject to the approval of the Client.

## A15 SUBMISSION OF QUALITY ASSURANCE PLAN

A Quality Assurance Plan incorporating non-conformance reports, rejected works and remedial action taken shall be submitted together with the Programme of Works as required by Clause 14.1 of the Conditions of Particular Application and shall comply with the Client's specifications. The programme of work shall clearly show sequence of activities and anticipated quantities of work to be performed each month.

## A16 CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

The Contractor's attention is drawn to the requirements detailed in Section 1500 with respect to accommodation of public traffic. The road is an important link in the network and therefore interruption to traffic shall be minimized.

## Part 2: SPECIFICATIONS OF PARTICULAR APPLICATION (CONTD) [110]

### SECTION B: MATTERS RELATING TO THE STANDARD SPECIFICATIONS

- The SATCC Standard Specifications for Road and Bridge Works, September 1998, (Reprinted July 2001).
- Any other specifications and standards as approved by the Client in the inception report.

## PROJECT SPECIFICATIONS & PERFORMANCE REQUIREMENTS REFERRED TO IN THE STANDARD SPECIFICATIONS AND ADDITIONAL SPECIFICATIONS

In certain clauses in the Standard Specifications, allowance is made for a choice to be specified in the Project Specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this Contract are contained in this part of the Project Specifications. It also contains some additional specifications required for this particular contract.

The number of each clause and each payment item in this part of the project specifications consists of the prefix "B" followed by the number corresponding to the relevant clause or payment item in the standard specifications. The number of a new clause or a new payment item which does not form part of a clause or a payment item in the standard specifications and is included here, is also preceded by "B" followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the standard specifications.

## SECTION B1100: DEFINITIONS AND TERMS

### B 1127 ROAD RESERVE

- ***Replace this clause with the following:***

"For the purposes of this contract the area of the Road Reserve will be defined to be the length of the new road, measured along its centre line, multiplied by the width of the road reserve, which shall alter according to the following, always taking the greatest width as applicable:

(i). width is equal to 60m (30m on either side of centre line); or
(ii). width is equal to the greatest width of the road prism plus 10,0 m on either side of the road prism; or
(iii). the width required to accommodate the construction of junctions from limit of construction to limit of construction of the adjoining road or up to one of the cases indicated in (i) or (ii) above,
(iv). including site for spot improvements
(v). any additional roads used as detours"

## SECTION B1200: GENERAL REQUIREMENTS AND PROVISIONS

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### B1205 WORKMANSHIP AND QUALITY CONTROL

- ***Add the following to the first paragraph:***

"The Contractor shall, together with the Project Manager, formulate a Quality Assurance Plan (QAP) that shall comply with the guidelines of the Client prior to the commencement of the works. The QAP shall be submitted together with the programme as indicated in sub clause 14.1 of the General Conditions of Contract".

## B1206 THE SETTING OUT OF WORK AND PROTECTION OF BEACONS

- ***Add the following:***

"Reference beacons have not been determined but will be available prior to commencement of works and will be placed along the route. Once these are established, the Contractor shall first verify the co-ordinates and levels of the reference beacons. The Contractor shall then relocate the road pegs and verify all levels before submitting the verified levels for the Project Manager's approval.

Construction work may only commence once the Project Manager's approval for all verified co-ordinates and levels of reference beacons as well as cross-section levels, has been obtained.

The Contractor shall supply the Project Manager with cross-sections (hard copy and electronic format) of the existing road taken every 20m on the fixed road alignment before and after the topsoil has been stripped.

The Contractor's tendered rates for the construction of the works shall include full compensation for all the costs required for the verification of the reference beacons, the re-location and re-co-ordination (X, Y & Z) of any beacons which are affected by the works, the verification of the staking of the road and the re-staking of any pegs which may have been dislocated or disturbed since the Project Manager's staking was done, verification of the levels, the taking of cross-sections at 20m intervals, the taking of long sections at all proposed bridge positions (these may include extensions of the drainage lines on the inlet and outlet sides to beyond the road reserve in order to ensure sufficient fall for the inlet and or outlet side), and for any other survey work required to complete the work as specified. The taking of long sections at all proposed bridge locations is required for confirmation of the bridge foundation and their incoming and outgoing drainage lines. This work and any other work which requires response from the Project Manager shall be delivered to the Project Manager timely to allow him sufficient time to respond without causing the Contactor any delays. No separate payment shall be made for any survey work required. The Contractor's tendered rates for the construction of the Works shall also include full compensation for the provision of all survey equipment and assistants required by the Project Manager to take control measurements as required.

Any survey beacons which lie within the road prism or that are affected by construction activities shall be relocated at the Contractor's cost. The Project Manager shall be notified by the Contractor of all beacons which the Contractor wishes/has to relocate and all the new co-ordinates and levels.



## B1207 NOTICES, SIGNS AND ADVERTISEMENTS

**The Contractor shall provide and erect as part of his obligations under series 1300 two (2) publicity signboards on the site as directed. The minimum dimensions of the boards shall be as directed by the Project Manager. The boards shall be prepared primed and painted cream and**

**lettered in black. The boards shall be of stout construction, resistant to the effects of weather.**

## B1209 PAYMENT

### (b) Rates to be inclusive

*Replace* "period of maintenance" *in the last line of the first paragraph with* "Defects Liability Period".

### (c) The meanings of certain phrases in payment clauses

(i) Procuring and furnishing (material)

*Insert* "and duties," *in the sixth line of the sub-clause after* "all tax,"

## B1210 CERTIFICATE OF COMPLETION OF THE WORKS

- ***Add the following:***

"The certificate of completion of the Works referred to in this clause shall be the 'Taking-over Certificate' indicated in clause 48 of the General Conditions of Contract."

## B1224 THE HANDING-OVER OF THE ROAD RESERVE

- ***Replace the contents of this sub-clause with the following:***

"The site will be handed over in sections or lengths as indicated by the Project Manager.

The Contractor shall make his own arrangements for access to the various parts of the Site where works are to be constructed, but all such accesses shall be subject to the approval of the Project Manager. The Contractor is in this respect referred to clause A10.l of Part A of the Project Specification.

Where access to the Site proposed to be used by the Contractor lies across land of a third party the Contractor shall produce to the Project Manager written consent of the owner and the occupier of the land over which the access lies before making use of the same.

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The Contractor shall also keep a record, to be agreed by the Project Manager, of the conditions of the surface of any land (and of any crops on such land) over which access lies before he uses it for access purposes and he shall keep all such surfaces in a reasonable state of repair during the execution of Works. On the termination of the Contractor's use of such access he shall restore the land to a condition at least equal to that existing before his first entry on them.

The Contractor shall also keep a record of any land on which crops are planted

and which is being used for construction purposes under this contract: Such record shall include co-ordinates of the area involved, details of the crops involved and photographs of such crops."

## B1225 HAUL ROADS

- ***Add the following:***

"Where the Contractor constructs bypasses, haul and/or construction roads at his own initiative for accommodating construction traffic, he shall construct and maintain them at his own cost and in accordance with details previously agreed on with the Project Manager, in writing. Such roads shall be obliterated and their surfaces properly reinstated when no longer required, all at the Contractor's own cost.

The Contractor shall have the right to use public roads, including bypasses open to public traffic, but where his own traffic causes damage or wear to such roads or constitutes a condition hazardous to public traffic, the Project Manager shall have the right to regulate his traffic over such public roads and bypasses and require the Contractor to provide, at his own cost, such maintenance, including wearing-course gravel and watering, as in the Project Manager's opinion will be necessary in addition to that which would be required to maintain the bypasses properly when not used by the Contractor's construction traffic. Where regulation of the Contractor's traffic does not alleviate the traffic hazard satisfactorily or the maintenance of the bypasses cannot be or is not properly executed, the Contractor shall, where conditions permit, divert his traffic over construction roads provided and maintained at his own cost."

## B1227 MONTHLY SITE MEETINGS

- ***Add the following to the first paragraph:***

“Additional to the meeting mentioned above, the Contractor or his authorized representative shall attend meetings, on the site, with the representative of the Project Manager, at the dates and times to be determined by the Project Manager. Such meetings will be held to discuss matters of a more technical nature, or any such matter which any of the parties may wish to raise. Further to the above, the Contractor or his authorized representatives shall attend meetings with the local liaison committees to discuss socio-economic and/or environmental issues”.

- ***Add the following to the second paragraph:***

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"The Contractor will be required to take photographs and shall provide cameras as specified in clause BI402 (i) for the use of the Project Manager.:”

- ***Add the following clause:***

## B I230 REPORTING OF ACCIDENTS

The Contractor shall report every accident which occurs on the road, within the

extent of the Works, to the Project Manager, within twenty-four (24) hours of such accident occurring, irrespective of whether such accident has a bearing on damage to the Works or to persons, property or things. The report must be in writing and must contain full particulars of the accident. Photographs of each accident shall also be included in the report. The Project Manager has the right to conduct any or all enquiries, either on the Site or elsewhere, as to the causes and consequences of any such accident. The Contractor shall also keep a comprehensive record of all accidents which occur on the road and shall make such records available to the Project Manager on demand."

## SECTION B1300 CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

### B1301 SCOPE

- ***Add the following:***

The Contractor's obligation to ensure safe access to the site at all times shall also be included in this section. The Contractor's general obligations shall be inclusive of fixed, time related and value related obligations.

***Add the following sub-clause:***

*Professional fees for the design phase to be paid upon submission and approval of the following deliverables:*

| No. | Deliverable |
|---|---|
| 1 | Inception Report, Quality Assurance Plan, Methodology |
| 2 | Environmental Project Brief |
| 3 | Preliminary Design Report |
| 4 | Draft Final Design Report |
| 5 | Final Design Report |

*Payments shall be made as a percentage of the professional fees lump sum component. Payments shall be made upon submission and approval of the following reports:*

| No. | Deliverable | Payment (% of the Design Fee) |
|---|---|---|
| 1 | Inception Report, Quality Assurance Plan, Methodology | 10 |
| 2 | Environmental Project Brief | 10 |
| 3 | Preliminary Design Report | 25 |
| 4 | Draft Final Design Report | 30 |
| 5 | Final Design Report | 25 |

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### B1302 GENERAL REQUIREMENTS

- ***Add the following sub-clauses:***

**(d) Soil Investigations**

"The Contractor may be instructed to perform additional soil investigations regarding borrow pits and investigations of materials prior or during construction. The investigations will include the excavation of trial pits, DCP testing, CBR testing, Soil Indicators and UCS testing."

The provision of soil investigations shall not be paid for separately, but the costs thereof shall be deemed to be included in the Contractor's tendered rates for the items included under Section 1300. Geotechnical investigations i.e. additional borings for bridge foundations shall not be covered under this clause.

**(e) Accident Prevention Officer**

The Contractor shall have on his staff at the Site an Accident Prevention Officer with specific responsibility for all matters regarding the safety and protection against accidents of all staff and labour of the Contractor and the Sub-Contractors. This officer shall be qualified for this work and shall have the authority to issue instructions and shall take protective measures to prevent accidents. The Accident Prevention Officer shall be on Site from the start of the Contract until the issuing of the Taking Over Certificate. The responsibilities of the Accident Prevention Officer shall include:

- Training of employees in road safety
- Training of employees in safety at their place of work
- Ensuring that all employees wear the required protective clothing in accordance with the tasks they are assigned and that all employees working on or near the road wear reflective clothing. Employees working over water at the bridge site shall always be wearing floating vests.
- Ensuring that adequate warnings, signage, speed control mechanisms, flagmen etc. are provided for the safe accommodation of traffic at all times of the day and night.

The Accident Prevention Officer may have other responsibilities on the site.

**(f) Medical Facilities**

The Contractor shall, as part of his general obligations, provide sufficient medical and emergency equipment, have staff available that are trained in the use of this equipment, and have the required arrangements in place to provide emergency medical evacuation by air to a suitable trauma unit, if and when required.



The provision of the emergency medical services shall not be paid for separately, but the costs thereof shall be deemed to be included in the Contractor's tendered rates for the items included under Section 1300.

**(g) Temporary Latrines**

The Contractor shall provide and maintain adequate and sanitary latrines

suitable for men and women constructed to comply with any Government regulations in force for the use of the employees on Site. The Contractor shall keep the whole of the Site and latrines in a clean and sanitary condition to the satisfaction of the Project Manager and in accordance with the requirements of the Health Authorities of the Government. The Contractor shall fill and *cover* all latrine pits, soak-aways and trenches when no longer required.

The provision of the temporary latrines shall not be paid for separately, but the costs thereof shall be deemed to be included in the Contractor's tendered rates for the items included under Section 1300."

**B13.04 Instituting and HIV/AIDS awarenesscampaign**

The unit measurement shall be the calendar month or part thereof, measured over the duration of the campaign.

The tendered rate shall include full compensation for equipment, labour and materials required for the provision of the service.

**B13.05 Instituting and HIV/AIDS preventing campaign**

The unit measurement shall be the calendar month or part thereof, measured over the duration of the campaign.

The tendered rate shall include full compensation for equipment, labour and materials, including the procurement and distribution of condoms, required for the provision of the service.

## SECTION B1400 HOUSING, OFFICES AND LABORATORIES FOR THE PROJECT MANAGER'S SITE PERSONNEL

**B1404 SERVICES**

**(c) Maintenance**

- ***Replace the contents of this subclause with the following:***

"The Contractor shall supply all labour, equipment and materials required for keeping the offices, laboratories ablution units, car-ports at the offices the laboratories, and the prefabricated and rented housing in a neat and clean condition, and shall immediately undertake repairs requested by the Project Manager, to the offices, laboratories, ablution units, car-ports, prefabricated and rented houses."



**(d) Cooking facilities**

- ***Delete this sub-clause***

- ***Add the following subclause:***

**"(e) Project Manager's support staff and labourers**

When instructed by the Project Manager, the Contractor shall provide the Project Manager with approved labourers in the categories as specified below. The Contractor shall be fully responsible for the procurement, employment, administration, payment and termination of employment of all the labourers provided. If a labourer is found to be unsatisfactory by the Project Manager, the Contractor shall replace the labourer within 24 hours after having being notified by the Project Manager. No separate payment will be made for the provision of the labourers and the costs shall be deemed to be included in the Contractor's rates for his general obligations. The number of labourers specified per category, as indicated below, is to be used for tender purposes only. The Project Manager will furnish the Contractor with full details, in writing, regarding the number of labourers required per category, when the Contract is awarded. The Project Manager may also request further adjustments to the number of labourers per category, as and when required until the Contract work is completed.

The number of support staff and labourers per category indicated below to be used for tender purposes is as follows:

| | | | |
|---|---|---|---|
| (i). | Drivers | - | as per clause 1405 |
| (ii). | Secretary/receptionist | - | 1 |
| (iii). | Cleaners/gardeners | - | 5 |
| (iv). | Watchmen | - | as per clause 1406 |
| (v). | Laboratory technician | - | 4 |
| (vi). | Laboratory assistants | - | 6 |
| (vii). | Survey assistants | - | 2 |
| (viii). | Labourers | - | 6 |

The Contractor shall provide acceptable accommodation for the above support staff.

**(a) Rented accommodation**

- ***Add the following sub-clause:***

**"(iv) Furniture, appliances and household goods for rented houses**

When instructed by the Engineer, the Contractor shall provide and install approved new furniture, appliances and household goods for the houses as mentioned in clause 1403(c). Differentiation between the number and type of furnishings, appliances and household goods shall be made according to the various types of rooms to be furnished as specified below. The Contractor must comply with clause 1406(a) before ordering any of the required equipment. The number of each type of room's furnishings indicated in the Schedule of Quantities must be used for tender purposes only.



The furniture, appliances and household goods shall be provided according to the types of rooms listed below.

**(i) Kitchen**

- Four plate stove with oven and warmer drawer
- Refrigerator with freezing compartment (0,36 m3)
- Electric kettle
- Kitchen cupboards with shelves and drawers
- One saucepan and one frying pan
- six plates
- six cups and saucers
- six tumblers and glass water-pitcher
- One set of wine glasses
- Six knives, six forks, six spoons and six teaspoons
- Breadboard, bread-bin, bread-knife, butter-dish
- Tea kettle, coffee kettle, two milk jugs, sugar bowl, salt cellar and pepper pot
- Kitchen utensils: egg-lifter, can-opener, bottle opener, corkscrew, kitchen scissors
- One tea tray
- Two water bottles for refrigerator
- One stand for hot saucepans
- Dish drainer and cutlery drainer
- Two vases
- Large kitchen garbage can with lid
- Broom, small broom, dustpan, mop
- Bucket for scrubbing floors
- Two water buckets
- Cutlery holder for drawer
- Two kitchen towels, one tablecloth, two dishcloths, two washcloths
- Curtains
- Two sets of adaptors
- Two cooler boxes with ice-bricks
- Kitchen table and four chairs

**(ii) Bathrooms**

- Laundry basket
- Dustbin with lid
- Bathroom cabinet with shelves
- Toilet-set with mat
- Six bath towels
- Six face towels
- Bathmat
- Shower curtain
- Curtains
- Soap holder in shower
- Medium length mirror

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- Automatic washing machine
- Ironing board
- Iron (not steam)
- Ironing basket
- Clothes-horse
- Clothes peg bag with clothes pegs

**(iii) Lounge**

- Two two-seat settees
- Two chairs
- Large coffee table
- Three side tables
- Wall unit
- Standing lamp
- Carpet
- Curtains
- Three ashtrays
- Bookshelf
- One adaptor
- Decorative cloths (for small tables)

**(iv) Dining room**

- Dining table and eight chairs
- Sideboard
- Curtains

**(v) Main bedroom**

- Double bed with mattress and bedside tables
- Dressing table
- One full-length mirror
- Two wardrobes
- Two chests of drawers
- Curtains
- Carpets
- Wastepaper basket
- Four pillows
- One double duvet and cover
- Two sets of bed linen (fitted sheet, flat sheet, pillow-cases)
- One double-bed mosquito-net
- Two bedside lamps
- Decorative cloths

**(vi) Secondary bedrooms**

- Two single beds with mattresses
- Two chest of drawers
- Two wardrobes
- One medium-size mirror
- Four pillows
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- Two single duvets and covers
- Four sets of bed linen (fitted sheet, flat sheet, pillow-cases)
- Curtains
- Wastepaper basket
- Carpet
- Two single-bed mosquito-nets
- Two bedside lamps
- Decorative cloths

**(vii) General appliances (All Types)**

- Large garbage bin
- Washing-line
- Six garden chairs and table
- Spade, garden fork, rake, garden shears, garden hose, wheelbarrow
- Medium-size ladder
- Air-conditioners as specified
- Barbeque grid (grill)
- Fire extinguisher (10 litre $CO_2$ type)

**NOTE**:

All windows shall have mosquito/fly screens.
All outer doors shall have mosquito/fly screen doors.

External doors shall be of solid construction at least 32 mm thick fitted with deadlocks and two good quality internal bolts of approximately 12 mm diameter.

Windows and doors shall be fitted with steel or hard alloy burglar grilles, well anchored to the structure. Burglar grilles in bedrooms shall be fitted with a fire escape panel with a suitable lock if no other satisfactory alternative fire escape route is available. Two keys to the fire escape lock shall be securely located within 3 m of the lock inside the room.

## B 1406 GENERAL

- ***Add the following sub-clause:***

  "(h) The Project Manager's staff's counterparts shall be regarded as part of the Project Manager's staff."

## SECTION B1500 ACCOMMODATION OF TRAFFIC

### BI502 GENERAL REQUIREMENTS

### (a) Handing over the Site

- ***Replace the contents of this sub-clause with the following:***

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"The road reserves of the roads to be constructed under this Contract will be handed over to the Contractor at commencement of the Contract. The Contractor will be permitted to work on the main, road and any other structure or service provided that a free and safe flow of traffic is maintained during the times that the road would have been accessible before construction started, and that the requirements of the Specifications are complied with. This would require construction of diversions. The Contractor's programme for the accommodation of traffic and any proposed deviation from the approved

programme shall be subject to the Project Manager's approval."

- ***Add the following sub-clauses:***

**(i) Site Safety officer**

The Contractor shall nominate a competent member of his staff to act as site safety officer with specific responsibilities to ensure that:

- draft safe site working procedures and obtain Project Managers approval;
- Traffic control flagman wear retro-reflective safety vests;
- the temporary traffic accommodation requirements comply with the Specifications.

The Contractor shall provide the site safety officer with the necessary resources to enable him to carry out his duties efficiently. The site safety officer shall liaise directly with the Project Manager regarding matters related to the control of traffic.

The site safety office shall, inter alia, control and co-ordinate the movement of construction vehicles, be responsible for training the Contractor's staff in terms of road safety, ensure that reflective clothing is worn by all employees working on or near public roads, be responsible for implementing actions requested by the traffic authorities with regard to the work to be carried out, be responsible for the erection and maintenance of all traffic signs necessary for the accommodation of traffic, ensure that all obstructions related to the Contractor's activities are removed before nightfall every day, and ensure that the roads are safe for night traffic. He shall also be available after hours if required to rectify problems or to deal with emergencies.

