



GUYANA POWER AND LIGHT INC
PROCUREMENT OF WORKS

IFB #GPL-PD-006-2023

**Construction of Pile Clusters and Repairs to
Fuel Wharf at Canefield Power Station**

February 2023

Closing Date: Tuesday March 14, 2023 @ 14:00 hrs.
Bid Opening: Tuesday March 14, 2023 @ 14:30 hrs.

Invitation for Bids (IFB)

Co-operative Republic of Guyana

IFB# GPL-PD-006-2023

The Guyana Power and Light Incorporated (GPL) invites bids from eligible bidders for the **Construction of Pile Clusters and Repairs to Fuel Wharf at Canefield Power Station.**

A bid Security of 2 % of the tendered sum must be submitted along with the bid.

Bids shall be valid for 160 days after the date of bid opening.

Bids must only be submitted via email to our electronic tender box: gpltenderbox@gplinc.com

- Bids must be submitted with a valid **National Insurance (NIS) & Guyana Revenue Authority (GRA) Compliance Certificate- (Only Applicable to Local Suppliers)**

Deadline for submission of bids is 14:00 hrs. (2:00 p.m.) on, **March 14 ,2023.**

Bid opening is scheduled for 14:30 hrs (2:30 pm) on **March 14, 2023** at GPL's Board Room 91 Duke Street, Kingston, Georgetown, Guyana via Zoom Call in the presence of Bidders/ Representatives who may choose to participate.

IMPORTANT: Bidders downloading the bid document must forward a registration E-mail to kgeorge@gplinc.com psooklall@gplinc.com and proc_mng_sect@gplinc.com stating the following: Name of Bidder, Address, Contact No. and Email address.

Only Registered Bidders will be sent an electronic copy of the tender document. The email used for the registration of the interested participant or company must be the same for the Bid Submission or any other recommended email at time of Bidder Registration.

All queries must be submitted only to tenderqueries@gplinc.com referencing name and bid document number.

The above information will be used to inform bidders of any amendments to the bidding document and also to forward all responses to queries.

GPL reserves the right to reject any or all bids.

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INSTRUCTIONS TO BIDDERS (ITB)

A. Introduction

1. Scope of works and Source of Funds

The Procuring entity is (identified in the Bid Data Sheet and hereinafter referred to as “the Employer”) for the execution of the Works described in the *Bid Data Sheet* and will use therefore funds indicated in the *Bid Data Sheet*.

2. Eligible Bidders

- 2.1 This Invitation for Bids is open to all contractors from any country, exclusive of those prohibited by the legislation of Guyana or by another international agreement the participant of which is Guyana.
- 2.2 A bidder may be an individual or legal entity, or a combination of any abovementioned forms with a formal intent to enter into an agreement or to operate under an existing agreement in the form of a Partnership.
- 2.3 Government and municipal enterprises may only participate if they are legally and financially autonomous, and if they are legally eligible to carry on business.
- 2.4 Bidders should not have any conflict of interests, should not be associated (nor have been associated in the past), directly or indirectly, with any firm or any of its affiliates that has been engaged by the Employer to provide consulting services at preparation stage of the bidding documents, technical specifications, project and other documents to be used for procurement of works in accordance with this Invitation for Bids or being proposed as Engineer under this Contract.
- 2.5 A Bidder or any affiliate that has been engaged by the Employer to perform consulting services at preparation stage of the bidding and other documents shall not be entitled to participate in bidding, and if conflict of interests is found, bidder' bid shall be rejected.
- 2.6 Bidders should provide information on legal status, place of registration and principal type of business; a license to execute the works specifying identification number and validity period, and a written power of attorney of the signatory of the bid to assume obligations on behalf of the Bidder;
- 2.7 The bidder should not have more than one improperly performed procurement contract within the past two years preceding the commencement of the present procurement proceeding.
- 2.8 The bidder should not be insolvent, bankrupt, their property should not be controlled by judicial authority, their cases should not be commanded by court or by the person appointed

by court, their commercial activities should not be suspended, and they should not be a subject of such judicial proceedings;

- 2.9 The bidder should fulfill the tax and social insurance fund liabilities in Guyana;
- 2.10 Bidders, and their management personnel within three years preceding the commencement of procurement proceedings should not be associated with giving false information or a misrepresentation as to their qualification information for the purposes of entering into a procurement contract;
- 2.11 Bidders should provide information on the total annual volume of construction works executed for each of the last two years;
- 2.12 Bidders should provide information on major items of construction equipment proposed to carry out the Contract;
- 2.13 Bidders should provide information on the qualifications and experience of key management and technical personnel proposed for the Contract;

3. Qualifications of Bidders

- 3.1 Information on bidders' qualifications is to be included in Annex No. 9 "Qualification Information" to be incorporated in the bid.
- 3.2 A bid submitted by a partnership or syndicate consisting of two or more firm-partners should comply with the following requirements:
 - (a) The bid shall include all the above-listed information for each partnership or syndicate partner;
 - (b) the bid shall be made up and signed so as to be legally binding on all partners;
 - (c) one of the partners shall be nominated as being in charge, and his authorities should be confirmed by authorization to be signed by the authorized signatories of all partners;
 - (d) the bid should incorporate a formal agreement of partnership (or a letter of intent to establish one) which specifies, inter alia, that all partners shall be liable jointly and severally for execution of the Contract, and that the partner in charge shall be entitled to incur liabilities and receive instructions for and on behalf of any and all partners, and all operations on the execution of the Contract, including payment shall be done exclusively by the partner in charge.
- 3.3 To qualify for award of the Contract, bidders should meet the following minimum qualifying criteria, and provide the following information and documents with their bids:
 - (a) Volume of construction work executed for the last 2 years should be not less than G\$ 55,000,000;
 - (b) To own or to have the possibility to lease, hire, etc the essential construction equipment listed in the Qualification Information form;

- (c) Managers and line employees with experience in executing works of a similar nature and size for not less than 5 (five) years;

4. One Bid per Bidder

Each Bidder shall submit only one Bid, either individually or as a partner in a partnership or syndicate. All bids involving the Bidder who submits or participates in more than one Bid (exclusive of subcontractors, or permitted or required alternatives) shall be rejected from participation in bidding.

5. Cost of Bidding

The Bidder shall bear all costs associated with the preparation and submission of the bid. The Employer shall not be responsible or liable for those costs.

6. Site Visit

The Bidder, at the Bidder's own responsibility and risk, may visit and examine the Site of expected Works and its surroundings. All information obtained by the Contractor individually while visiting the site, may