No additional payment will be made for the site safety officer. The rates tendered for Sections 1300 and 1500 shall be deemed to include full compensation for all costs pertaining to the site safety officer and his duties.

**(j) Penalties for non-compliance with traffic accommodation specifications**

The Contractor shall comply strictly with all accommodation of traffic specifications and instructions from the Project Manager.

In the case of non-compliance on matters relating to safety, the Contractor shall immediately rectify any problems identified by the Project Manager. The decision on whether a matter affects the safe passage of traffic or not shall be strictly the Project Manager's decision

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In the case of non-compliance on matters relating other than safety matters (e.g. dust control, grading of the surface where safety is not involved etc.) the Contractor shall rectify any problems identified by the Project Manager within a maximum of 48 hours of receiving the instruction or such other time period as the Project Manager reasonably will require.

Should the Contractor not comply with the instructions of the Project Manager the following will apply:

(a) on matters relating to safety, a penalty amounting to 0.01% of the Contract price shall be charged on the Contractor for each day that the non-conforming safety matters remain unattended to,
(b) on matters not related to safety, a penalty amounting to K2,000,000.00 shall be charged on the Contractor for each day that the non-conforming matters remain unattended to

The imposition of the above penalties will not preclude the Project Manager from stopping the works until the matter is rectified should the Contractor continuously disregard his instructions or should he feel the situation warrants this measure for safety reasons. Should the Project Manager stop the works for any reason related to non-compliance with the specifications on accommodation of traffic, there will be no compensation for any costs incurred by the Contractor as result of such stoppage, nor will there be any extension of time granted as a result."

## B 1503 TEMPORARY TRAFFIC-CONTROL FACILITIES

- ***Insert the following after the second paragraph:***

"Should the Contractor park any of his vehicles or construction equipment within the road reserve at night, it shall be done in such a way that the vehicle does not encroach into the traveled way and it shall be properly illuminated and signposted to ensure safe passing by motorists."

### (a) Traffic-control devices

- ***Add the following:***

"Traffic-control facilities such as STOP and GO signs and two-way radios shall be available at both ends of those sections of the Works, where barricading of the road is required and only one-way traffic is accommodated. A set of two-way radios in good working order shall be made available.

When movable temporary signs are used, provision shall be made for sandbags on the sign bases to prevent the signs from being overturned by wind or eddies behind moving traffic.
The Contractor shall schedule his activities so that the road will be open to traffic between sunset and sunrise at all times. Temporary signs shall be removed or covered to prevent confusion. However, it is the Contractor's sole responsibility to ensure that a safe and free traffic flow is maintained, in alternate directions, during the day.
The Contractor shall erect movable shelters to protect the personnel who man the points as well as the equipment against the elements. For safety purposes, the jackets of the flagmen shall be of a retro-reflective material."

### (b) Road signs and barricades

- ***Add the following:***

"The retro-reflective coefficients determined according to the methods of SABS 1519, shall be at least 60% of the values given in table 1 of SABS 1519.

The classes shall be as specified in Subclause 5402(g) of the Standard Specifications.
Road signs that do not comply with these standards shall be cleaned, retested or removed from the Site and replaced with approved road signs.

The traffic-control facilities and temporary signs that are required are as indicated on the drawings."

**(c) Channelization devices and barricades**

- ***Add the following:***

"Drums shall not be used as channelization devices. However, drums may be used to erect barriers as provided for in Subclause 1503(d).

Delineators shall comply with the following requirements:

(i) A minimum contrast ratio of 4 shall exist between the yellow class 1 retro-reflective material and the black non-reflective material.
(ii) Delineators shall be affixed in a flexible manner to the base units and shall be able to withstand wind speeds of at least 60km/h without overturning. The bases shall be stabilized by means of sandbags.
(iii) The bottom edge of the delineator shall not be more than 200mm above the road surface.

Cones (red-orange, fluorescent) with a minimum height of 750mm may be used as supplementary traffic-control facilities to delineators. The maximum spacing between centers of delineators or cones is 50m."

**B 1504 WIDTH OF DIVERSIONS**

- **Replace *"10m"* in the second line of the first paragraph with *"7.0m".***
- **Replace *"5m"* in the last line of the first paragraph with *"4.0m".***

**B 1505 TEMPORARY DRAINAGE WORKS**

- **Replace this clause with the following:**

“The Contractor shall construct the necessary temporary drainage works such as side drains, catchwater drains, mitre drains, culverts, etc. to deal adequately with any surface run-off.

All temporary drainage work required for accommodation of traffic, including for the temporary culverts (or fords) shall be deemed to be included in the rate tendered for Item BI5.01: Accommodating traffic and maintaining diversions.”

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## B 1510 EXISTING ROADS USED AS DIVERSIONS

- ***Replace this clause with the following:***

"Where existing roads are to be used as diversions, the Contractor shall, after consultation with the Owner or Authority having control of such road, carry out any repairs, alterations or additions to such roads as may be required to bring them to a condition suitable for traffic. The cost of this work shall be deemed to be included in the rate tendered for item B 15.01: Accommodating traffic and maintaining diversions.

The Contractor shall only become responsible to perform the above-mentioned work on a particular section of road when he commences with the permanent works required of him for that section of road."

## B 1511 MAINTENANCE OF GRAVEL DIVERSIONS AND EXISTING GRAVEL ROADS USED ASDIVERSIONS

- ***Replace this last paragraph with the following:***

"All maintenance shall be deemed to be included in the rate tendered for Item B15.01: Accommodating traffic and maintaining diversions."

## MEASUREMENT AND PAYMENT

- ***Add the following items***

**B15.14 Self adhesive white or amber reflective tape strips of size 200mm x 100mm**

The unit of measurement shall be the number of strips supplied to the Engineer on instruction. The sum shall be used as directed by the Engineer for the supply of stationery as instructed by the Engineer.

This tendered rate shall include full compensation for supplying the requested strips.

**B15.15 Warning signs for vehicles and safety equipment for supervisory staff**

The unit of measurement shall be the number of each piece of equipment that is supplied to the Engineer on instruction. The sum shall be used as directed by the Engineer for the supply of stationery as instructed by the Engineer.

This tendered rate shall include full compensation for supplying the requested equipment.



## SECTION B 1600: OVERHAUL

## B1602 DEFINITIONS

**(a) Overhaul**

No Separate payment shall be made for overhaul of materials within and outside the boundaries of the site on this contract. No payment for overhaul will be considered for materials disposed of or hauled within or beyond the limits of the site. Equally overhaul will not be payable for materials imported from commercial sources and from designated borrow pits alongside the road. The costs of all hauling and overhauling shall be deemed to be included in the rates of the respective items.

## SECTION B1700 CLEARING AND GRUBBING

### B1701 SCOPE

- ***Add the following:***

"This section also covers the clearing and grubbing of the road prism and the cleaning out of existing hydraulic structures and the clearing and grubbing of vegetation from the inlets and outlets of these structures and removal of top soil."

### B1703 EXECUTION OF WORK

**(a) Areas to be cleared and grubbed**

***• Replace the second paragraph with the following:***

"Some areas of the existing road prism will require clearing and grubbing."

**(c) Disposal of material**

***• Replace the second paragraph with the following:***

"The Contractor shall dispose of all trees, tree stumps, and rubble, undesirable material removed from hydraulic structures, refuse, and all non-combustible rubbish at approved dumping sites provided by the Contractor."

- ***Add the following additional sub clauses:***

**"(e) Cleaning out of hydraulic structures**

After the instruction for the cleaning out of hydraulic structures has been carried out, the Contractor shall be responsible for maintaining the hydraulic structures in a clean condition for the duration of the contract.

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**(f) Clearing and grubbing at inlets and outlets of hydraulic structures**

All vegetation and shrubs which may impede the inflow or discharge of storm water through culverts, shall be cleared and grubbed as directed by the Project Manager, and the resulting debris shall be disposed of at an approved spoil site."

(a) **Removal of topsoil**

Topsoil shall be removed to a depth of 150mm or as instructed by the Project Manager and conserved as instructed by the Project Manager. The entire construction width shall be stripped of topsoil as directed by the Project Manager. The rate paid for removal of topsoil shall include all cost for the removal of topsoil to the depth instructed by the Project Manager. No additional payment will be made for conservation measures, stockpiling or re-handling of topsoil to embankment slopes or disposal.

## SECTION B2100: DRAINAGE

**Item** **Unit**

The relevant items in the BOQ will be carried out upon instructions which shall be issued by the engineer.

## SECTION B3100: BORROW MATERIALS

### B3102 NEGOTIATIONS WITH OWNERS AND AUTHORITIES

- ***Insert the following after the first paragraph:***

"Certain borrow pits have been identified by the Project Manager as sources for materials, and other sources may from time to time be identified by the Project Manager and tested by the Contractor, or identified and tested by the Contractor and approved by the Project Manager. The Contractor will however be solely responsible for all obligations and costs in respect of negotiations with and compensation of the owners of the land on which the borrow areas are situated, irrespective of whether the borrow pits have been identified by the Project Manager or found by the Contractor."

- ***Add the following:***

"If it so happens, at any time during construction, that new settlements have taken place on designated areas to be used for construction purposes outside the road reserve, such as material sources indicated on borrow pit plans, and the Contractor requires the use of such areas, he shall give the Project Manager at least sixty days' notice of his required entry and use of the areas.

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The Project Manager or his representative shall, with assistance from the Local Authority and the representative of the Road Development Agency, arrange the required permission for the Contractor to enter the designated area and perform the required work all in compliance with the specifications. The Contractor shall not enter the area until the approval of the Project Manager has been given. If compensation for materials or for loss of crops and/or habitation is required by the local inhabitant of the said area, such compensation shall be negotiated with the inhabitant paid by the Contractor on written instruction of the Project Manager. The Contractor shall then be reimbursed under the provisional sum

provided for this purpose.

The negotiations and compensation agreed upon must be recorded in writing and must be submitted to the Project Manager for approval before payment will be authorized."

## B3104 OBTAINING BORROW MATERIALS

### (b) Borrow pit plans

- ***Amend the first sentence of the second paragraph as follows:***

-after "inadequate or insufficient" and before "the contractor shall make use .... "" add "or should the Project Manager decide that another source is better suited."

- ***Replace all references to*** "borrow pit plans**" *with*** "borrow pit information"

- ***Replace the last sentence of the second paragraph with the following:***

"The cost of such assistance will be for the Contractor's account, except for the provision of the Contractor's Equipment, requested by the Project Manager for that purpose, which shall be paid for under day works."

## B3108 CLASSIFICATION OF BORROW PITS FOR GRAVEL MATERIALS FOR PAVEMENTLAYERS

- ***Replace the contents of this clause with the following:***

"Borrow pits for the exploitation of gravel materials shall be classified in accordance with the same classification as that described in Clause 3303 for mass earthworks. Borrow pits for exploiting stone for pavement or crushing, and borrow pits for sand shall not be classified for purposes of payment.

The Project Manager shall have the right to decide which borrow pit shall be operated by the Contractor at any particular stage of the work and to instruct the search for and use of and approve new borrow pits during the construction period."

## B3109: MEASUREMENT AND PAYMENT

**Notes:**

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### (b) Prospecting for materials

***Replace this note with the following:***

**"(b) Prospecting for material**

No separate payment will be made for excavating trial pits according to a grid pattern as ordered by the Project Manager over any potential area, and for

assistance rendered by the Contractor, as may be directed by the Project Manager, in prospecting for additional material, except for the provision of the Contractor's Equipment, requested by the Project Manager for that purpose, which shall be paid for under day works.

The cost for all such work, except for the provision of the Contractor's Equipment, shall be deemed to be included in the Contractor's other rates tendered for the construction of the Works as specified."

## SECTION B3200: SELECTION, STOCKPILING AND BREAKING-DOWN THE MATERIAL FROM BORROW PITS AND CUTTINGS, AND PLACING AND COMPACTING THE GRAVEL LAYERS

### B 3203 STOCKPILING THE MATERIAL

- ***Replace the first sentence of the first paragraph with the following:***

"The Contractor shall so plan his activities that materials excavated from borrow pits, cuttings and existing pavements and fill, in so far as is possible, can be transported direct to and placed at the point where it is to be used.

### B3209 ROCK FILL

Rock fill to the lower layers in dambo areas shall be completed in accordance with sections 3200 and 3300 compacting to refusal prior to laying of sand or granular materials on top.

### B 3212 MEASUREMENT AND PAYMENT.

The Contractor will be entirely responsible for locating suitable sources of materials complying with the Standard and Special Specifications, and for the procurement, winning, selection and blending including any modifications to make suitable material, all haulage to site of these materials and all costs involved therein. Similarly the contractor shall be responsible for the provision and costs involved in providing suitable areas for stockpiling materials and spoil dumps. Should there be suitable sites for spoil dumps or stockpiles within the road reserve forming the site of the works the Contractor may utilize these subject to the approval of the Project Manager.

No additional payment will be made to the Contractor to cover costs arising from the requirements for this section and the Contractor must include these costs in the rates inserted in the Bills of Quantities.



## SECTION B3300 MASS EARTHWORKS

### B3301 SCOPE

- ***Add the following paragraph:***

"This section also covers the widening of existing cuttings, fills and roadbeds.

## B3302 MATERIALS

### (b) Fill

***Replace the sub clause (i) with the following:***

Fill material plasticity index shall be less than 40%, Weight of organic matter should be less than 5% and the maximum CBR swell % is 2. The minimum MDD value on compaction test for the material should be more than 1500 kg/m3. The maximum particle size of fill material shall be 2/3 of compacted layer thickness and maximum compacted layer thickness is 250mm.

In case of rock fill, maximum layer thickness in one operation is 1.00m; maximum particle size is decided as above and within 1.00m from the selected layer formation level, rock fill shall not to be used in the earthworks.

- ***Add the following paragraph to sub-clause (iii):***

  "Where existing fills are to be widened, or where new fills are to be constructed adjacent to existing fills, the material so placed shall be compacted to at least 93% of modified AASHTO density."

## B3305 TREATING THE ROADBED

### (a) Removal of unsuitable material.

The obligations under this section include treating any anthills area after excavation and before backfilling of cavities, with an approved ant control chemical. The tendered rate shall include all such costs.

### (c) Preparing and Compacting road bed.

The suitable roadbed material may be scarified, watered and compacted to 90% of modified AASHTO density for a minimum depth of 150mm. The unsuitable roadbed material shall be replaced as per section 3305.

- ***Add the following sub-clause:***

### (g) Widening the roadbed

Where the road is to be widened, and where so instructed by the Project Manager, the roadbed shall be treated in accordance with the provisions of clause 3305. Where un-compacted roadbed material occurs below the outer part of the fills, the fill material shall be cut back or cut away to expose the full width of the roadbed widening to be treated."

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## B3306 CUT AND BORROW

### (e) Temporary stockpiling of materials

- ***Add the following:***

"The Contractor shall plan his activities so that materials excavated from borrow areas, cuttings and existing pavement and fills can be directly transported to and placed at the designated points.

The temporary stockpiling of material will not be paid for separately unless instructed by the Project Manager, and full compensation will be deemed to have been included in the rates tendered for the various payment items for work in which the stockpiled material is to be used."

## B3307 FILLS

### (a) General

- ***Add the following:***

"Where existing embankments are to be widened, or where new embankments are to be constructed adjacent to existing embankments, the existing side slopes shall be benched as specified in Sub-clause 3307(d) and in accordance with the details on the Drawings."

### (d) Benching

- ***Replace the first sentence of the second paragraph with the following:***

'The dimensions of benches as well as the extent to which existing fills have to be cut back to form benches shall be subject to the Project Manager's approval."

- ***Add the following:***

"In order to obtain sufficient working width for road-building equipment when the existing road fill is widened, it may be necessary to form benches that extend beyond the normal road prism or to cut back into the existing road fill or both. The Contractor shall submit his proposals in this regard to the Project Manager for approval before proceeding with such work. Where benching is required to accommodate earthworks for widening the road, the bid rate for compaction of existing ground shall be deemed to cover this activity.''

### (i) Widening of fills

- ***Replace with the following:*** 131

Where existing or eroded fills are to be widened, the existing fill slopes or eroded faces and the roadbed onto which the new fills are to be constructed, shall be cleared and grubbed, if so ordered by the Project Manager in writing. The clearing and grubbing shall be done in accordance with the provisions of section 1700. Subsequently the new roadbed shall be treated in accordance with the provisions of clause 3305.

Where existing or eroded fills are required to be widened or where already

constructed fills are required to be widened or flattened, it shall be done by way of bench construction as described in sub-clause 3307(d) in order to form a firm bond. During these operations there shall be close liaison between the Project Manager and the Contractor.

Benches of not more than 500mm deep shall be cut into the existing fill. In the case of fills of less than 1m in height, and in the upper metre of any fill, the benches shall not be deeper than the layer thickness prescribed for construction of the widening, depending on whether or not un-compacted fill materials occurs in the side of the existing fill.

The benches shall extend into the properly compacted portion of the original fill material to the satisfaction of the Project Manager.
All suitable material from benches shall be used in the construction of the widened section of the fill. Unsuitable material shall be removed as instructed by the Project Manager. Benches shall be compacted together with the fill widening during the construction of the fill.

Material from benches used in fill will be paid for as "cut to fill". Spoil material from the benches will be paid for as "cut to spoil".

Where the existing fill consists of rock fill, the new section shall also consist of rock fill, unless otherwise approved by the Project Manager. Where a rock fill is widened by adding soil or gravel material, the contractor shall obtain prior instructions from the Project Manager as to the type of subsoil drainage to be provided and other measures to be taken. Benching in rock fills shall be planned in consultation with the Project Manager.

For the subsoil drainage required by the Project Manager in the widening of fills, payment will be made in accordance with section 2100."

The contractor must anticipate construction of embankments of 2-2.5m in the dambo areas.

## B3308 FINISHING OF SLOPES

### (d) General

- ***Add the following paragraph:***

"No extra over payments will apply to the finishing of slopes in restricted areas."

## B3312 MEASUREMENT AND PAYMENT 132

The tendered rates for all materials and respective items shall also include full compensation for hauling of material as provided for in the BOQ.

### B33.01 Cut and borrow to fill including a unlimited free haul

***Add the following to the payment paragraph:***

The unit of measurement shall be the cubic meter of material measured in the compacted fill. Tendered rate shall include all costs as described in item 33.01 but for a unlimited free haul

**B33.07 Removal of unsuitable material (including unlimited free-haul ):**
***Add the following to the payment paragraph:***

The unit of measurement shall be the cubic meter of unsuitable material removed by the Contractor in accordance with the Engineer's instructions. The tendered rate shall include all costs as described in item 33.07 including unlimited free haul

## SECTION B3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

### B 3401 SCOPE

- ***Add the following:***

"This section also covers the reprocessing or replacement of existing pavement layers over part of or over the full road width. It also covers the addition of material to existing layers."

### B 3402 MATERIALS

### (a) General

- ***Replace with the following***

Notwithstanding the indications on the drawings regarding the possible use of the sources of natural material tested, it shall be incumbent on the Contractor to use only material which complies with the prescribed requirements for use in the relevant pavement layers. The potential of each source of material for use in the fill or layer-works shall be ascertained by the contractor from the test results and any other tests the contractor may conduct

The contractor may be instructed to perform additional soil investigations regarding the suitability of the existing gravel materials for re-use in the sub-base or be required to perform additional tests on borrow materials to confirm their suitability and availability for the layer works.

No separate payment will be made for excavating trial pits, as ordered by the Project Manager for any further investigations or for assistance rendered by the Contractor as directed by the Project Manager, in this regard, except for the provision of any Contractor's equipment, requested by the Project Manager for that purpose, which shall be paid for under Day-works.

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Where natural gravel does not fully comply with the requirements in respect of maximum size after having been broken down as determined in clause 3204, oversize material shall be removed as specified in clause 3210.

Gravel material for pavement layers may also be material recovered from

existing pavement layers, or imported material approved by the Project Manager.

Mixtures of surfacing and other material used in pavement layers shall not contain fragments of surfacing material exceeding 37.5 mm in size, and any such larger fragments shall be removed by hand at the expense of the Contractor.

(b) Selected layer – This layer is the selected sub-grade layer.

The select layer requirements are modified as follows.

- CBR of not less than 10% measured after 4 day soak on a laboratory mix compacted to a dry density of 93% (Modified AASHTO )
- Plasticity Index less than 20 %
- Swell less than 1% on the laboratory mix sample.
- Max particle size= 2/3 of layer thickness

**(f) Compaction requirements**

The maximum layer thickness in one lift is 150mm for all pavement layer works.

The minimum in situ dry density of gravel material shall be as specified hereinafter for the respective layers in terms of a percentage of modified AASHTO density.

| | | |
|---|---|---|
| Selected layer | : | 93% |
| Subbase | : | 95% for material not chemically stabilized.<br>95% for chemically stabilised material |
| Base | : | 97% for chemically stabilized or bitumen emulsion treated material |
| Shoulder/wearing course | : | 95% |

At pipe culverts, all fill above ground level around the culverts shall be compacted to density of 93 % MDD (Modified AASHTO) up to the level of the top of the pipes or top of the surround(s), if any and for a width equal to the internal diameter of the pipe on either side of the pipe(s) or surround(s) as applicable. At locations adjacent to structures, all fill above ground level up to the underside of the selected layer shall be compacted to density of 93 % MDD (Modified AASHTO).

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**B3403 CONSTRUCTION**

**(a) Requirements applying prior to the construction of the layer**

- ***Add the following:***

"Where a layer is constructed on the floor of a pavement excavation, i.e., where the underlying layer has not been reworked or reconstructed, the floor of the excavation shall first be watered and rolled if directed by the Project Manager. The Contractor

shall base his tender price on 5 roller passes with rollers specified in Clause 3304. The Project Manager may increase or decrease the number of roller passes or order the use of other rollers."

**(f) Classification of layers for payment purposes**

- ***Add*** "compacted or**" *after* "**in-situ**" *in the fourth line of the first paragraph.***
- ***Add:*** "Other than as described above in B34.03 (e) there shall be no distinction between in situ pavement layers and other in situ materials"

- ***Add the following subclauses:***

**"(g) Temporary stockpiling of materials**

The Contractor shall plan his activities so that materials excavated from borrow areas, cutting and existing pavements and fills, or imported from commercial sources, can be directly transported to and placed at the designated points.

The temporary stockpiling of material will not be paid for separately unless instructed by the Project Manager, and full compensation will be deemed to have been included in the rates tendered for the various payment items for work in which the material is to be used.

**(h) Storing recovered pavement material**

Excavated pavement material intended for reprocessing but which cannot be reprocessed in place or cannot, in the opinion of the Project Manager, be placed in a windrow next to the excavation, nor directly placed in position anywhere else, shall be dealt with as specified in clause 3806."

**B 3404 PROTECTION AND MAINTENANCE**

- ***Add the following:***

"In addition, payment may be withheld at the sole discretion of the Project Manager for any pavement layers on a particular section of the road, until final trimming of the sides of cuts and fills, the construction of side drains, including subsurface drainage where specified through cuttings, the installation of culverts other than low height culverts, etc, have all been completed for that section.

Where paved side drains are specified and the geometric shape of such drains do not permit the completion thereof before the construction of the sub base or subsequent layers a temporary profile will be permitted for the side drain provided that such profile shall effect positive drainage of the surface water with no water allowed to pond on and / or against structural layers of the pavement."



**B 3407 MEASUREMENT AND PAYMENT**

The bid rates shall be measured in m3 include full compensation for procuring, excavating, loading furnishing including all overhaul, crushing, screening and other modifications required to make suitable material, placing, preparing, processing,

shaping, watering, mixing, and compacting the materials to the densities according to the Specifications. No other payment shall be made for the costs on such operations except stabilisation of base.

## SECTION B 5200 GUARDRAIL

### B 5202 MATERIAL.

All materials for guardrails shall comply with the requirements of AASHTO M180-98 or SABS 1350. Guardrail posts and spacer blocks shall be galvanised UNP steel profiles 120 x 55x7mm or of the type and size shown on the drawings, with posts driven vertically at least 1.2m into the shoulder as directed by the Project Manager.

Beams for guardrails shall be "Armco Flexbeam" or similar obtained from a manufacturer approved by the Project Manager.

Reflective plates shall be galvanised V-type shape, manufactured from 1.5mm thick mild steel plate, with the outer surfaces coated with engineering grade retro-reflective material. Holes for fixing shall be drilled before the plates are galvanised.

### B5514 MEASUREMENT AND PAYMENT

***Add the following payment Item***

| **Item** | **Unit** |
|---|---|
| 55.10 Supply and Installation of Pelican Crossing | Lump Sum |

The tendered rate shall include the supply and installing of Pelican crossing which shall use far-side Pedestrian signal heads and a flashing amber/flashing green crossing period, of fixed duration, which is demanded solely by a push button.

**Timings**

The Operational Cycle use and variations are described in Table 1a and the timings in Table 1b. The cycle is initiated by a pedestrian demand.

**Period A**

Under vehicle actuation:-

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a) The minimum time will normally be 7 seconds. Exceptionally this may be adjusted for site conditions between the limits of 6 to 15 seconds in increments of not less than 1 second.
b) The maximum time will normally be preset at 40 seconds or less. This may be adjusted for site conditions up to a maximum of 60 seconds.
c) The maximum time will start at the commencement of the minimum time (‘pretimed max.’) on roads subject to speed limits up to and including 30 m.p.h. and at the pedestrian demand for other roads.

d) Termination will be subject to a pedestrian demand either at the end of the minimum time, when a gap is detected in traffic (gap change), or on the expiry of the preset maximum time (forced change).
e) The extension times for vehicles will be determined by the type of detection system used

**Period B**

This is the mandatory 3 second stopping amber signal to vehicles.

**Period C**

Where the 85$^{th}$ percentile speed exceeds 35 m.p.h., period C will normally be 3 seconds. For other roads it will normally be 1 second for a gap change and 1, 2 or 3 seconds for a forced change.

**Period D**

The timing for the Pedestrian green walking figure period, with the option of the audible/tactile signal, should normally be set as follows:-
a) 4 seconds for crossings up to 7.5 metres in length.
b) 5 seconds for crossings over 7.5 metres and up to 10.5 metres.
c) 6 seconds for crossings over 10.5 metres and up to 12.5 metres.
d) 7 seconds for crossings over 12.5 metres.

It may be desirable to extend the period by two seconds if-
• the appearance of Period E habitually causes pedestrians to hesitate or turn back;
• it is expected that there will be considerable use by disabled pedestrians;
• a non-staggered central refuge is provided thus enabling pedestrians to get established on the second half of the crossing before the flashing amber signal appears to the vehicle;
• waiting pedestrians have difficulty establishing themselves on the crossing.

**Period E**
The overlap arrangement may be preferred to that in the previous period:
• to maximise the efficiency of the crossing for both pedestrians and vehicles where there is a traffic capacity problem;
• where pedestrians constantly experience difficulty because of encroachment by vehicles at the commencement of period F. A short period of overlap is allowed between the flashing green figure and vehicle red. This is achieved by extending the vehicle red period by 2 seconds (at the expense of the normal flashing amber time) to run concurrently with the first 2 seconds of the flashing green figure time. The loss of flashing amber time is not compensated for by extending the flashing amber/red standing figure time (Period G).



The steady green figure (Period D) extension and the overlap facility (Period E) should not normally be used together at the same crossing.

**Period F**

The timing for the flashing green figure/flashing amber period should normally be set at 6 seconds plus 1 second for each 1.2 metres of crossing over 6 metres in length.

NOTE: The controller is capable of extending the timing to a maximum of 18 seconds. It would, however, be unacceptable and impracticable to provide an undivided Pelican crossing of 20.4 metres. Equally it would adversely affect the balance of vehicle and pedestrian delay to depart from the preceding advice.

**Period G**

The timing for the red standing figure/flashing amber period should normally be set at 1 second for crossings up to 10.5 metres in length and 2 seconds for crossings exceeding this.

The operational cycle use and variations are described in the Table B5-1 below

**Table B5-1: Pelican Crossings: Operation Cycle and Variations**

| PERIOD | USE | VARIATION FOR |
|---|---|---|
| A | Vehicle running time | Traffic volume |
| B | Standard stop warning to vehicles | None |
| C | Vehicle clearance period | Vehicle actuation |
| D | Pedestrian invitation to cross | Road width, disabled pedestrians, crossings with central refuge |
| E | Warning to pedestrian to clear the crossing and not to cross. Vehicles remain stopped. For use with divided crossing | Site conditions |
| F | As period E above but with vehicles allowed to proceed provided the crossing is clear of pedestrians ahead of them | Road Width |
| G | Additional pedestrian clearance timing before vehicle running period | Road Width |

The operational cycle use and timings are described in the Table B5-2 below

**Table B5-2: Pelican Crossings: Operational Cycle and Timings**

| PERIOD | SIGNALS SHOWN | | Timings (seconds) |
|---|---|---|---|
| | TO PEDESTRIANS | TO VEHICLES | 138 |
| A | Red Standing Figure (Wait) | Steady Green (Proceed if way is clear) | 20-60 (fixed)<br>6-60 (VA) |
| B | Red Standing Figure | Steady Amber (Stop unless not safe to do so) | 3 (Mandatory) |

| | | | |
|---|---|---|---|
| C | Red Standing Figure | Steady Red (Stop, wait behind stopline on carriageway) | 1 - 3 |
| D | Green Walking Figure with audible signal if provided (cross with care) | Steady Red | 4 to 7 (in some circumstances plus 2) |
| E | Flashing Green Figure (Do not start to cross) | Steady Red | 0 or 2 |
| F | Flashing Green Figure | Flashing Amber (give way to pedestrians on the crossing-they have priority) | 6 to 18 |
| G | Red standing Figure | Flashing Amber | 1 or 2 |

The crossing points where Pelican Crossings are installed shall be paved with a tactile surface and dropped kerbs to ensure the safe use by wheelchair users and those with walking disabilities.

***Add the following payment Item***

**Item** **Unit**

B55.11 Supply and Installation of Modern Bus Shelters Lump Sum

The tendered rate shall include the supply and installing of modern bus shelters depending on the existing dimensions of the walkways.

The Enclosed Bus Shelter type consisting of roof and four walls – provides the best protection for passengers but requires additional footway width and should be provided with two accesses to avoid entrapment. This style of shelter should only be used when misuse is considered highly unlikely.

Where there exists major intrusion of the footway, the Cantilever Bus Shelter option consisting of roof and front or back wall – providing little protection from wind and rain may be used. Panels may be fitted to improve protection with ¼ or ½ panels at the end. This option is considered the best compromise for protection and personal safety.

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- The Shelters should be sited to cause minimum obstruction of the footway and create minimum visibility obstruction for road users.
- Shelters should not be closer than 500mm from the kerb face in order to avoid fouling bus mirrors. The bus driver may also tend to stop further from the kerb face than is desirable.

- Shelters should be large enough to accommodate the average number of passengers at each stop allowing 0.4m2/passenger (This data will need to have been established by the Contractor at design stage)

- Entrance and exit should be at least 1000mm wide to accommodate wheelchair users and double-buggies.

## SECTION B 7100: TESTING MATERIALS AND WORKMANSHIP

### B 7108 TESTING TAR, B1TUMEN AND ASPHALT

- ***Add the following sub-clause:***

**"(d) Certificate of compliance for binder distributor**

When so instructed by the Project Manager, the Contractor shall obtain a valid certificate of compliance indicating that the binder distributor to be used complies with TMH2 or approved equivalent."

- ***Add the following new clauses:***

### B 7116 TESTS ON RETRO-REFLECTIVE MATERIAL FOR USE ON ROAD SIGNS

Three levels of retro-reflective performance are covered: engineering grade class I, super-engineering grade class II and high-intensity grade class III. The retro-reflective material shall comply with the requirements of SABS 1519. The coefficients of retroreflection given below are expressed in candellas per lux per square metre (cd/(luxlm$^2$)). The coefficients of the specimen, measured in accordance with Clause 3.2 of SABS 1519, shall not be less than the relevant values given in table B 7116/1 below, appropriate to the class of the specimen.

**TABLE B 7116/1 COEFFICIENTS OF RETRO-REFLECTION**

| 1 | 2 | 3 | 4 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|
| Class | Observation angle (degrees) | Entrance angle (degrees) | Coefficient of retro-reflection for different colours of material when measured with Standard Iliuminant A* (cd/(luxlm$^2$)) minimum | | | | | | |
| | | | Red | Orange | Yellow | Green | Blue | Purple | White Brown |
| I | 0, 3<br>2 | 5<br>30 | 10<br>0,4 | 20<br>0,8 | 35<br>1,5 | 7<br>0,3 | 3<br>0,1 | 2<br>0,1 | 50<br>2, 35 | 3<br>0,1 |
| II | 0,33<br>2 | 5<br>30 | 20<br>0,4 | 40<br>0,8 | 70<br>1,5 | 14<br>0,3 | 6<br>0,1 | 4<br>0,1 | 100<br>2,5 | 6<br>0,1 |
| III | 0,33<br>2<br>0,33 | 5<br>30<br>40 | 30<br>0,4<br>13 | 60<br>0,8<br>22 | 105<br>1,5<br>64 | 21<br>0,3<br>11 | 9<br>0,1<br>7 | 6<br>0,1<br>3,2 | 150<br>2,5<br>95 | 9<br>0,1<br>0,5 |

·See CIE Publication 15(E-1.3.1)

## PART C: SPECIAL WORKS

## SECTION C10100: SPECIAL ENVIRONMENTAL SPECIFICATIONS

### CI0101 GENERAL

The Contractor shall stockpile all topsoil excavated or removed during execution of the Works. The Contractor shall, as far as practicable, ensure that the stockpiles are located where trees can act as buffers to prevent dust pollution, and the stockpiles shal1 not interfere with existing drainage systems; all to the approval of the Project Manager.

The Contractor shall ensure that vegetation clearing is minimized during execution of the Works and that protected three species as listed in the Forest Act are preserved.

The Contractor shall ensure that no construction waste is left anywhere on Site or disposed of other than in designated disposal areas approved by the Project Manager. Such waste and any other excess material shall be buried within the road reserve or used for reinstating borrow areas and landscaping around the road or disposed of in accordance with the Zambia Environmental Management Agency (ZEMA) regulations.

The Contractor shall ensure that all waste generated during execution of the Works, is collected and disposed of at designated disposal sites in line with the "Waste Management Regulations" of ZEMA (Annex 1) or shall be re-used or sold for re-use locally as approved by the Project Manager.

The Contractor shall ensure that excess spoil material is disposed of in areas approved by the Project Manager and upon completion of the Works all such areas shall be landscaped and rehabilitated to the approval of the Project Manager in accordance with Clause 4.3 herein.

The Contractor shal1 ensure that all hazardous waste, chemicals and toxic substances are handled, treated and disposed of in line with the "Pesticides and Toxic Substances Regulations" of the ZEMA (Annex 2).

### CI0102 MATERIAL EXTRACTION

Prior to execution of the Works, the Contractor shall obtain appropriate licenses/permits from relevant authorities including traditional authorities to operate each quarry or borrow area.

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The Contractor shall ensure that each material extraction site is not located in a forest reserve, national parks, agricultural land, areas of high scenic value, or in the vicinity of settlement areas, cultural or archaeological sites, wetlands, river channels or any other valued ecosystem component and shall be located at not less than 500mfrom such areas. However, where there is no practical alternative, permission shall be sought from the Forest Department, Wildlife Authority, Department of Agriculture, Local Authority, National Heritage Conservation Commission or the ZEMA respectively and an environmental impact study shall be conducted in accordance with

the Environmental Impact Assessment regulations of ZEMA.

## CI0103 REINSTATEMENT OF THE SITE

Upon completion of the Works or as directed by the Project Manager, all borrow pits, quarry sites, access roads, diversions, camp sites and any other temporary Works shal1 be cleared of construction debris and surplus construction material and shall be reinstated as far as practicable to its original condition to the approval of the Project Manager. After which topsoil shall be reinstated over the affected areas to a depth of not less than 150mmto facilitate natural vegetation growth. The Contractor shall ensure that reinstated areas are inherently stable and self-draining.

Where provided for in the Contract, the Contractor shall provide and plant trees in reinstated areas as directed by the Project Manager and shall ensure the survival of planted tress by watering and protecting seedlings from fires, pests and diseases and other anthropogenic factors. The Contractor shall take care of all the required maintenance to the end of the Defects Liability Period.

For such replanting, the Contractor shall have first identified the availability and respective costs of suitable plant species readily available for replanting of reseeding for the approval of the Project Manager. The suitable plant species shall provide vegetative cover to control erosion, provide vegetation diversity, and that will succession, contribution to a stable and compatible ecosystem.

Where, a pit or quarry is declared a usable water source for the local community or livestock in the surrounding areas, the Contractor shall ensure that such areas are reshaped so as to be inherently stable, adequately drained and suitable for the desired long-term land use and minimize the long-term visual impact by creating landforms, which are compatible with the adjacent landscape.

## CI0104 WATER RESOURCES MANAGEMENT

The Contractor shall ensure that water flows in rivers, streams and other natural or irrigation channels are maintained and/or re-established where they are disrupted due to the execution of the Works.

The Contractor shall ensure that temporary damming of streams and rivers is done in such a way that disruption of water supplies to communities downstream is avoided and the ecological balance of the river system is maintained.

The Contractor shall obtain a permit from the Water Board and the Local Authority for extraction of both surface and underground water to avoid conflicting with water demands for local communities. Water extraction shall not be permitted from wetlands.

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The Contractor shall ensure that disposal of effluent (waste water or water containing spoils) into the aquatic environment shall be in accordance with the "Water Pollution Control (Effluent and Waste Water) Regulations" of the ZEMA (Annex 3), to avoid water pollution.

## CI0105 ENVIRONMENTAL HEALTH AND SAFETY

Notwithstanding General Conditions of Contract Clauses 19.1, the Contractor shall ensure the safety and health of the public and workers and meet safety requirements for the operation of the Works, which shall include but not necessarily limited to:

(1) sensitizing workers and local residents in consultation with other stakeholders on the dangers of contracting and spreading sexually transmitted diseases and other health risks including HIV/AIDS that may be compounded as a result of the construction activities. The Contractor must also put in place awareness campaigns on preventing the spread of the HIV/AIDS.

(2) ensuring that stagnant water in uncovered borrow pits is treated to avoid creating breeding grounds for mosquitoes if such pits are within 500m of human settlements or workers' camps.

(3) providing his workforce and the Project Manager's Site staff with protective gear such safety helmets, work boots, etc.; and where appropriate: safety goggles; dust masks; ear/noise protection headgear, etc

(4) spraying water on all access roads and diversions to suppress dust emissions in accordance with the "Air Pollution Control (Licensing and Emission Standards) Regulations: of the ZEMA.

(5) ensuring that noise levels emanating from machinery, vehicles and construction activities are kept to a minimum. Noise levels reaching the communities from construction activities shall not exceed 90 decibels.

(6) ensuring that blasting activities are not carried out in the vicinity of settlement areas, cultural sites, wetlands and are located not less than 1,5km from such areas; and that they are carried out during daylight hours after consulting with local communities on the proposed blasting times.

## CI0106 DISPLACEMENT AND RESETTLEMENT

The Contractor shall ensure that the execution of the Works does not cause to move or disadvantage people, their property or their activities.

In the event of any people or their properties or activities are caused to move or disadvantaged, as agreed necessary by the Project Manager, the Contractor shall formally notify the Project Manager of the physical extent and time frame the Contractor requires to use the areas affected and the Contractor shall submit copies of his notification to the Client for action in respect of compensation and any other measures required and the Client shall formally inform, through the Project Manager, the Contractor when the resettlement arrangements have been concluded such that the Contractor shall have access to the affected areas.

## CI0107 MEASUREMENTS AND PAYMENTS

The above provisions shall be deemed to be provided at the Contractors cost and priced as part of the Contractor's overheads.

# DRAWINGS – TYPICAL PAVEMENT STRUCTURE

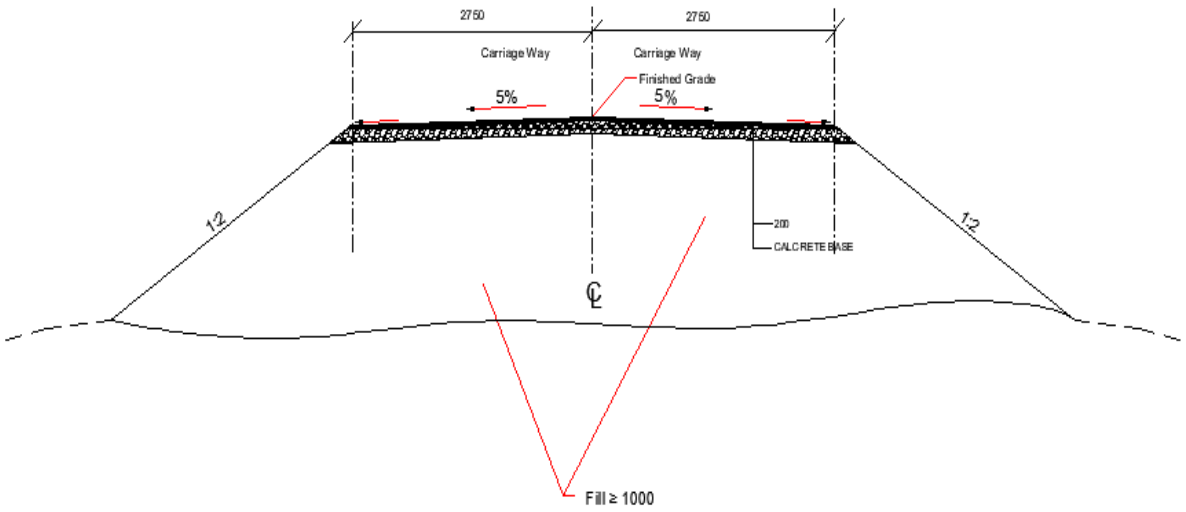
*Detailed Engineering Drawings to be prepared by the Contractor*

**FOR THE PURPOSE OF COMPARISON OF BIDS (COSTS), TYPICAL PAVEMENT STRUCTURE SHALL HAVE THE FOLLOWING DIMENSIONS.**

The following are the minimal requirements and assumptions for purposes of comparison of bids (costs) summarised as;

| **PARAMETER/ACTIVITY** | **WIDTH/THICKNESS** |
|---|---|
| Carriageway Width | 5.5 m (2*2.75m) |
| Base | 200 mm |
| **OTHER CONDITIONS/ASSUMPTIONS** | |
| Diversions Maintenance During Project Implementation (Traffic management) | |

Details on the cross-sectional elements and drainage installations are to be inferred by the bidders as part of a conceptual design for the road. The following drawings are the possible forms of the conceptual design outputs expected from bidders;




The above typical sections require domestication to a functional pavement as part of the design component under the design-build regime for the project.

# Supplementary Information

# PART 3 – Conditions of Contract and Contract Forms

## Section VII. General Conditions of Contract

These General Conditions of Contract (GCC), read in conjunction with the Particular Conditions of Contract (PCC) and other documents listed therein, should be a complete document expressing fairly the rights and obligations of both parties.

These General Conditions of Contract have been developed on the basis of considerable international experience in the drafting and management of contracts, bearing in mind a trend in the construction industry towards simpler, more straightforward language.

The GCC can be used for both smaller admeasurement contracts and lump sum contracts.

# GENERAL CONDITIONS

## 1 General Provisions

### 1.1 Definitions

In the Conditions of Contract ("these Conditions"), which include Particular Conditions and these General Conditions, the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

1.1.1 The Contract

1.1.1.1 "Contract" means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Employer's Requirements, the Schedules, the Contractor's Proposal, and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance.

1.1.1.2 "Contract Agreement" means the Contract Agreement (if any) referred to in Sub-Clause 1.6 [Contract Agreement].

1.1.1.3 "Letter of Acceptance" means the letter of formal acceptance, signed by the Employer, of the Letter of Tender, including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such Letter of Acceptance, the expression "Letter of Acceptance" means the Contract Agreement and the date of issuing or receiving the Letter of Acceptance means the date of signing the Contract Agreement.

1.1.1.4 "Letter of Tender" means the document entitled Letter of Tender, which was completed by the Contractor and includes the signed offer to the Employer for the Works.

1.1.1.5 "Employer's Requirements" means the document entitled Employer's Requirements, as included in the Contract, and any additions and modifications to such document in accordance with the Contract. Such document specifies the purpose, scope, and/or design and/or other technical criteria, for the Works.

1.1.1.6 "Schedules" means the document(s) entitled Schedules, completed by the Contractor and submitted with the Letter of Tender, as included in the Contract. Such document may include data, lists and Schedules of payments and/or prices.

1.1.1.7 "Contractor's Proposal" means the document entitled proposal, which the Contractor submitted with the Letter of Tender, as included in the Contract. Such document may include the Contractor’s preliminary design.

1.1.1.8 "Tender" means the Letter of Tender and all other documents which the Contractor submitted with the Letter of Tender, as included in the Contract.

1.1.1.9 "Appendix to Tender" means the completed pages entitled Appendix toTender which are appended to and form part of the Letter of Tender.

1.1.1.10 "Schedule of Guarantees" and "Schedule of Payments" mean the documents so named (if any) which are comprised in the Schedules.

### 1.1.2 Parties and Persons

1.1.2.1 "Party" means the Employer or the Contractor, as the context requires.

1.1.2.2 "Employer" means the person named as Employer in the Appendix to Tender and the legal successors in title to this person.

1.1.2.3 "Contractor" means the person(s) named as Contractor in the Letter of Tender accepted by the Employer and the legal successors in title to this person(s).

1.1.2.4 "Engineer" means the person appointed by the Employer to act as the Engineer for the purposes of the Contract and named in the Appendix to Tender, or other person appointed from time to time by the Employer and notified to the Contractor under Sub-Clause 3.4 [Replacement of the Engineer].

1.1.2.5 "Contractor's Representative" means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under Sub-Clause 4.3 [Contractor's Representative], who acts on behalf of the Contractor.

1.1.2.6 "Employer's Personnel" means the Engineer, the assistants referred to in Sub-Clause 3.2 [Delegation by the Engineer] and all other staff, labour and other employees of the Engineer and of the Employer; and any other personnel notified to the Contractor, by the Employer or the Engineer, as Employer's Personnel.

1.1.2.7 "Contractor's Personnel" means the Contractor's Representative and all personnel whom the Contractor utilises on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.

1.1.2.8 "Subcontractor" means any person named in the Contract as a Subcontractor, or any person appointed as a Subcontractor, for a part of the Works; and the legal successors in title to each of these persons.

1.1.2.9 "DAB" means the person or three persons so named in the Contract, or other person(s) appointed under Sub-Clause 20.2 [Appointment of the Dispute Adjudication Board] or Sub-Clause 20.3 [Failure to Agree Dispute Adjudication Board].

1.1.2.10 "FIDIC" means the Fédération Internationale des Ingénieurs-Conseils, the international federation of consulting engineers.

### 1.1.3 Dates, Tests, Periods and Completion

1.1.3.1 "Base Date" means the date 28 days prior to the latest date for submission of the Tender.

1.1.3.2 "Commencement Date" means the date notified under Sub-Clause 8.1 [Commencement of Works].

1.1.3.3 "Time for Completion" means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [Time for Completion], as stated in the Appendix to Tender (with any extension under Sub-Clause 8.4 [Extension of Time for Completion]), calculated from the Commencement Date.

1.1.3.4 "Tests on Completion" means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Employer.

1.1.3.5 "Taking-Over Certificate" means a certificate issued under Clause 10 [Employer's Taking Over].

1.1.3.6 "Tests after Completion" means the tests (if any) which are specified in the Contract and which are carried out under Clause 12 [Tests after Completion] after the Works or a Section (as the case may be) are taken over by the Employer.

1.1.3.7 "Defects Liability Period" means the period for notifying defects in the Works or a Section (as the case may be) under Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects], as stated in the Appendix to Tender (with any extension under Sub-Clause 11.3 [Extension of Defects Liability Period]), calculated from the date on which the Works or Section is completed as certified under Sub-Clause 10.1 [Taking Over of the Works and Sections].

1.1.3.8 "Performance Certificate" means the certificate issued under Sub-Clause 11.9 [Performance Certificate].

1.1.3.9 "day" means a calendar day and "year" means 365 days.

### 1.1.4 Money and Payments

1.1.4.1 "Accepted Contract Amount" means the amount accepted in the Letter of Acceptance for the design, execution and completion of the Works and the remedying of any defects.

1.1.4.2 "Contract Price" means the price defined in Sub-Clause 14.1 [The Contract Price], and includes adjustments in accordance with the Contract.

1.1.4.3 "Cost" means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.

1.1.4.4 "Final Payment Certificate" means the payment certificate issued under Sub-Clause 14.13 [Issue of Final Payment Certificate].

1.1.4.5 "Final Statement" means the Statement defined in Sub-Clause 14.11 [Application for Final Payment Certificate].

1.1.4.6 "Foreign Currency" means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.

1.1.4.7 "Interim Payment Certificate" means a payment certificate issued under Clause 14 [Contract Price and Payment], other than the Final Payment Certificate.

1.1.4.8 "Local Currency" means the currency of the Country.

1.1.4.9 "Payment Certificate" means a payment certificate issued under Clause 14 [Contract Price and Payment].

1.1.4.10 "Provisional Sum" means a sum (if any) which is specified in the Contract as a Provisional Sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [Provisional Sums].

1.1.4.11 "Retention Money" means the accumulated Retention Moneys which the Employer retains under Sub-Clause 14.3 [Application for Interim Payment Certificates] and pays under Sub-Clause 14.9 [Payment of Retention Money].

1.1.4.12 "Statement" means a Statement submitted by the Contractor as part of an application, under Clause 14 [Contract Price and Payment], for a payment certificate.

### 1.1.5 Works and Goods

1.1.5.1 "Contractor's Equipment" means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor's Equipment excludes Temporary Works, Employers Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.

1.1.5.2 "Goods" means Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.

1.1.5.3 "Materials" means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only Materials (if any) to be supplied by the Contractor under the Contract.

1.1.5.4 "Permanent Works" means the Permanent Works to be designed and executed by the Contractor under the Contract.

1.1.5.5 "Plant" means the apparatus, machinery and vehicles intended to form or forming part of the Permanent Works.

1.1.5.6 "Section" means a part of the Works specified in the Appendix to Tender as a Section (if any).

1.1.5.7 "Temporary Works" means all Temporary Works of every kind (other than Contractor's Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.

1.1.5.8 "Works" mean the Permanent Works and the Temporary Works, or either of them as appropriate.

### 1.1.6 Other Definitions

1.1.6.1 "Contractor's Documents" means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature supplied by the Contractor under the Contract; as described in Sub-Clause 5.2 [Contractor's Documents].

1.1.6.2 "Country" means the Country in which the Site (or most of it) is located, where the Permanent Works are to be executed.

1.1.6.3 "Employer's Equipment" means the apparatus, machinery and vehicles (if any) made available by the Employer for the use of the Contractor in the execution of the Works, as stated in the Employer's Requirements; but does not include Plant which has not been taken over by the Employer.

1.1.6.4 "Force Majeure" is defined in Clause 19 [Force Majeure].

1.1.6.5 "Laws" means all national (or state) legislation, statutes, ordinances and other Laws, and regulations and by-Laws of any legally constituted public authority.

1.1.6.6 "Performance Security" means the security (or securities, if any) under

Sub-Clause 4.2 [Performance Security].

1.1.6.7 "Site" means the places where the Permanent Works are to be executed and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.

1.1.6.8 "Unforeseeable" means not reasonably foreseeable by an experienced Contractor by the date for submission of the Tender.

1.1.6.9 "Variation" means any change to the Employer's Requirements or the Works, which is instructed or approved as a Variation under Clause 13 [Variations and Adjustments].

### 1.2 Interpretation

In the Contract, except where the context requires otherwise: (a) words indicating one gender include all genders;

(b) words indicating the singular also include the plural and words indicating the

plural also include the singular;

(c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing, and

(d) "written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record.

The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.

### 1.3 Communications

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 Appendix to Tender; and

(b) delivered, sent or transmitted to the address for the recipient’s communications as stated in the Appendix to Tender. 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. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Engineer or the other Party, as the case may be.

### 1.4 Law and Language

The Contract shall be governed by the law of the Country (or other jurisdiction) stated in the Appendix to Tender.

If there are versions of any part of the Contract which are written in more than one language, the version which is in the ruling language stated in the Appendix to Tender shall prevail.

The language for communications shall be that stated in the Appendix to Tender. If no language is stated there, the language for communications shall be the language in which the Contract (or most of it) is written.

### 1.5 Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

(a) the Contract Agreement (if any), (b) the Letter of Acceptance,

(c) the Letter of Tender,

(d) the Particular Conditions, (e) these General Conditions,

(f) the Employer's Requirements,

(g) the Schedules, and

(h) the Contractor's Proposal and any other documents forming part of the Contract.

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

### 1.6 Contract Agreement

The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless they agree otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The Costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

### 1.7 Assignment

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 favour of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.

### 1.8 Care and Supply of Documents

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.

The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Employer's Requirements, the Contractor's Documents, 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.

If a Party becomes aware of an error or defect of a technical nature 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.

### 1.9 Errors in the Employer's Requirements

If the Contractor suffers delay and/or incurs Cost as a result of an error in the Employer's Requirements, and an experienced Contractor exercising due care would not have discovered the error when scrutinising the Employer's Requirements under Sub-Clause 5.1 [General Design Obligations], the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's

Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under

Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost plus reasonable profit, which shall be included in the

Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with

Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been so discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

### 1.10 Employer's Use of Contractor's Documents

As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.

The Contractor shall be deemed (by signing the Contract) to give to the Employer a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This licence shall:

(a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,

(b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and

(c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.

The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third Party by (or on behalf of) the Employer for purposes other than those permitted under this Sub-Clause.

### 1.11 Contractor's Use of Employer's Documents

As between the Parties, the Employer shall retain the copyright and other intellectual property rights in the Employer's Requirements and other documents made by (or on behalf of) the Employer. The Contractor may, at his Cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Employer's consent, be copied, used or communicated to a third Party by the Contractor, except as necessary for the purposes of the Contract.

### 1.12 Confidential Details

The Contractor shall disclose all such confidential and other information as the Engineer may reasonably require in order to verify the Contractor's compliance with the Contract.

### 1.13 Compliance with Laws

The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Particular Conditions:

(a) the Employer shall have obtained (or shall obtain) the planning, zoning or similar permission for the Permanent Works, and any other permissions described in the Employer's Requirements as having been (or being) obtained by the Employer; and the Employer shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and

(b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the Laws in relation to the design, execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Employer harmless against and from the consequences of any failure to do so.

### 1.14 Joint and Several Liability

If the Contractor constitutes (under applicable Laws) a joint venture, consortium or other unincorporated grouping of two or more persons:

(a) these persons shall be deemed to be jointly and severally liable to the Employer for the performance of the Contract;

(b) these persons shall notify the Employer of their leader who shall have authority to bind the Contractor and each of these persons; and

(c) the Contractor shall not alter its composition or legal status without the prior consent of the Employer.

## 2 The Employer

### 2.1 Right of Access to the Site

The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the Appendix to Tender. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in the Employer's Requirements. However, the Employer may withhold any such right or possession until the Performance Security has been received.

If no such time is stated in the Appendix to Tender, the Employer shall give the

Contractor right of access to, and possession of, the Site within such times as may be required to enable the Contractor to proceed in accordance with the programme submitted under Sub-Clause 8.3 [Programme].

If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

**2.2 Permits, Licences or Approvals**

The Employer shall (where he is in a position to do so) provide reasonable assistance to the Contractor at the request of the Contractor:

(a) by obtaining copies of the Laws of the Country which are relevant to the Contract but are not readily available, and

(b) for the Contractor's applications for any permits, licences or approvals required by the Laws of the Country:

(i) which the Contractor is required to obtain under Sub-Clause 1.13 [Compliance with Laws],

(ii) for the delivery of Goods, including clearance through customs, and

(iii) for the export of Contractor's Equipment when it is removed from the Site.

2.3 Employer's Personnel

The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:

(a) co-operate with the Contractor's efforts under Sub-Clause 4.6 [Co-operation], and

(b) take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment].

## 2.4 Employer's Financial Arrangements

The Employer shall submit, within 28 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the Contract Price (as estimated at that time) in accordance with Clause 14 [Contract Price and Payment].

If the Employer intends to make any material change to his financial arrangements, the Employer shall give notice to the Contractor with detailed particulars.

## 2.5 Employer's Claims

If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Employer or the Engineer shall give

notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [Electricity, Water and Gas], under

Sub-Clause 4.20 [Employers Equipment and Free-Issue Material], or for other services

requested by the Contractor.

The notice shall be given as soon as practicable after the Employer became aware of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Liability Period shall be given before the expiry of such period.

The particulars shall specify the Clause or other basis of the claim, and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Engineer shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine

(i) the amount (if any) which the Employer is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Liability Period in accordance with Sub-Clause 11.3 [Extension of Defects Liability Period].

This amount may be included as a deduction in the Contract Price and Payment Certificates. The Employer shall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.

## 3 The Engineer

### 3.1 Engineer's Duties and Authority

The Employer shall appoint the Engineer who shall carry out the duties assigned to him in the Contract. The Engineer's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties. The Engineer shall have no authority to amend the Contract.

The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract. If the Engineer is required to obtain the approval of the Employer before exercising a specified authority, the requirements shall be as stated in the Particular Conditions. The Employer undertakes not to impose further constraints on the Engineer's authority, except as agreed with the Contractor.

However, whenever the Engineer exercises a specified authority for which the Employer's approval is required, then (for the purposes of the Contract) the Employer shall be deemed to have given approval. Except as otherwise stated in these Conditions:

(a) whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer shall be deemed to act for the Employer;

(b) the Engineer has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract; and

(c) any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Engineer (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies

and non-compliances.

### 3.2 Delegation by the Engineer

The Engineer may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident engineer, and/or independent inspectors appointed to inspect and/or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties. However, unless otherwise agreed by both Parties, the

Engineer shall not delegate the authority to determine any matter in accordance with Sub-Clause 3.5 [Determinations].

Assistants shall be suitably qualified persons, who are competent to carry out these duties and exercise this authority, and who are fluent in the language for communications defined in Sub-Clause 1.4 [Law and Language].

Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorised to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:

(a) any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Engineer to reject the

work, Plant or Materials;

(b) if the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer, who shall promptly confirm, reverse or vary the determination or instruction.

### 3.3 Instructions of the Engineer

The Engineer may issue to the Contractor (at any time) instructions which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor shall only take instructions from the

Engineer, or from an assistant to whom the appropriate authority has been delegated under this Clause. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

The Contractor shall comply with the instructions given by the Engineer or delegated assistant, on any matter related to the Contract. These instructions shall be given in writing.

### 3.4 Replacement of the Engineer

If the Employer intends to replace the Engineer, the Employer shall, not less than 42 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended replacement Engineer. The

Employer shall not replace the Engineer with a person against whom the Contractor raises reasonable objection by notice to the Employer, with supporting particulars.

### 3.5 Determinations

Whenever these Conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Engineer shall consult with each Party in an endeavour to reach agreement. If agreement is not achieved, the Engineer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

The Engineer shall give notice to both Parties of each agreement or determination, with supporting particulars. Each Party shall give effect to each agreement or determination unless and until revised under Clause 20 [Claims, Disputes and Arbitration].

## 4 The Contractor

### 4.1 Contractor’s General Obligations

The Contractor shall design, execute and complete the Works in accordance with the Contract, and shall remedy any defects in the Works. When completed, the Works shall be fit for the purposes for which the Works are intended as defined in the Contract.

The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.

The Works shall include any work which is necessary to satisfy the Employer's Requirements, Contractor's Proposal and Schedules, or is implied by the Contract, and all works which (although not mentioned in the Contract) are necessary for stability or for the completion, or safe and proper operation, of the Works.

The Contractor shall be responsible for the adequacy, stability and safety of all Site operations, of all methods of construction and of all the Works.

The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer.

**4.2 Performance Security**

The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount and currencies stated in the Appendix to Tender. If an amount is not stated in the Appendix to Tender, this Sub-Clause shall not apply.

The Contractor shall deliver the Performance Security to the Employer within 28 days after receiving the Letter of Acceptance, and shall send a copy to the Engineer. The Performance Security shall be issued by an entity and from within a country (or other jurisdiction) approved by the Employer, and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer.

The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any

defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.

The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract in the event of:

(a) failure by the Contractor to extend the validity of the Performance Security as described in the preceding paragraph, in which event the Employer may claim the full amount of the Performance Security,

(b) failure by the Contractor to pay the Employer an amount due, as either agreed by the Contractor or determined under Sub-Clause 2.5 [Employer's Claims] or Clause 20 [Claims, Disputes and Arbitration], within 42 days after this agreement or determination,

(c) failure by the Contractor to remedy a default within 42 days after receiving the Employer's notice requiring the default to be remedied, or

(d) circumstances which entitle the Employer to termination under Sub-Clause 15.2 [Termination by Employer], irrespective of whether notice of termination has been given.

The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.

The Employer shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.

### 4.3 Contractor's Representative

The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract.

Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Engineer for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked, or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.

The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.

The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Engineer's prior consent, and the Engineer shall be notified accordingly.

The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].

The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Engineer has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

The Contractor's Representative and all these persons shall be fluent in the language for communications defined in Sub-Clause 1.4 [Law and Language].

**4.4 Subcontractors**

The Contractor shall not subcontract the whole of the Works.

The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the Particular Conditions:

(a) the Contractor shall not be required to obtain consent to suppliers of Materials, or to a subcontract for which the Subcontractor is named in the Contract;

(b) the prior consent of the Engineer shall be obtained to other proposed Subcontractors; and

(c) the Contractor shall give the Engineer not less than 28 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site.

### 4.5 Nominated Subcontractors

In this Sub-Clause, "nominated Subcontractor" means a Subcontractor whom the Engineer, under Clause 13 [Variations and Adjustments], instructs the Contractor to employ as a Subcontractor. The Contractor shall not be under any obligation to

employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Engineer as soon as practicable, with supporting particulars.

### 4.6 Co-operation

The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:

(a) the Employer's Personnel,

(b) any other contractors employed by the Employer, and

(c) the personnel of any legally constituted public authorities,

who may be employed in the execution on or near the Site of any work not included in the Contract.

Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.

The Contractor shall be responsible for his construction activities on the Site, and shall co-ordinate his own activities with those of other contractors to the extent (if any) specified in the Employer's Requirements.

If, under the Contract, the Employer is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Engineer in the time and manner stated in the Employer's Requirements.

### 4.7 Setting Out

The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract or notified by the Engineer. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

The Employer shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.

If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

### 4.8 Safety Procedures

The Contractor shall:

(a) comply with all applicable safety regulations,

(b) take care for the safety of all persons entitled to be on the Site,

(c) use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons,

(d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Employer's Taking Over], and

(e) provide any Temporary Works (including roadways, footways, guards and fences)

which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.

### 4.9 Quality Assurance

The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Engineer shall be entitled to audit any aspect of the system.

Details of all procedures and compliance documents shall be submitted to the Engineer for information before each design and execution stage is commenced.

When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the Contractor himself shall be apparent on the document itself.

Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

### 4.10 Site Data

The Employer shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Employer's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Employer shall similarly make available to the Contractor all such data which come into the Employer's possession after the Base Date. The Contractor shall be responsible for interpreting all such data.

To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters,

including (without limitation):

(a) the form and nature of the Site, including sub-surface conditions, (b) the hydrological and climatic conditions,

(c) the extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects,

(d) the Laws, procedures and labour practices of the Country, and

(e) the Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.

### 4.11 Sufficiency of the Accepted Contract Amount

The Contractor shall be deemed to:

(a) have satisfied himself as to the correctness and sufficiency of the Accepted Contract Amount, and

(b) have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in Sub-Clause 4.10 [Site Data] and any further data relevant to the Contractor's design.

Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under the Contract (including those under Provisional Sums, if any) and all things necessary for the proper design, execution and completion of the Works and the remedying of any defects.

### 4.12 Unforeseeable Physical Conditions

In this Sub-Clause, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.

If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Engineer as soon as practicable.

This notice shall describe the physical conditions, so that they can be inspected by the Engineer, and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Engineer may give. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, which shall be included in the Contract Price. After receiving such notice and inspecting and/or investigating these physical conditions, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent these physical conditions were Unforeseeable, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Engineer may also review whether other physical conditions in similar parts of the Works (if any) were more favourable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favourable conditions were encountered, the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the reductions in Cost which were due to

these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the physical conditions encountered in similar parts of the Works, shall not result in a net reduction in the Contract Price.

The Engineer may take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which may be made available by the Contractor, but shall not be bound by any such evidence.

### 4.13 Rights of Way and Facilities

The Contractor shall bear all costs and charges for special and/or temporary rights-of-way which he may require, including those for access to the Site. The Contractor shall also obtain, at his risk and cost, any additional facilities outside the Site which he may require for the purposes of the Works.

### 4.14 Avoidance of Interference

The Contractor shall not interfere unnecessarily or improperly with:

(a) the convenience of the public, or

(b) the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others.

The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

### 4.15 Access Route

The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor’s traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

Except as otherwise stated in these Conditions:

(a) the Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes;

(b) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;

(c) the Employer shall not be responsible for any claims which may arise from the use or otherwise of any access route,

(d) the Employer does not guarantee the suitability or availability of particular access routes, and

(e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

**4.16 Transport of Goods**

Unless otherwise stated in the Particular Conditions:

(a) the Contractor shall give the Engineer not less than 21 days' notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;

(b) the Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and

(c) the Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods, and shall negotiate and pay all claims arising from their transport.

**4.17 Contractor's Equipment**

The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.

### 4.18 Protection of the Environment

The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values indicated in the Employer's Requirements, and shall not exceed the values prescribed by applicable Laws.

### 4.19 Electricity, Water and Gas

The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require.

The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Employer's Requirements. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed.

The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

### 4.20 Employers Equipment and Free-Issue Material

The Employer shall make the Employers Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements

and prices stated in the Employer's Requirements. Unless otherwise stated in the Employer's Requirements:

(a) the Employer shall be responsible for the Employers Equipment, except that

(b) the Contractor shall be responsible for each item of Employers Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it.

The appropriate quantities and the amounts due (at such stated prices) for the use of Employer's Equipment shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

The Employer shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Employer's Requirements. The Employer shall, at his risk and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them, and shall promptly give notice to the Engineer of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Employer shall immediately rectify the notified shortage, defect or default.

After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Employer of liability for any shortage, defect or default not apparent from a visual inspection.

### 4.21 Progress Reports

Unless otherwise stated in the Particular Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Engineer in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.

Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

Each report shall include:

(a) charts and detailed descriptions of progress, including each stage of design, Contractor's Documents, procurement, manufacture, delivery to Site,

construction, erection, testing, commissioning and trial operation;

(b) photographs showing the status of manufacture and of progress on the Site; (c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:

(i) commencement of manufacture,

(ii) Contractor's inspections,

(iii) tests, and

(iv) shipment and arrival at the Site.

(d) the details described in Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment];

(e) copies of quality assurance documents, test results and certificates of Materials;

(f) list of Variations, notices given under Sub-Clause 2.5 [Employer's Claims] and notices given under Sub-Clause 20.1 [Contractor's Claims];

(g) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and

(h) comparisons of actual and planned progress, with details of any events or circumstances which may jeopardise the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.

### 4.22 Security of the Site

Unless otherwise stated in the Particular Conditions:

(a) the Contractor shall be responsible for keeping unauthorised persons off the Site, and

(b) authorised persons shall be limited to the Contractor's Personnel and the Employer's Personnel; and to any other personnel notified to the Contractor, by the Employer or the Engineer, as authorised personnel of the Employer's other contractors on the Site.

### 4.23 Contractor's Operations on Site

The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Engineer as working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.

During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction, and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.

Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.

### 4.24 Fossils

All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

## 5 Design

### 5.1 General Design Obligations

The Contractor shall carry out, and be responsible for, the design of the Works. Design shall be prepared by qualified designers who are engineers or other professionals who comply with the criteria (if any) stated in the Employer's Requirements. Unless otherwise stated in the Contract, the Contractor shall submit to the Engineer for consent the name and particulars of each proposed designer and design Subcontractor.

The Contractor warrants that he, his designers and design Subcontractors have the experience and capability necessary for the design. The Contractor undertakes that the designers shall be available to attend discussions with the Engineer at all reasonable times, until the expiry date of the relevant Defects Notification Period.

Upon receiving notice under Sub-Clause 8.1 [Commencement of Works], the Contractor shall scrutinise the Employer's Requirements (including design criteria and calculations, if any) and the items of reference mentioned in Sub-Clause 4.7 [Setting Out]. Within the period stated in the Appendix to Tender, calculated from the Commencement Date, the Contractor shall give notice to the Engineer of any error, fault or other defect found in the Employer's Requirements or these items of reference.

After receiving this notice, the Engineer shall determine whether Clause 13 [Variations and Adjustments] shall be applied, and shall give notice to the Contractor accordingly. If and to the extent that (taking account of cost and time) an experienced contractor exercising due care would have discovered the error, fault or other defect when examining the Site and the Employer's Requirements before submitting the Tender, the Time for Completion shall not be extended and the Contract Price shall not be adjusted.

## 5.2 Contractor's Documents

The Contractor’s Documents shall comprise the technical documents specified in the Employer’s Requirements, documents required to satisfy all regulatory approvals, and the documents described in Sub-Clause 5.6 [As-Built Documents] and Sub-Clause 5.7 [Operation and Maintenance Manuals]. Unless otherwise stated in the Employer’s Requirements, the Contractor's Documents shall be written in the language for communications defined in Sub-Clause 1.4 [Law and Language].

The Contractor shall prepare all Contractor's Documents, and shall also prepare any other documents necessary to instruct the Contractor's Personnel. The Employer's Personnel shall have the right to inspect the preparation of all these documents, wherever they are being prepared.

If the Employer's Requirements describe the Contractor's Documents which are to be submitted to the Engineer for review and/or for approval, they shall be submitted accordingly, together with a notice as described below. In the following provisions of this Sub-Clause, (i) "review period" means the period required by the Engineer for review and (if so specified) for approval, and (ii) "Contractor's Documents" exclude any documents which are not specified as being required to be submitted for review and/or for approval.

Unless otherwise stated in the Employer's Requirements, each review period shall not exceed 21 days, calculated from the date on which the Engineer receives a Contractor's Document and the Contractor’s notice. This notice shall state that the Contractor's Document is considered ready, both for review (and approval, if so specified) in accordance with this Sub-Clause and for use. The notice shall also state that the Contractor's Document complies with the Contract, or the extent to which it does not comply.

The Engineer may, within the review period, give notice to the Contractor that a Contractor's Document fails (to the extent stated) to comply with the Contract. If a Contractor's Document so fails to comply, it shall be rectified, resubmitted and reviewed (and, if specified, approved) in accordance with this Sub-Clause, at the Contractor’s cost.

For each part of the Works, and except to the extent that the prior approval or consent of the Engineer shall have been obtained:

(a) in the case of a Contractor's Document which has (as specified) been submitted for the Engineer's approval:

(i) the Engineer shall give notice to the Contractor that the Contractor's Document is approved, with or without comments, or that it fails (to the extent stated) to comply with the Contract;

(ii) execution of such part of the Works shall not commence until the Engineer has approved the Contractor's Document; and

(iii) the Engineer shall be deemed to have approved the Contractor's Document upon the expiry of the review periods for all the Contractor's Documents which are relevant to the design and execution of such part, unless the Engineer has previously notified otherwise in accordance with sub-paragraph (i);

(b) execution of such part of the Works shall not commence prior to the expiry of the review periods for all the Contractor's Documents which are relevant to its design and execution;

(c) execution of such part of the Works shall be in accordance with these reviewed (and, if specified, approved) Contractor's Documents; and

(d) if the Contractor wishes to modify any design or document which has previously been submitted for review (and, if specified, approval), the Contractor shall immediately give notice to the Engineer. Thereafter, the Contractor shall submit revised documents to the Engineer in accordance with the above procedure.

If the Engineer instructs that further Contractor's Documents are required, the Contractor shall prepare them promptly.

Any such approval or consent, or any review (under this Sub-Clause or otherwise), shall not relieve the Contractor from any obligation or responsibility.

### 5.3 Contractor's Undertaking

The Contractor undertakes that the design, the Contractor's Documents, the execution and the completed Works will be in accordance with:

(a) the Laws in the Country, and

(b) the documents forming the Contract, as altered or modified by Variations.

## 5.4 Technical Standards and Regulations

The design, the Contractor's Documents, the execution and the completed Works shall comply with the Country's technical standards, building, construction and environmental Laws, Laws applicable to the product being produced from the Works, and other standards specified in the Employer's Requirements, applicable to the Works, or defined by the applicable Laws.

All these Laws shall, in respect of the Works and each Section, be those prevailing when the Works or Section are taken over by the Employer under Clause 10 [Employer's Taking Over]. References in the Contract to published standards shall be understood to be references to the edition applicable on the Base Date, unless stated otherwise.

If changed or new applicable standards come into force in the Country after the Base Date, the Contractor shall give notice to the Engineer and (if appropriate) submit proposals for compliance. In the event that:

(a) the Engineer determines that compliance is required, and

(b) the proposals for compliance constitute a variation,

then the Engineer shall initiate a Variation in accordance with Clause 13 [Variations and Adjustments].

## 5.5 Training

The Contractor shall carry out the training of Employer's Personnel in the operation and maintenance of the Works to the extent specified in the Employer's Requirements. If the Contract specifies training which is to be carried out before taking-over, the Works shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until this training has been completed.

## 5.6 As-Built Documents

The Contractor shall prepare, and keep up-to-date, a complete set of "as-built" records of the execution of the Works, showing the exact as-built locations, sizes and details of the work as executed. These records shall be kept on the Site and shall be used exclusively for the purposes of this Sub-Clause. Two copies shall be supplied to the Engineer prior to the commencement of the Tests on Completion.

In addition, the Contractor shall supply to the Engineer as-built drawings of the Works, showing all Works as executed, and submit them to the Engineer for review under Sub-Clause 5.2 [Contractor's Documents]. The Contractor shall obtain the consent of the Engineer as to their size, the referencing system, and other relevant details.

Prior to the issue of any Taking-Over Certificate, the Contractor shall supply to the Engineer the specified numbers and types of copies of the relevant as-built drawings, in accordance with the Employer's Requirements. The Works shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until the Engineer has received these documents.

### 5.7 Operation and Maintenance Manuals

Prior to commencement of the Tests on Completion, the Contractor shall supply to the Engineer provisional operation and maintenance manuals in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair the Plant.

The Works shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until the Engineer has received final operation and maintenance manuals in such detail, and any other manuals specified in the Employer's Requirements for these purposes.

### 5.8 Design Error

If errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the Contractor's Documents, they and the Works shall be corrected at the Contractor’s cost, notwithstanding any consent or approval under this Clause.

## 6 Staff and Labour

### 6.1 Engagement of Staff and Labour

Except as otherwise stated in the Employer's Requirements, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, housing, feeding and transport.

### 6.2 Rates of Wages and Conditions of Labour

The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.

### 6.3 Persons in the Service of Employer

The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.

### 6.4 Labour Laws

The Contractor shall comply with all the relevant labour Laws applicable to the Contractor’s Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

### 6.5 Working Hours

No work shall be carried out on the Site on locally recognised days of rest, or outside the normal working hours stated in the Appendix to Tender, unless:

(a) otherwise stated in the Contract, (b) the Engineer gives consent, or

(c) the work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer.

### 6.6 Facilities for Staff and Labour

Except as otherwise stated in the Employer's Requirements, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Employer's Requirements.

The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

### 6.7 Health and Safety

The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.

### 6.8 Contractor's Superintendence

Throughout the design and execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the work.

Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [Law and Language]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

### 6.9 Contractor's Personnel

The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Engineer may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative if applicable, who:

(a) persists in any misconduct or lack of care,

(b) carries out duties incompetently or negligently,

(c) fails to conform with any provisions of the Contract, or

(d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment.

If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

### 6.10 Records of Contractor's Personnel and Equipment

The Contractor shall submit, to the Engineer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site.

Details shall be submitted each calendar month, in a form approved by the Engineer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

### 6.11 Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.

## 7 Plant, Materials and Workmanship

### 7.1 Manner of Execution

The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works:

(a) in the manner (if any) specified in the Contract,

(b) in a proper workmanlike and careful manner, in accordance with recognised good practice, and

(c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

### 7.2 Samples

The Contractor shall submit the following samples of Materials, and relevant information, to the Engineer for review in accordance with the procedures for Contractor's Documents described in Sub-Clause 5.2 [Contractor's Documents]:

(a) manufacturer’s standard samples of Materials and samples specified in the Contract, all at the Contractor’s cost, and

(b) additional samples instructed by the Engineer as a Variation.

Each sample shall be labelled as to origin and intended use in the Works.

### 7.3 Inspection

The Employer's Personnel shall at all reasonable times:

(a) have full access to all parts of the Site and to all places from which natural Materials are being obtained, and

(b) during production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and

workmanship, and to check the progress of manufacture of Plant and production

and manufacture of Materials.

The Contractor shall give the Employer's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

The Contractor shall give notice to the Engineer whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Engineer shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Engineer does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and thereafter reinstate and make good, all at the Contractor’s cost.

**7.4 Testing**

This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).

The Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the

Works.

The Engineer may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests.

If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

The Engineer shall give the Contractor not less than 24 hours' notice of the Engineer's intention to attend the tests. If the Engineer does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Engineer's presence.

If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Employer is responsible, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall promptly forward to the Engineer duly certified reports of the tests. When the specified tests have been passed, the Engineer shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Engineer has not attended the tests, he shall be deemed to have accepted the readings as accurate.

### 7.5 Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials, design or workmanship is found to be defective or otherwise not in accordance with the Contract, the Engineer may reject the Plant, Materials, design or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.

If the Engineer requires this Plant, Materials, design or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer.

## 7.6 Remedial Work

Notwithstanding any previous test or certification, the Engineer may instruct the Contractor to:

(a) remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,

(b) remove and re-execute any other work which is not in accordance with the Contract, and

(c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.

The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c).

If the Contractor fails to comply with the instruction, the Employer shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer all costs arising from this failure.

## 7.7 Ownership of Plant and Materials

Each item of Plant and Materials shall, to the extent consistent with the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances:

(a) when it is delivered to the Site;

(b) when the Contractor is entitled to payment of the value of the Plant and Materials under Sub-Clause 8.10 [Payment for Plant and Materials in Event of Suspension].

### 7.8 Royalties

Unless otherwise stated in the Employer's Requirements, the Contractor shall pay all royalties, rents and other payments for:

(a) natural Materials obtained from outside the Site, and

(b) the disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.

## 8 Commencement, Delays and Suspension

### 8.1 Commencement of Works

The Engineer shall give the Contractor not less than 7 days' notice of the Commencement Date. Unless otherwise stated in the Particular Conditions, the Commencement Date shall be within 42 days after the Contractor receives the Letter of Acceptance.

The Contractor shall commence the design and execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

### 8.2 Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

(a) achieving the passing of the Tests on Completion, and

(b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections].

### 8.3 Programme

The Contractor shall submit a detailed time programme to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall include:

(a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design, Contractor's Documents, procurement, manufacture, inspection, delivery to Site, construction, erection, testing,

commissioning and trial operation,

(b) the periods for reviews under Sub-Clause 5.2 [Contractor's Documents] and for any other submissions, approvals and consents specified in the Employer's Requirements,

(c) the sequence and timing of inspections and tests specified in the Contract, and

(d) a supporting report which includes:

(i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Wo rks, and

(ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon

the programme when planning their activities.

The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works. The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [Variation Procedure].

If, at any time, the Engineer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Engineer in accordance with this Sub-Clause.

## 8.4 Extension of Time for Completion

The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:

(a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]),

(b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,

(c) exceptionally adverse climatic conditions,

(d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or

(e) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors on the Site.

If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Engineer in accordance with Sub-Clause 20.1 [Contractor's Claims]. When determining each extension of time under Sub-Clause 20.1, the Engineer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

## 8.5 Delays Caused by Authorities

If the following conditions apply, namely:

(a) the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country,

(b) these authorities delay or disrupt the Contractor's work, and

(c) the delay or disruption was Unforeseeable,

then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [Extension of Time for Completion].

### 8.6 Rate of Progress

If, at any time:

(a) actual progress is too slow to complete within the Time for Completion, and/or

(b) progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [Programme], other than as a result of a cause listed in Sub-Clause 8.4 [Extension of Time for Completion], then the Engineer may instruct the Contractor to submit, under Sub-Clause 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

Unless the Engineer notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer, in addition to delay damages (if any) under Sub-Clause 8.7 below.

### 8.7 Delay Damages

If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay delay damages to the Employer for this default. These delay damages shall be the sum stated in the Appendix to Tender, which shall be paid for every day which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Appendix to Tender.

These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [Termination by Employer] prior to completion of the Works. These damages shall not relieve the

Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

### 8.8 Suspension of Work

The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

The Engineer may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.

### 8.9 Consequences of Suspension

If the Contractor suffers delay and/or incurs Cost from complying with the Engineer's instructions under Sub-Clause 8.8 [Suspension of Work] and/or from resuming the work, the Contractor shall give notice to the Engineer and shall be
entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under
Sub-Clause 8.4 [Extension of Time for Completion], and
(b) payment of any such Cost, which shall be included in the Contract Price. After receiving this notice, the Engineer shall proceed in accordance with
Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall not be entitled to an extension of time for, or to payment of the
Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure
in accordance with Sub-Clause 8.8 [Suspension of Work].

### 8.10 Payment for Plant and Materials in Event of Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/or Materials which have not been delivered to Site, if:

(a) the work on Plant or delivery of Plant and/or Materials has been suspended for more than 28 days, and

(b) the Contractor has marked the Plant and/or Materials as the Employer's property in accordance with the Engineer's instructions.

### 8.11 Prolonged Suspension

If the suspension under Sub-Clause 8.8 [Suspension of Work] has continued for more than 84 days, the Contractor may request the Engineer's permission to proceed. If the Engineer does not give permission within 28 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension as an omission under Clause 13 [Variations and Adjustments] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [Termination by Contractor].

### 8.12 Resumption of Work

After the permission or instruction to proceed is given, the Contractor and the Engineer shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension.

## 9 Tests on Completion

### 9.1 Contractor's Obligations

The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [Testing], after providing the documents in accordance with Sub-Clause 5.6 [As-Built Documents] and Sub-Clause 5.7 [Operation and Maintenance Manuals].

The Contractor shall give to the Engineer not less than 21 days' notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Engineer shall instruct.

Unless otherwise stated in the Particular Conditions, the Tests on Completion shall be carried out in the following sequence:

(a) pre-commissioning tests, which shall include the appropriate inspections and ("dry" or "cold") functional tests to demonstrate that each item of Plant can safely undertake the next stage, (b);

(b) commissioning tests, which shall include the specified operational tests to demonstrate that the Works or Section can be operated safely and as specified, under all available operating conditions; and

(c) trial operation, which shall demonstrate that the Works or Section perform reliably and in accordance with the Contract.

During trial operation, when the Works are operating under stable conditions, the Contractor shall give notice to the Engineer that the Works are ready for any other Tests on Completion, including performance tests to demonstrate whether the Works conform with criteria specified in the Employer's Requirements and with the Schedule of Guarantees.

Trial operation shall not constitute a taking-over under Clause 10 [Employer’s Taking Over]. Unless otherwise stated in the Particular Conditions, any product produced by the Works during trial operation shall be the property of the Employer.

In considering the results of the Tests on Completion, the Engineer shall make allowances for the effect of any use of the Works by the Employer on the

performance or other characteristics of the Works. As soon as the Works, or a Section, have passed each of the Tests on Completion described in sub-paragraph (a), (b) or (c), the Contractor shall submit a certified report of the results of these Tests to the Engineer.

**9.2 Delayed Tests**

If the Tests on Completion are being unduly delayed by the Employer, Sub-Clause 7.4 [Testing] (fifth paragraph) and/or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.

If the Tests on Completion are being unduly delayed by the Contractor, the Engineer may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Engineer.

If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Employer's Personnel may proceed with the Tests at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

### 9.3 Retesting

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [Rejection] shall apply, and the Engineer or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.

### 9.4 Failure to Pass Tests on Completion

If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [Retesting], the Engineer shall be entitled to:

(a) order further repetition of Tests on Completion under Sub-Clause 9.3;

(b) if the failure deprives the Employer of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Employer shall have the same remedies as are provided in sub-paragraph (c) of Sub-Clause 11.4 [Failure to Remedy Defects]; or

(c) issue a Taking-Over Certificate, if the Employer so requests.

In the event of sub-paragraph (c), the Contractor shall then proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Employer as a result of this failure. Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Employer may require the reduction to be (i) agreed by both Parties (in full satisfaction of this failure only) and paid before this Taking-

Over Certificate is issued, or (ii) determined and paid under Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations].

## 10 Employer's Taking Over

### 10.1 Taking Over of the Works and Sections

Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Employer when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.

The Contractor may apply by notice to the Engineer for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

The Engineer shall, within 28 days after receiving the Contractor's application:

(a) issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects 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.

If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

### 10.2 Taking Over of Parts of the Works

The Engineer may, at the sole discretion of the Employer, issue a Taking-Over Certificate for any part of the Permanent Works.

The Employer shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Engineer has issued a Taking-Over Certificate for this part. However, if the Employer does use any part of the Works before the Taking-Over Certificate is issued:

(a) the part which is used shall be deemed to have been taken over as from the date on which it is used,

(b) the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Employer, and

(c) if requested by the Contractor, the Engineer shall issue a Taking-Over Certificate for this part.

After the Engineer has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Liability Period.

If the Contractor incurs Cost as a result of the Employer taking over and/or using a part of the Works, other than such use as is specified in the Contract or agreed by the Contractor, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such Cost plus reasonable profit, which shall be included in the Contract Price. After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this Cost and profit.

If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages thereafter for completion of the remainder of the Works shall be reduced. Similarly, the delay damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculated as the proportion which the value of the part so certified bears to the

value of the Works or Section (as the case may be) as a whole. The Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these proportions. The provisions of this paragraph shall only apply to the daily rate of delay damages under Sub-Clause 8.7 [Delay Damages], and shall not affect the maximum amount of these damages.

### 10.3 Interference with Tests on Completion

If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Employer is responsible, the Employer shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.

The Engineer shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Engineer shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.

If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

### 10.4 Surfaces Requiring Reinstatement

Except as otherwise stated in a Taking-Over Certificate, a certificate for a Section or part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.

## 11 Defects Liability

### 11.1 Completion of Outstanding Work and Remedying Defects

In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Liability Period or as soon as practicable thereafter, the Contractor shall:

(a) complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer, and

(b) execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Employer on or before the expiry date of the Defects Liability Period for the Works or Section (as the case may be).

If a defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Employer.

### 11.2 Cost of Remedying Defects

All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:

(a) the design of the Works, other than a part of the design for which the Employer is responsible (if any),

(b) Plant, Materials or workmanship not being in accordance with the Contract,

(c) improper operation or maintenance which was attributable to matters for which the Contractor is responsible (under Sub-Clauses 5.5 to 5.7 or otherwise), or

(d) failure by the Contractor to comply with any other obligation.

If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Employer, and Sub-Clause 13.3 [Variation Procedure] shall apply.

### 11.3 Extension of Defects Liability Period

The Employer shall be entitled subject to Sub-Clause 2.5 [Employer's Claims] to an extension of the Defects Liability Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or damage. However, a Defects Liability Period shall not be extended by more than two years.

If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.8 [Suspension of Work] or Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the Defects Liability Period for the Plant and/or Materials would otherwise have expired.

### 11.4 Failure to Remedy Defects

If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by (or on behalf of) the Employer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.

If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Employer may (at his option):

(a) carry out the work himself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer the costs reasonably incurred by the Employer in remedying the
defect or damage;

(b) require the Engineer to agree or determine a reasonable reduction in the Contract Price in accordance with Sub-Clause 3.5 [Determinations]; or

(c) if the defect or damage deprives the Employer of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contract or otherwise, the Employer shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

### 11.5 Removal of Defective Work

If the defect or damage cannot be remedied expeditiously on the Site and the Employer gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.

### 11.6 Further Tests

If the work of remedying of any defect or damage may affect the performance of the Works, the Engineer may require the repetition of any of the tests described in the Contract, including Tests on Completion and/or Tests after Completion. The requirement shall be made by notice within 28 days after the defect or damage is remedied.

These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [Cost of Remedying Defects], for the cost of the remedial work.

### 11.7 Right of Access

Until the Performance Certificate has been issued, the Contractor shall have the right of access to all parts of the Works and to records of the operation and performance of the Works, except as may be inconsistent with the Employer’s reasonable security restrictions.

### 11.8 Contractor to Search

The Contractor shall, if required by the Engineer, search for the cause of any defect, under the direction of the Engineer. Unless the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Cost of the search plus reasonable profit shall be agreed or determined by the Engineer in accordance with Sub-Clause 3.5 [Determinations] and shall be included in the Contract Price.

### 11.9 Performance Certificate

Performance of the Contractor's obligations shall not be considered to have been completed until the Engineer has issued the Performance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.

The Engineer shall issue the Performance Certificate within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any defects. A copy of the Performance Certificate shall be issued to the Employer.

Only the Performance Certificate shall be deemed to constitute acceptance of the Works.

### 11.10 Unfulfilled Obligations

After the Performance Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

### 11.11 Clearance of Site

Upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.

If all these items have not been removed within 28 days after the Employer receives a copy of the Performance Certificate, the Employer may sell or otherwise dispose of any

remaining items. The Employer shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Employer's costs, the Contractor shall pay the outstanding balance to the Employer.

## 12 Tests after Completion

### 12.1 Procedure for Tests after Completion

If Tests after Completion are specified in the Contract, this Clause shall apply. Unless otherwise stated in the Particular Conditions, the Employer shall:

(a) provide all electricity, equipment, fuel, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the Tests after Completion efficiently, and

(b) carry out the Tests after Completion in accordance with the manuals supplied by the Contractor under Sub-Clause 5.7 [Operation and Maintenance Manuals]

and such guidance as the Contractor may be required to give during the course of these Tests; and in the presence of such Contractor's Personnel as either Party may reasonably request.

The Tests after Completion shall be carried out as soon as is reasonably practicable after the Works or Section have been taken over by the Employer. The Employer shall give to the Contractor 21 days' notice of the date after which the Tests after Completion will be carried out. Unless otherwise agreed, these Tests shall be carried out within 14 days after this date, on the day or days determined by the Employer.

If the Contractor does not attend at the time and place agreed, the Employer may proceed with the Tests after Completion, which shall be deemed to have been made in the Contractor's presence, and the Contractor shall accept the readings as accurate.

The results of the Tests after Completion shall be compiled and evaluated by both Parties. Appropriate account shall be taken of the effect of the Employer's prior use of the Works.

## 12.2 Delayed Tests

If the Contractor incurs Cost as a result of any unreasonable delay by the Employer to the Tests after Completion, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this Cost and profit.

If, for reasons not attributable to the Contractor, a Tests after Completion on the Works or any Section cannot be completed during the Defects Notification Period (or any other period agreed upon by both Parties), then the Works or Section shall be deemed to have passed this Tests after Completion.

## 12.3 Retesting

If the Works, or a Section, fail to pass the Tests after Completion:

(a) sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects] shall apply, and

(b) either Party may then require the failed Tests, and the Tests after Completion on any related work, to be repeated under the same terms and conditions.

If and to the extent that this failure and retesting are attributable to any of the matters listed in sub-paragraphs (a) to (d) of Sub-Clause 11.2 [Cost of Remedying Defects] and cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer.

## 12.4 Failure to Pass Tests after Completion

If the following conditions apply, namely:

(a) the Works, or a Section, fail to pass any or all of the Tests after Completion,

(b) the relevant sum payable as non-performance damages for this failure is stated (or its method of calculation is defined) in the Contract, and

(c) the Contractor pays this relevant sum to the Employer during the Defects Liability Period,

then the Works or Section shall be deemed to have passed these Tests after Completion.

If the Works, or a Section, fail to pass a Test after Completion and the Contractor proposes to make adjustments or modifications to the Works or such Section, the Contractor may be instructed by (or on behalf of) the Employer that right of access to the Works or Section cannot be given until a time that is convenient to the Employer. The Contractor shall then remain liable to carry out the adjustments or modifications and to satisfy this Test, within a reasonable period of receiving notice by (or on behalf of) the Employer of the time that is convenient to the Employer. However, if the Contractor does not receive this notice during the relevant Defects Notification Period, the Contractor shall be relieved of this obligation and the Works or Section (as the case may be) shall be deemed to have passed this Tests after Completion.

If the Contractor incurs additional Cost as a result of any unreasonable delay by the Employer in permitting access to the Works or Plant by the Contractor, either to investigate the causes of a failure to pass a Tests after Completion or to carry out any adjustments or modifications, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this Cost and profit.

## 13 Variations and Adjustments

### 13.1 Right to Vary

Variations may be initiated by the Engineer at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal. A Variation shall not comprise the omission of any work which is to be carried out by others.

The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Engineer stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, (ii) it will reduce the safety or suitability of the Works, or (iii) it will have an adverse impact on the achievement of the Schedule of Guarantees. Upon receiving this notice, the Engineer shall cancel, confirm or vary the instruction.

### 13.2 Value Engineering

The Contractor may, at any time, submit to the Engineer a written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Employer of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Employer of the completed Works, or (iv) otherwise be of benefit to the Employer.

The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3 [Variation Procedure].

### 13.3 Variation Procedure

If the Engineer requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

(a) a description of the proposed design and/or work to be performed and a programme for its execution,

(b) the Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion, and

(c) the Contractor's proposal for adjustment to the Contract Price.

The Engineer shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.

Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Engineer to the Contractor, who shall acknowledge receipt.

Upon instructing or approving a Variation, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine adjustments to the Contract Price and the Schedule of Payments. These adjustments shall include reasonable profit, and shall take account of the Contractor's submissions under Sub-Clause 13.2 [Value Engineering] if applicable.

### 13.4 Payment in Applicable Currencies

If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.

### 13.5 Provisional Sums

Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer's instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Engineer shall have instructed. For each Provisional Sum, the Engineer may instruct:

(a) work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [Variation Procedure];

and/or

(b) Plant, Materials or services to be purchased by the Contractor, for which there shall be included in the Contract Price:

(i) the actual amounts paid (or due to be paid) by the Contractor, and

(ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate

Schedule. If there is no such rate, the percentage rate stated in the Appendix to Tender shall be applied.

The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

### 13.6 Daywork

For work of a minor or incidental nature, the Engineer may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the daywork schedule included in the Contract, and the following procedure shall apply. If a daywork schedule is not included in the Contract, this Sub-Clause shall not apply.

Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.

Except for any items for which the daywork schedule specifies that payment is not due, the Contractor shall deliver each day to the Engineer accurate statements in duplicate which shall include the following details of the resources used in executing the previous day's work:

(a) the names, occupations and time of Contractor's Personnel,

(b) the identification, type and time of Contractor's Equipment and Temporary Works, and

(c) the quantities and types of Plant and Materials used.

One copy of each statement will, if correct, or when agreed, be signed by the Engineer and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

### 13.7 Adjustments for Changes in Legislation

The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official

governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, which shall be included in the Contract Price. After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

### 13.8 Adjustments for Changes in Cost

In this Sub-Clause, "table of adjustment data" means the completed table of adjustment data included in the Appendix to Tender. If there is no such table of adjustment data, this Sub-Clause shall not apply.

If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

$$P_n = a + b\frac{L_n}{L_o} + c\frac{E_n}{E_o} + d\frac{M_n}{M_o} + \ldots\ldots$$

where:

"Pn" is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period "n", this period being a month unless otherwise stated in the Appendix to Tender;

"a" is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;

"b", "c", "d", … are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials;

"Ln", "En", "Mn", … are the current cost indices or reference prices for period "n", expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and

"Lo", "Eo", "Mo", … are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. For this purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table) for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.

In cases where the "currency of index" (stated in the table) is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the central bank of the Country, of this relevant currency on the above date for which the index is required to be applicable.

Until such time as each current cost index is available, the Engineer shall determine a provisional index for the issue of Interim Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price: whichever is more favourable to the Employer.

The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.

## 14 Contract Price and Payment

### 14.1 The Contract Price

Unless otherwise stated in the Particular Conditions:

(a) the Contract Price shall be the lump sum Accepted Contract Amount and be subject to adjustments in accordance with the Contract;

(b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs, except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation];

(c) any quantities which may be set out in a Schedule are estimated quantities and are not to be taken as the actual and correct quantities of the Works which the

Contractor is required to execute; and

(d) any quantities or price data which may be set out in a Schedule shall be used for the purposes stated in the Schedule and may be inapplicable for other purposes.

However, if any part of the Works is to be paid according to quantity supplied or work done, the provisions for measurement and evaluation shall be as stated in the Particular Conditions. The Contract Price shall be determined accordingly, subject to adjustments in accordance with the Contract.

### 14.2 Advance Payment

The Employer shall make an advance payment, as an interest-free loan for mobilisation and design, when the Contractor submits a guarantee in accordance with this Sub-Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the Appendix to Tender.

Unless and until the Employer receives this guarantee, or if the total advance payment is not stated in the Appendix to Tender, this Sub-Clause shall not apply.

The Engineer shall issue an Interim Payment Certificate for the first instalment after receiving a Statement (under Sub-Clause 14.3 [Application for Interim Payment Certificates]) and after the Employer receives (i) the Performance Security in

accordance with Sub-Clause 4.2 [Performance Security] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by an entity and from within a country (or other jurisdiction) approved by the Employer, and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer.

The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount may be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.

The advance payment shall be repaid through percentage deductions in Payment Certificates. Unless other percentages are stated in the Appendix to Tender:

(a) deductions shall commence in the Payment Certificate in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds ten per cent (10%) of the Accepted Contract Amount less Provisional Sums; and

(b) deductions shall be made at the amortisation rate of one quarter (25%) of the amount of each Payment Certificate (excluding the advance payment and deductions and

repayments of retention) in the currencies and proportions of the advance payment, until such time as the advance payment has been repaid.

If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [Termination by Employer], Clause 16 [Suspension and Termination by Contractor] or Clause 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and payable by the Contractor to the Employer.

### 14.3 Application for Interim Payment Certificates

The Contractor shall submit a Statement in six copies to the Engineer after the end of the period of payment stated in the Contract (if not stated, after the end of each month), in a form approved by the Engineer, showing in detail the amounts to which the Contractor considers himself to be entitled, together with supporting documents which shall include the relevant report on progress in accordance with

Sub-Clause 4.21 [Progress Reports].

The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

(a) the estimated contract value of the Works executed and the Contractor's

Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below);

(b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost];

(c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in the Appendix to Tender to the total of the above amounts, until the amount so retained by the Employer reaches the limit of Retention Money (if any) stated in the Appendix to Tender;

(d) any amounts to be added and deducted for the advance payment and repayments in accordance with Sub-Clause 14.2 [Advance Payment];

(e) any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [Plant and Materials intended for the Works];

(f) any other additions or deductions which may have become due under the Contract or otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and

(g) the deduction of amounts certified in all previous Payment Certificates.

**14.4 Schedule of Payments**

If the Contract includes a Schedule of Payments specifying the instalments in which the Contract Price will be paid, then, unless otherwise stated in this Schedule:

(a) the instalments quoted in the Schedule of Payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Sub-Clause 14.3 [Application for Interim Payment Certificates];

(b) Sub-Clause 14.4 [Plant and Materials intended for the Works] shall not apply; and

(c) if these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less than that on which the Schedule of Payments was based, then the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to which progress is less than that on which the instalments were previously based.

If the Contract does not include a Schedule of Payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

**14.5 Plant and Materials intended for the Works**

If this Sub-Clause applies, Interim Payment Certificates shall include, under sub-paragraph (e) of Sub-Clause 14.3, (i) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (ii) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works

under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates].

If the lists referred to in sub-paragraphs (b)(i) or (c)(i) below are not included in the Appendix to Tender, this Sub-Clause shall not apply.

The Engineer shall determine and certify each addition if the following conditions are satisfied:

(a) the Contractor has:

(i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and

(ii) submitted a Statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;

and either:

(b) the relevant Plant and Materials:

(i) are those listed in the Appendix to Tender for payment when shipped,

(ii) have been shipped to the Country, en route to the Site, in accordance with the Contract; and

(iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Engineer together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Employer in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration;

or

(c) the relevant Plant and Materials:

(i) are those listed in the Appendix to Tender for payment when delivered to the Site, and

(ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract.

The additional amount to be certified shall be the equivalent of eighty percent of the Engineer's determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.

The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.

### 14.6 Issue of Interim Payment Certificates

No amount will be certified or paid until the Employer has received and approved the Performance Security. Thereafter, the Engineer shall, within 28 days after receiving a Statement and supporting documents, issue to the Employer an Interim Payment Certificate which shall state the amount which the Engineer fairly determines to be due, with supporting particulars.

However, prior to issuing the Taking-Over Certificate for the Works, the Engineer shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) stated in the Appendix to Tender. In this event, the Engineer shall give notice to the Contractor accordingly.

An Interim Payment Certificate shall not be withheld for any other reason, although: (a) if anything supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or

(b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Engineer, the value of this work or obligation may be withheld until the work or obligation has been performed.

The Engineer may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Engineer's acceptance, approval, consent or satisfaction.

**14.7 Payment**

The Employer shall pay to the Contractor:

(a) the first instalment of the advance payment within 42 days after issuing the Letter of Acceptance or within 21 days after receiving the documents in accordance with Sub-Clause 4.2 [Performance Security] and Sub-Clause 14.2 [Advance Payment], whichever is later;

(b) the amount certified in each Interim Payment Certificate within 56 days after the Engineer receives the Statement and supporting documents; and

(c) the amount certified in the Final Payment Certificate within 56 days after the Employer receives this Payment Certificate.

Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract.

**14.8 Delayed Payment**

If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [Payment], the Contractor shall be entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [Payment], irrespective (in the case of its sub-paragraph (b)) of the date on which any Interim Payment Certificate is issued.

Unless otherwise stated in the Particular Conditions, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, and shall be paid in such currency.

The Contractor shall be entitled to this payment without formal notice or certification, and without prejudice to any other right or remedy.

### 14.9 Payment of Retention Money

When the Taking-Over Certificate has been issued for the Works, and the Works have passed all specified tests (including the Tests after Completion, if any), the first half of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate is issued for a Section, the relevant percentage of the first half of the Retention Money shall be certified and paid when the Section passes all tests.

Promptly after the latest of the expiry dates of the Defects Notification Periods, the outstanding balance of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, the relevant percentage of the second half of the Retention Money shall be certified and paid promptly after the expiry date of the Defects Notification Period for the Section.

However, if any work remains to be executed under Clause 11 [Defects Liability] or Clause 12 [Tests after Completion], the Engineer shall be entitled to withhold certification of the estimated cost of this work until it has been executed.

The relevant percentage for each Section shall be the percentage value of the Section as stated in the Appendix to Tender. If the percentage value of a Section is not stated in the Appendix to Tender, no percentage of either half of the Retention Money shall be released under this Sub-Clause in respect of such Section.

### 14.10 Statement at Completion

Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Engineer six copies of a Statement at completion with supporting documents, in accordance with Sub-Clause 14.3 [Application for Interim Payment Certificates], showing:

(a) the value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the Works,

(b) any further sums which the Contractor considers to be due, and

(c) an estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.

The Engineer shall then certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates].

### 14.11 Application for Final Payment Certificate

Within 56 days after receiving the Performance Certificate, the Contractor shall submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:

(a) the value of all work done in accordance with the Contract, and

(b) any further sums which the Contractor considers to be due to him under the Contract or otherwise.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".

However, if following discussions between the Engineer and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Engineer shall deliver to the Employer (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Employer (with a copy to the Engineer) a Final Statement.

## 14.12 Discharge

When submitting the Final Statement, the Contractor shall submit a written discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.

## 14.13 Issue of Final Payment Certificate

Within 28 days after receiving the Final Statement and written discharge in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall issue, to the Employer, the Final Payment Certificate which shall state:

(a) the amount which is finally due, and

(b) after giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled, the balance (if any) due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be.

If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 28 days, the Engineer shall issue the Final Payment Certificate for such amount as he fairly determines to be due.

## 14.14 Cessation of Employer's Liability

The Employer shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:

(a) in the Final Statement and also

(b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [Statement at Completion].

However, this Sub-Clause shall not limit the Employer's liability under his indemnification obligations, or the Employer's liability in any case of fraud, deliberate default or reckless misconduct by the Employer.

**14.15 Currencies of Payment**

The Contract Price shall be paid in the currency or currencies named in the Appendix to Tender. Unless otherwise stated in the Particular Conditions, if more than one currency is so named, payments shall be made as follows:

(a) if the Accepted Contract Amount was expressed in Local Currency only:

(i) the proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in
the Appendix to Tender, except as otherwise agreed by both Parties;

(ii) payments and deductions under Sub-Clause 13.5 [Provisional Sums] and
Sub-Clause 13.7 [Adjustments for Changes in Legislation] shall be made in the applicable currencies and proportions; and

(iii) other payments and deductions under sub-paragraphs (a) to (d) of
Sub-Clause 14.3 [Application for Interim Payment Certificates] shall be made in the currencies and proportions specified in sub-paragraph (a)(i) above;

(b) payment of the damages specified in the Appendix to Tender shall be made in

(i) the proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as
stated in the Appendix to Tender, except as otherwise agreed by both
Parties;
(ii) payments and deductions under Sub-Clause 13.5 [Provisional Sums] and

Sub-Clause 13.7 [Adjustments for Changes in Legislation] shall be made in the applicable currencies and proportions; and

(iii) other payments and deductions under sub-paragraphs (a) to (d) of
Sub-Clause 14.3 [Application for Interim Payment Certificates] shall be made in the currencies and proportions specified in sub-paragraph (a)(i)
above;
the currencies and proportions specified in the Appendix to Tender;

(c) other payments to the Employer by the Contractor shall be made in the currency in which the sum was expended by the Employer, or in such currency
as may be agreed by both Parties;

(d) if any amount payable by the Contractor to the Employer in a particular currency exceeds the sum payable by the Employer to the Contractor in that currency, the Employer may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and

(e) if no rates of exchange are stated in the Appendix to Tender, they shall be those prevailing on the Base Date and determined by the central bank of the Country.

## 15 Termination by Employer

### 15.1 Notice to Correct

If the Contractor fails to carry out any obligation under the Contract, the Engineer may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

### 15.2 Termination by Employer

The Employer shall be entitled to terminate the Contract if the Contractor:

(a) fails to comply with Sub-Clause 4.2 [Performance Security] or with a notice under Sub-Clause 15.1 [Notice to Correct],

(b) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract,

(c) without reasonable excuse fails:

(i) to proceed with the Works in accordance with Clause 8 [Commencement, Delays and Suspension], or

(ii) to comply with a notice issued under Sub-Clause 7.5 [Rejection] or Sub-Clause 7.6 [Remedial Work], within 28 days after receiving it,

(d) subcontracts the whole of the Works or assigns the Contract without the required agreement,

(e) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events, or

(f) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:

(i) for doing or forbearing to do any action in relation to the Contract, or

(ii) for showing or forbearing to show favour or disfavour to any person in relation to the Contract, or if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.

In any of these events or circumstances, the Employer may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f), the Employer may by notice terminate the Contract immediately.

The Employer's election to terminate the Contract shall not prejudice any other rights of the Employer, under the Contract or otherwise.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.

The Employer shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Employer, these items may be sold by the Employer in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

### 15.3 Valuation at Date of Termination

As soon as practicable after a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.

### 15.4 Payment after Termination

After a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Employer may:

(a) proceed in accordance with Sub-Clause 2.5 [Employer's Claims],

(b) withhold further payments to the Contractor until the costs of design, execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Employer, have been established, and/or

(c) recover from the Contractor any losses and damages incurred by the Employer and any extra costs of completing the Works, after allowing for any sum due to the Contractor under Sub-Clause 15.3 [Valuation at Date of Termination].

After recovering any such losses, damages and extra costs, the Employer shall pay any balance to the Contractor.

### 15.5 Employer's Entitlement to Termination

The Employer shall be entitled to terminate the Contract, at any time for the Employer's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 28 days after the later of the dates on which the Contractor receives this notice or the Employer returns the Performance Security. The Employer shall not terminate the Contract under this Sub-Clause in order to execute the Works himself or to arrange for the Works to be executed by another contractor.

After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment] and shall be paid in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release].

## 16 Suspension and Termination by Contractor

### 16.1 Contractor's Entitlement to Suspend Work

If the Engineer fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or the Employer fails to comply with Sub-Clause 2.4 [Employer's Financial Arrangements] or Sub-Clause 14.7 [Payment], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [Delayed Payment] and to termination under Sub-Clause 16.2 [Termination by Contractor].

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice

of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

**16.2 Termination by Contractor**

The Contractor shall be entitled to terminate the Contract if:

(a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work] in respect of a failure to comply with Sub-Clause 2.4 [Employer's Financial Arrangements],

i(b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,

(c) the Contractor does not receive the amount due under an Interim Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [Payment] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Employer's Claims]),

(d) the Employer substantially fails to perform his obligations under the Contract,

(e) the Employer fails to comply with Sub-Clause 1.6 [Contract Agreement] or Sub-Clause 1.7 [Assignment],

(f) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or

(g) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events.

In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

### 16.3 Cessation of Work and Removal of Contractor's Equipment

After a notice of termination under Sub-Clause 15.5 [Employer's Entitlement to Termination], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 19.6 [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:

(a) cease all further work, except for such work as may have been instructed by the Engineer for the protection of life or property or for the safety of the Works,

(b) hand over Contractor's Documents, Plant, Materials and other work, for which the Contractor has received payment, and

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

### 16.4 Payment on Termination

After a notice of termination under Sub-Clause 16.2 [Termination by Contractor] has taken effect, the Employer shall promptly:

(a) return the Performance Security to the Contractor,

(b) pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release], and

(c) pay to the Contractor the amount of any loss of profit or other loss or damage sustained by the Contractor as a result of this termination.

## 17 Risk and Responsibility

### 17.1 Indemnities

The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

(a) bodily injury, sickness, disease or death, of any person whatsoever arising out of or in the course of or by reason of the design, execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, willful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and

(b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss:

(i) arises out of or in the course of or by reason of the design, execution and completion of the Works and the remedying of any defects, and

(ii) is attributable to any negligence, wilful act or breach of the Contract by the Contractor, the Contractor's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

The Employer shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i), (ii) and (iii) of

Sub-Clause 18.3 [Insurance Against Injury to Persons and Damage to Property].

### 17.2 Contractor's Care of the Works

The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Sub-Clause 10.1 [Taking Over of the Works and Sections]) for the Works, when responsibility for the care of the Works shall pass to the Employer. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Employer.

After responsibility has accordingly passed to the Employer, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [Employer's Risks], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.

The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a

Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

### 17.3 Employer's Risks

The risks referred to in Sub-Clause 17.4 below are:

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

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

(c) riot, commotion or disorder within the Country by persons other than the Contractor's Personnel and other employees of the Contractor and Subcontractors,

(d) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, within the Country, except as may be attributable to the

Contractor's use of such munitions, explosives, radiation or radio-activity,

(e) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds,

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

(g) design of any part of the Works by the Employer's Personnel or by others for whom the Employer is responsible, if any, and

(h) any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventative precautions.

### 17.4 Consequences of Employer's Risks

If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Engineer and shall rectify this loss or damage to the extent required by the Engineer.

If the Contractor suffers delay and/or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (f) and (g) of Sub-Clause 17.3 [Employer's Risks], reasonable profit on the Cost shall also be included.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

### 17.5 Intellectual and Industrial Property Rights

In this Sub-Clause, "infringement" means an infringement (or alleged infringement) of any patent, registered design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and "claim" means a claim (or proceedings pursuing a claim) alleging an infringement.

Whenever a Party does not give notice to the other Party of any claim within 28 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.

The Employer shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:

(a) an unavoidable result of the Contractor's compliance with the Employer's Requirements, or

(i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or

(ii) in conjunction with any thing not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract.

(b) a result of any Works being used by the Employer:

The Contractor shall indemnify and hold the Employer harmless against and from any other claim which arises out of or in relation to (i) the Contractor's design, manufacture, construction or execution of the Works, (ii) the use of Contractor's Equipment, or (iii) the proper use of the Works.

If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

### 17.6 Limitation of Liability

Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than under Sub-Clause 16.4 [Payment on Termination] and Sub-Clause 17.1 [Indemnities].

The total liability of the Contractor to the Employer, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Employers Equipment and Free-Issue Material], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum stated in the Particular Conditions or (if a sum is not so stated) the Accepted Contract Amount.

This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

## 18 Insurance

### 18.1 General Requirements for Insurances

In this Clause, "insuring Party" means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.

Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Employer. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

Wherever the Employer is the insuring Party, each insurance shall be effected with insurers and in terms consistent with the details annexed to the Particular Conditions.

If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Employer shall act for Employer's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.

Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.

The relevant insuring Party shall, within the respective periods stated in the Appendix to Tender (calculated from the Commencement Date), submit to the other Party:

(a) evidence that the insurances described in this Clause have been effected, and

(b) copies of the policies for the insurances described in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment] and Sub-Clause 18.3 [Insurance against Injury to Persons and Damage to Property].

When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.

Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.

Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.

If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.

Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Employer, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Employer in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and

which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.

Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [Employer's Claims] or Sub-Clause 20.1 [Contractor's Claims], as applicable.

### 18.2 Insurance for Works and Contractor's Equipment

The insuring Party shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under

sub-paragraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.

The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [Defects Liability] and Clause 12 [Tests after Completion]).

The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

Unless otherwise stated in the Particular Conditions, insurances under this

Sub-Clause:

(a) shall be effected and maintained by the Contractor as insuring Party,

(b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated between the

Parties for the sole purpose of rectifying the loss or damage,

(c) shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Employer's Risks],

(d) shall also cover loss or damage to a part of the Works which is attributable to the use or occupation by the Employer of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [Employer's Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated in the Appendix to Tender (if an amount is not so stated, this sub-paragraph (d) shall not apply), and

(e) may however exclude loss of, damage to, and reinstatement of:

(i) a part of the Works which is in a defective condition due to a defect in its design, Materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),

(ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, Materials or workmanship

(iii) a part of the Works which has been taken over by the Employer, except to the extent that the Contractor is liable for the loss or damage, and

(iv) Goods while they are not in the Country, subject to Sub-Clause 14.5 [Plant and Materials intended for the Works].

If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Employer, with supporting particulars. The Employer shall then (i) be entitled subject to Sub-Clause 2.5 [Employer's Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed, unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

### 18.3 Insurance against Injury to Persons and Damage to Property

The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.

This insurance shall be for a limit per occurrence of not less than the amount stated in the Appendix to Tender, with no limit on the number of occurrences. If an amount is not stated in the Appendix to Tender, this Sub-Clause shall not apply.

Unless otherwise stated in the Particular Conditions, the insurances specified in this Sub-Clause:

(a) shall be effected and maintained by the Contractor as insuring Party, (b) shall be in the joint names of the Parties,

(c) shall be extended to cover liability for all loss and damage to the Employer's property (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract, and

(d) may however exclude liability to the extent that it arises from:

(i) the Employer's right to have the Permanent Works executed on, over, under, in or through any land, and to occupy this land for the Permanent Works,

(ii) damage which is an unavoidable result of the Contractor's obligations to execute the Works and remedy any defects, and

(iii) a cause listed in Sub-Clause 17.3 [Employer's Risks], except to the extent that cover is available at commercially reasonable terms.

**18.4 Insurance for Contractor's Personnel**

The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.

The Employer and the Engineer shall also be indemnified under the policy of insurance, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel.

The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

## 19 Force Majeure

### 19.1 Definition of Force Majeure

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.

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:

(i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,

(ii) rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war,

(iii) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel and other employees of the Contractor and Subcontractors,

(iv) munitions of war, explosive Materials, ionising 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

(v) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

### 19.2 Notice of Force Majeure

If a Party is or will be prevented from performing any of its 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.

The Party shall, having given notice, be excused performance of such obligations for so long as such Force Majeure prevents it from performing them.

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.

### 19.3 Duty to Minimise Delay

Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of Force Majeure.

A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

### 19.4 Consequences of Force Majeure

If the Contractor is prevented from performing any of his obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

(a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

(b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definition of Force Majeure] and, in the case of sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

### 19.5 Force Majeure Affecting Subcontractor

If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.

### 19.6 Optional Termination, Payment and Release

If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multiple periods which total more than 140 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 Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment].

Upon such termination, the Engineer 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) any other Cost or liability which in the circumstances was reasonably 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 labour employed wholly in connection with the Works at the date of termination.

19.7 Release from Performance under the Law

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 fulfil its or their

contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:

(a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and

(b) the sum payable by the Employer to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under Sub-Clause 19.6.

## 20 Claims, Disputes and Arbitration

### 20.1 Contractor's Claims

If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.

If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.

The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.

The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting the Employer's liability, the Engineer may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all these records, and shall (if instructed) submit copies to the Engineer.

Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:

(a) this fully detailed claim shall be considered as interim;

(b) the Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Engineer may reasonably require; and

(c) the Contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.

Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within such time.

Each Payment Certificate shall include such amounts for any claim as have been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the

Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.

The Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.

The requirements of this Sub-Clause are in addition to those of any other

Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.

### 20.2 Appointment of the Dispute Adjudication Board

Disputes shall be adjudicated by a DAB in accordance with Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision]. The Parties shall jointly appoint a DAB by the date 28 days after a Party gives notice to the other Party of its intention to refer a dispute to a DAB in accordance with Sub-Clause 20.4.

The DAB shall comprise, as stated in the Appendix to Tender, either one or three suitably qualified persons ("the members"). If the number is not so stated and the Parties do not agree otherwise, the DAB shall comprise three persons.

If the DAB is to comprise three persons, each Party shall nominate one member for the approval of the other Party. The Parties shall consult both these members and shall agree upon the third member, who shall be appointed to act as chairman.

However, if a list of potential members is included in the Contract, the members shall be selected from those on the list, other than anyone who is unable or unwilling to accept appointment to the DAB.

The agreement between the Parties and either the sole member ("adjudicator") or each of the three members shall incorporate by reference the General Conditions of Dispute

Adjudication Agreement contained in the Appendix to these General Conditions, with such amendments as are agreed between them.

The terms of the remuneration of either the sole member or each of the three members shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

If at any time the Parties so agree, they may appoint a suitably qualified person or persons to replace any one or more members of the DAB. Unless the Parties agree otherwise, the appointment will come into effect if a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment. The replacement shall be appointed in the same manner as the replaced person was required to have been nominated or agreed upon, as described in this Sub-Clause.

The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DAB (including each member) shall expire when the DAB has given its decision on the dispute referred to it under

Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision], unless other disputes have been referred to the DAB by that time under Sub-Clause 20.4, in which event the relevant date shall be when the DAB has also given decisions on

those disputes.

**20.3 Failure to Agree Dispute Adjudication Board**

If any of the following conditions apply, namely:

(a) the Parties fail to agree upon the appointment of the sole member of the DAB by the date stated in the first paragraph of Sub-Clause 20.2 [Appointment of the Dispute Adjudication Board],

(b) either Party fails to nominate a member (for approval by the other Party) of a

DAB of three persons by such date,

(c) the Parties fail to agree upon the appointment of the third member (to act as chairman) of the DAB by such date, or

(d) the Parties fail to agree upon the appointment of a replacement person within 42 days after the date on which the sole member or one of the three members declines to act or is unable to act as a result of death, disability, resignation or termination of appointment,

then the appointing entity or official named in the Appendix to Tender shall, upon the request of either or both of the Parties and after due consultation with both Parties, appoint this member of the DAB. This appointment shall be final and conclusive. Each Party shall be responsible for paying one-half of the remuneration of the appointing entity or official.

### 20.4 Obtaining Dispute Adjudication Board's Decision

If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Engineer, then after a DAB has been appointed pursuant to Sub-Clause 20.2 [Appointment of the Dispute Adjudication Board]and 20.3 [Failure to Agree Dispute Adjudication Board], either Party may refer the dispute in writing to the DAB for its decision, with a copy to the other Party. Such reference shall state that it is given under this Sub-Clause.

For a DAB of three persons, the DAB shall be deemed to have received such reference on the date when it is received by the chairman of the DAB.

Both Parties shall promptly make available to the DAB all information, access to the Site, and appropriate facilities, as the DAB may require for the purposes of making a decision on such dispute. The DAB shall be deemed to be not acting as arbitrator(s).

Within 84 days after receiving such reference or the advance payment referred to in Clause 6 of Appendix – General Conditions of Dispute Adjudication Agreement, whichever date is later, or within such other period as may be proposed by the DAB and approved by both Parties, the DAB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. However, if neither of the Parties has paid in full the invoices submitted by each Member pursuant to Clause 6 of the Appendix – General Conditions of Dispute Adjudication Agreement, the DAB shall not be obliged to give its decision until such invoices have been paid

in full. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as

described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.

If either Party is dissatisfied with the DAB's decision, then either Party may, within 28 days after receiving the decision, give notice to the other Party of its dissatisfaction. If the DAB fails to give its decision within the period of 84 days (or as otherwise approved) after receiving such reference or such payment, then either Party may, within 28 days after this period has expired, give notice to the other Party of its dissatisfaction.

In either event, this notice of dissatisfaction shall state that it is given under this Sub-Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in Sub-Clause 20.7 [Failure to Comply with Dispute Adjudication Board's Decision] and Sub-Clause 20.8 [Expiry of Dispute Adjudication Board's Appointment], neither Party shall be entitled to commence arbitration of a dispute unless a notice of dissatisfaction has been given in accordance with this Sub-Clause.

If the DAB has given its decision as to a matter in dispute to both Parties, and no notice of dissatisfaction has been given by either Party within 28 days after it received the DAB's decision, then the decision shall become final and binding upon both Parties.

**20.5 Amicable Settlement**

Where notice of dissatisfaction has been given under Sub-Clause 20.4 above, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, arbitration may be commenced on or after the fifty-sixth day after the day on which notice of dissatisfaction was given, even if no attempt at amicable settlement has been made.

**20.6 Arbitration**

Unless settled amicably, any dispute in respect of which the DAB's decision (if any) has not become final and binding shall be finally settled by international arbitration. Unless otherwise agreed by both Parties:

(a) the dispute shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce,

(b) the dispute shall be settled by three arbitrators appointed in accordance with these Rules, and

(c) the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language].

The arbitrator(s) shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, and any decision of the DAB, relevant to the dispute. Nothing shall disqualify the Engineer from being called as a witness and giving evidence before the arbitrator(s) on any matter whatsoever relevant to the dispute.

Neither Party shall be limited in the proceedings before the arbitrator(s) to the evidence or arguments previously put before the DAB to obtain its decision or to the reasons for dissatisfaction given in its notice of dissatisfaction. Any decision of the DAB shall be admissible in evidence in the arbitration.

Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Engineer and the DAB shall not be altered by reason of any arbitration being conducted during the progress of the Works.

### 20.7 Failure to Comply with Dispute Adjudication Board's Decision

In the event that:

(a) neither Party has given notice of dissatisfaction within the period stated in Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision], (b) the DAB's related decision (if any) has become final and binding, and (c) a Party fails to comply with this decision, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 20.6 [Arbitration].

Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply to this reference.

### 20.8 Expiry of Dispute Adjudication Board's Appointment

If a dispute arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works and there is no DAB in place, whether by reason of the expiry of the DAB's appointment or otherwise:

(a) Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply, and

(b) the dispute may be referred directly to arbitration under Sub-Clause 20.6 [Arbitration].

## APPENDIX

## General Conditions of Dispute Adjudication Agreement

1 Definitions

Each "Dispute Adjudication Agreement" is a tripartite agreement by and between:

(a) the "Client";

(b) the "Contractor"; and

(c) the "Member" who is defined in the Dispute Adjudication Agreement as being:

(i) the sole member of the "DAB" (or "adjudicator") and, where this is the case, all references to the "Other Members" do not apply,

or

(ii) one of the three persons who are jointly called the "DAB" (or "dispute adjudication board") and, where this is the case, the other two persons are called the "Other Members".

The Client and the Contractor have entered (or intend to enter) into a contract, which is called the "Contract" and is defined in the Dispute Adjudication Agreement, which incorporates this Appendix. In the Dispute Adjudication Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

2 General Provisions

The Dispute Adjudication Agreement shall take effect when the Client, the Contractor and each of the Members (or Member) have respectively each signed a dispute adjudication agreement.

When the Dispute Adjudication Agreement has taken effect, the Client and the Contractor shall each give notice to the Member accordingly. If the Member does not receive either notice within six months after entering into the Dispute Adjudication Agreement, it shall be void and ineffective.

This employment of the Member is a personal appointment. No assignment or subcontracting of the Dispute Adjudication

Agreement is permitted without the prior written agreement of all the parties to it and of the Other Members (if any).

3 Warranties

The Member warrants and agrees that he/she is and shall be impartial and independent of the Client, the Contractor and the Client's Representative. The Member shall promptly disclose, to each of them and to the Other Members (if any), any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence.

When appointing the Member, the Client and the Contractor relied upon the Member's representations that he/she is:

(a) experienced in the work which the Contractor is to carry out under the Contract,

(b) experienced in the interpretation of contract documentation, and

(c) fluent in the language for communications defined in the Contract.

4 General Obligations of the Member

The Member shall:

(a) have no interest financial or otherwise in the Client or the Contractor, nor any financial interest in the Contract except for payment under the Dispute Adjudication Agreement;

(b) not previously have been employed as a Contractor or otherwise by the Client or the Contractor, except in such circumstances as were disclosed in writing to the Client and the Contractor before they signed the Dispute Adjudication Agreement;

(c) have disclosed in writing to the Client, the Contractor and the Other Members (if any), before entering into the Dispute Adjudication Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Client or the Contractor, and any previous involvement in the overall project of which the Contract forms part;

(d) not, for the duration of the Dispute Adjudication Agreement, be employed as a Contractor or otherwise by the Client or the Contractor, except as may be agreed in writing by the Client, the Contractor and the Other Members (if any);

(e) comply with the annexed procedural rules and with Sub-Clause 20.4 of the Conditions of Contract;

(f) not give advice to the Client, the Contractor, the Client's Personnel or the Contractor's Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;

(g) not while a Member enter into discussions or make any agreement with the Client or the Contractor regarding employment by any of them, whether as a Contractor or otherwise,

after ceasing to act under the Dispute Adjudication Agreement;(h) ensure his/her availability for any site visit and hearings as are necessary; and

(i) treat the details of the Contract and all the DAB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Client, the Contractor and the Other Members (if any).

5 General Obligations of the Client and the Contractor

The Client, the Contractor, the Client's Personnel and the Contractor's Personnel shall not request advice from or consultation with the Member regarding the Contractor otherwise than in the normal course of the DAB's activities under the Contract and the Dispute Adjudication Agreement, and except to the extent that prior agreement is given by the Client, the Contractor and the Other Members (if any). The Client and the Contractor shall be responsible for compliance with this provision, by the Client's Personnel and the Contractor's Personnel respectively.

The Client and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Client, the Contractor, the Member and the Other Members (if any):

(a) be appointed as an arbitrator in any arbitration under the Contract;

(b) be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or

(c) be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member's functions, unless the act or omission is shown to have been in bad faith.

The Client and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he/she is relieved from liability under the preceding paragraph.

6 Payment Dispute Adjudication Agreement:

The Member shall be paid as follows, in the currency named in the

(a) a daily fee which shall be considered as payment in full for: (i) each working day spent reading submissions, attending hearings (if any), preparing decisions, or making site visits (if any); and

(ii) each day or part of a day up to maximum of two days travel time in each direction for the journey (if any) between the Member's home and site or an other location of a meeting with Other Members (if any) and/or the Client and the Contractor;

(b) all reasonable expenses incurred in connection with the Member's duties, including the cost of secretarial services, telephone calls, courier charges, faxes and telexes, travel expenses, hotel and subsistence costs; a receipt shall be required for each item in excess of five percent of the daily fee referred to in sub-paragraph (a) of this Clause; and

(c) any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the Country) under this Clause 6.

The daily fee shall be as specified in the Dispute Adjudication Agreement.

Immediately after the Dispute Adjudication Agreement takes effect, the Member shall, before engaging in any activities under the Dispute Adjudication Agreement, submit to the Contractor, with a copy to the Client, an invoice for (a) an advance of twenty-five (25) percent of the estimated total amount of daily fees to which he/she will be entitled and (b) an advance equal to the estimated total expenses that he/she shall incur in connection with his/her duties. Payment of such invoice shall be made by the Contractor upon his receipt of the invoice. The Member shall not be obliged to engage in activities under the Dispute Adjudication Agreement until each of the Members has been paid in full for invoices submitted under this paragraph.

Thereafter the Member shall submit to the Contractor, with a copy to the Client, invoices for the balance of his/her daily fees and expenses, less the amounts advanced. The DAB shall not be obliged to render its decision until invoices for all daily fees and expenses of each Member for making a decision shall have been paid in full.

Unless paid earlier in accordance with the above, the Contractor shall pay each of the Member's invoices in full within 28 calendar days after receiving each invoice and shall apply to the Client (in the Statements under the Contract) for reimbursement of one- half of the amounts of these invoices. The Client shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Adjudication Agreement, the Client shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the DAB; and without prejudice to the Client's rights or remedies. In addition to all other rights arising from this default, the Client shall be entitled to reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Sub-Clause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 28 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice to the Client and the Contractor. The notice shall take effect when received by them both. Any such notice shall be final and binding on the Client, the Contractor and the Member.

7
Default of the Member

If the Member fails to comply with any obligation under Clause 4, he/she shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Client and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for proceedings or decisions (if any) of the DAB which are rendered void or ineffective.

8
Default of the Member

Any dispute or claim arising out of or in connection with this Dispute Adjudication Agreement, or the breach, termination or invalidity thereof, shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.

## Annex PROCEDURAL RULES

1 The Client and the Contractor shall furnish to the DAB one copy of all documents which the DAB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the matter in dispute. All communications between the DAB and the Client or the Contractor shall be copied to the other Party. If the DAB comprises three persons, the Client and the Contractor shall send copies of these requested documents and these communications to each of these persons.

2 The DAB shall proceed in accordance with Sub-Clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DAB shall:

(a) act fairly and impartially as between the Client and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case, and
(b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.

3 The DAB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Client and the Contractor be presented to it prior to or at the hearing.

4 Except as otherwise agreed in writing by the Client and the Contractor, the DAB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Client and the Contractor, and to proceed in the absence of any party who the DAB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.

5 The Client and the Contractor empower the DAB, among other things, to: (a) establish the procedure to be applied in deciding a dispute,
(b) decide upon the DAB's own jurisdiction, and as to the scope of any dispute referred to it,
(c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules,
(d) take the initiative in ascertaining the facts and matters required for a decision,
(e) make use of its own specialist knowledge, if any,
(f) decide upon the payment of financing charges in accordance with the Contract,
(g) decide upon any provisional relief such as interim or conservatory measures, and
(h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Client, relevant to the dispute.

6 The DAB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DAB shall make and give its decision in accordance with Sub-Clause 20.4, or as otherwise agreed by the Client and the Contractor in writing. If the DAB comprises three persons:

(a) it shall convene in private after a hearing, if any, in order to have discussions and prepare its decision;

(b) it shall endeavour to reach a unanimous decision: if this proves impossible, the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Client and the Contractor; and

(c) if a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision, unless:

(i) either the Client or Contractor does nor agree that they do so,

(ii) or the absent Member is the chairman, and he/she instructs the other Members to not make a decision.

# Section VIII. Particular Conditions of Contract

*Except where otherwise indicated, all* PCC *should be filled in by the* Client *prior to issuance of the Bidding Documents. Schedules and reports to be provided by the* Client *should be annexed.*

| **A. General** | |
|---|---|
| **GCC 1.1.2.2** | The Client is **THE ROAD DEVELOPMENT AGENCY** |
| **GCC 1.1.2.4** | "Engineer" means the authorized representative of the Employer, RDA |
| **GCC 1.1.3.3** | The Intended Completion Date for the whole of the Works shall be **6 MONTHS FOR DESIGN AND 18 MONTHS FOR CONSTRUCTION AFTER THE START DATE.** |
| **GCC 1.1.3.2** | The Start Date shall be **14 days after contract signing** |
| **GCC 1.4** | The language of the contract is **English***.*<br><br>The law that applies to the Contract is the law of **Zambia***.* |
| **GCC 1.5** | Priority Documents:<br><br>The documents forming the Contract are to be taken as mutually explanatory of one another. If an ambiguity or discrepancy is found, the priority shall be such as may be accorded by the governing law. |
| **GCC 3.1** | The Project manager *may* delegate any of his duties and responsibilities. RDA will provide oversight with respect to design and construction phases of the project. |
| **GCC 4.21** | The period of progress updates is 30 calendar days.<br><br>The amount to be withheld for late submission of a progress update is ZMW20, 000.00/day or USD equivalent. The amount is a penalty and shall not be re-claimed once the amount has been deducted from the interim payment certificate. |
| **GCC 5.6** | As built drawings: The date by which "as built" drawings are required is 15 days before expiration of the contract.<br><br>The amount to be withheld for failing to produce "as built" drawings by the date required is ZMW 750 per day |

**GCC 14.1**

**The payments of the Lump Sum component (Professional Fees) for the Design Phase shall be upon submission and approval by the Client of the following deliverables calculated based on the Design Fee:**

| No. | Deliverable | Payment (% of Design Fee) |
|---|---|---|
| 1 | Inception Report, Quality Assurance Plan, Methodology | 10 |
| 2 | Environmental Project Brief | 10 |
| 3 | Preliminary Design Report | 25 |
| 4 | Draft Final Design Report | 30 |
| 5 | Final Design Report | 25 |

**Payments for the Construction Phase shall be based on %age values of each BOQ item executed by the Contractor. This will be a LUMP SUM contract in accordance with the Bill is of Quantities (BOQ).**

| Bill No. | Description | % Completion | Lump Sum Amounts (ZMW) |
|---|---|---|---|
| 1 | Professional Fees for Design | ToRs criteria | |
| 2 | Preliminary and General Items (A) Maximum 15% of the Contract Price | *x*% | A *x*% |
| 3 | Accommodation of Traffic (B) | *x*% | B *x*% |
| 4 | Earthworks (C) | *x*% | C *x*% |
| 5 | Drainage and Structures (D) | *x*% | D *x*% |
| 7 | Testing and Quality Control (F) | *x*% | F *x*% |
| 8 | Ancillary Roadworks (G) | *x*% | G *x*% |
| | Sub-Total | | |
| | | | |
| | Add Contingency @5% | | |
| | | | |
| | Sub-Total | | |
| | | | |
| | VAT @ 16% | | |
| | | | |
| **GRAND TOTAL FOR DESIGN AND CONSTRUCTION OF 175 KM ROADS SELECETD ROADS IN KALABO AND MONGU** | | | |

| | | | |
|---|---|---|---|
| | **DISTRICTS INCLUDING LIUWA NATIONAL PARK** | | |
| | | | |
| **GCC 14.1 (b)** | All local taxes are applicable on this contract. | | |
| **14.2** | The Contractor's mobilization shall not be tied to the payment of the advance. The Contractor shall be required to commence mobilization prior to the payment of the advance. | | |
| **GCC 18.1** | The minimum insurance amounts and deductibles shall be:<br>(a) for the works, Plant and Materials minimum insurance amount is **ZMW55,000,000.00 or USD equivalent**<br>(b) the maximum amount deductible for the insurance of Works, Plant and Materials is **ZMW165,000.00 or USD equivalent**<br>(c) For loss or damage to equipment: minimum insurance amount is the value of equipment<br>(d) The maximum amount deductible for insurance of equipment is **ZMW82,000.00 or USD equivalent**<br>(e) For loss or damage to property (except the Works, Plant, Materials and Equipment) in connection with the contract is **ZMW16,500,000.00 or USD equivalent**<br>(f) the maximum amount deductible for loss or damage to property (except the Works, Plant, Materials and Equipment) in connection with the contract is **ZMW110,000.00 or USD equivalent**<br>(a) The minimum insurance cover for personal injury or death:<br>(i) for the Contractor's employees is, **ZMW550,000.00 or USD equivalent; and**<br>(ii) for other people is **ZMW550,000.00 or USD equivalent** | | |
| **GCC 19.1** | (a) Notwithstanding General Conditions of Contract Clause 19.1, the contractor shall execute the Works in accordance with the Environmental Management Plan (EMP) prepared for the particular Works. Where an EMP does not exist, the clauses contained herein shall form the basis of a management plan.<br><br>(b) Notwithstanding the contractor's obligation under the above clause (a) the Contractor shall:<br><br>i) Implement all measures necessary to conserve and reduce negative impacts on the existing environment.<br>ii) Carry out all necessary works to restore the Site as far as practicable to its original condition or to the approval of the Project Manager.<br>iii) Abide by environmental performance indicators as specified in the | | |

| | |
|---|---|
| | National Standard Regulations/Guidelines and clarified necessary by the Project Manager; and measure progress towards achieving environmental objectives during execution and upon completion of the Works.<br>iv) Adhere to the activity implementation schedule agreed upon with the Project Manager to facilitate monitoring activities and adapt impact management to changing and unforeseen conditions.<br><br>(c) If the Contractor fails to implement the approved Environmental Management Plan or contravenes any order as instructed by the Project Manager, the Client shall be entitled to seek legal redress through ZEMA and appropriate penalties may be instituted in accordance with the provisions of the EPPCA of 1990 specified under item 34 (d, e, and g,) and under item 35 (1) and (2) of Statutory Instrument No. 28 of 1997 or under any other appropriate legislation.<br><br>**NOTE:**<br><br>**Should the Contractor fail to adhere to safety requirements while carrying out the works with respect to installation of sufficient traffic warning signs (cones, sign posts, chevrons etc) shall be deducted an amount equivalent to the amount specified in the Bills of Quantities for that pay item.** |
| **GCC 20.1** | The Site Possession Date(s) shall be: *14 days after contract signing* |
| **GCC21.1** | Notwithstanding clause 22.1, **the Contractor shall allow full access to the Site and cooperate with representatives of the Client, for monitoring implementation of the environmental impact mitigation measures, who will report their findings to the Project Manager for any action.** |
| **GCC 20.2** | Hourly rate and types of reimbursable expenses to be paid to the Adjudicator:<br><br>**ZMW 350/hour or USD equivalent** |
| **GCC 20.6a** | Any dispute or disagreement shall be finally settled by arbitration administered by the Lusaka International Arbitration Centre (LIAC) in accordance with LIAC Arbitration Rules. The decision of the Arbitrator shall be final and binding on the Parties. The Parties shall jointly appoint an Arbitrator. Should the Parties fail to appoint an Arbitrator within fourteen (14) days of notice requiring them to appoint an Arbitrator, the LIAC shall appoint the Arbitrator. The seat of arbitration shall be Lusaka, Zambia. The language of arbitration shall be English. |
| **C. Quality Control** | |

| | |
|---|---|
| **GCC 7.4** | The costs of testing undertaken by the contractor in terms of his obligations to execute the works on all materials and process control, labour, materials etc shall be included in the rates tendered for the various items of work except when stated otherwise. All calculations and test results of material and process control shall be submitted to the Project Manager along with the request for approval. |
| **GCC 11** | The Defects Liability Period is: ***3 years (36 months)*.** |
| **D. Cost Control** | |
| GCC 14.8 | Interest on delayed payments **shall not apply**. |
| GCC 14.9 | The proportion of payments retained is: **10 percent** |
| GCC 8.7 | Delay Damages:<br><br>0.02% of the Contract Price as delay damages in respect of the Works, payable (per day) in the proportions of currencies in which the Contract Price is payable. For each Section, such daily sum shall be 0.02% of the final contract value of such Section, payable (per day). The maximum amount of delay damages shall be ten percent (10%) of the Contract Price stated in the Contract Agreement.<br><br>NOTE:<br>Termination of the Contract under these conditions MAY result in the blacklisting of the Contractor on future RDA tenders. |
| GCC 14.2 | **Advance Payment** is applicable and shall be **15%** of the total contract price. |
| **GCC 4.2** | The Performance Security shall be:<br><br>(a) an Unconditional Bank Guarantee in the amount of 10% of the Contract Price<br><br>(b) or insurance bond 10% issued by an Insurance Company |
| **E. Finishing the Contract** | |
| GCC 5.6 | As built drawings: The date by which “as built” drawings are required is 15 days before completion of contract. |
| **GCC 5.6** | The amount to be withheld for failing to produce “as built” drawings and/or operating and maintenance manuals by the date required in GCC 58.1 is **ZMW20 Thousand per day**. |
| **GCC 5.6** | The maximum number of days is: **100 days** |

# Section XII. Bill of Quantities

## Attached separately

# Section IX - Contract Forms

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

## Table of Forms

# Letter of Acceptance

***[ on letterhead paper of the*** Client***]***

*. . . . . .* ***[date]****. . . . . .*

To: . . . . . .***[name and address of the Contractor]*** . . . . . .

Subject: . . . . . .***[Notification of Award Contract No]***. . . . . .

This is to notify you that your Bid dated . . . .***[insert date] . .*** . . for execution of the . . . . . .***[insert name of the contract and identification number, as given in the Appendix to Bid]***. . . . . for the Accepted Contract Amount of the equivalent of . . . . . .***[insertamount in numbers and words and name of currency]***, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose the of the Performance Security Form included in Section IX (Contract Forms) of the Bidding Document.

***[Choose one of the following statements:]***

We accept that _____***[insert the name of Adjudicator proposed by the Bidder]*** be appointed as the Adjudicator.

***[or]***

We do not accept that _____***[insert the name of the Adjudicator proposed by the Bidder]*** be appointed as the Adjudicator, and by sending a copy of this Letter of Acceptance to _____***[insert name of the Appointing Authority]***, the Appointing Authority, we are hereby requesting such Authority to appoint the Adjudicator in accordance with ITB 42.1 and GCC 23.1.

Authorized Signature: .....

Name and Title of Signatory: .....

Name of Agency: .....

Attachment: Contract Agreement

# Contract Agreement

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

WHEREAS the Client desires that the Works known as . . . ..***[name of the Contract]***. . . . .should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Client 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 Bid

(c) The Addenda Nos . . . . . ***[insert addenda numbers if any]***. . . . .

(d) The Particular Conditions

(e) The General Conditions;

(f) The Specification

(g) The Drawings*;* and

(h) The completed Schedules,

3. In consideration of the payments to be made by the Client to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Client to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Client 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 . . . . ***[name of the borrowing country]***. . . . .on the day, month and year indicated above.

| | |
|---|---|
| Signed by: ..... | Signed by: ..... |
| for and on behalf of the Client | for and on behalf the Contractor |
| in the presence of: ..... | in the presence of: ..... |
| Witness, Name, Signature, Address, Date | Witness, Name, Signature, Address, Date |

# Performance Security

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

**Beneficiary: ..... *[Name and Address of* Client*]* .....**

**Date: .....**

**Performance Guarantee No.:.....**

We have been informed that . . . . . ***[name of the Contractor]***. . . . . (hereinafter called "the Contractor") has entered into Contract No. . . . . ***[reference number of the Contract]***. . . . . dated . . . . . ..with you, for the execution of . . . . . ***[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 . . . .. ***[name of the Bank]***. . . . . hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of . . . . . ***[name of the currency and amount in figures]*** [1]. . . . . (. . . . . ***[amount in words]***. . . . . ) such sum being payable in the types and proportions of currencies in which the Contract Price is payable, 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 . . . . . Day of . . . . . , . . . . . [2], 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, ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(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.*

[1] *The Guarantor shall insert an amount representing the percentage of the Contract Price specified in the Contract and denominated either in the currency(ies) of the Contract or a freely convertible currency acceptable to theClient.*

[2] *Insert the date twenty-eight days after the expected completion date. TheClient should note that in the event of an extension of the time for completion of the Contract, the Client would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Client might*

*consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Client's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

# Advance Payment Security

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

**Beneficiary: .....*[Name and Address of Client]*.....**
**Date: .....**
**Advance Payment Guarantee No.: .....**

We have been informed that . . . . . ***[name of the Contractor]***. . . . . (hereinafter called "the Contractor") has entered into Contract No. . . . . ***[reference number of the Contract]***. . . . . dated . . . . . ..with you, for the execution of . . . . . ***[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 . . . . . ***[name of the currency and amount in figures]*** [1]. . . . . (. . . . . ***[amount in words]***. . . . .)is to be made against an advance payment guarantee.

At the request of the Contractor, we . . . . . ***[name of the Bank]***. . . . . hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of . . . . . ***[name of the currency and amount in figures]****. . . . . (. . . . . ***[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 used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number . . . . . ***[Contractor's account number]***. . . . . at . . . . . ***[name and address of the Bank]***. . . . . .

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the . . . day of . . . . . , . . . . . [2], 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, ICC Publication No. 458.

. . . . . ***[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.*

*1 The Guarantor shall insert an amount representing the amount of the advance payment denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to theClient.*
*2 Insert the expected expiration date of the Time for Completion. The Client should note that in the event of an extension of the time for completion of the Contract, the Client would need to request an extension of this guarantee from the Guarantor. Such*

*request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Client might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to theClient's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.*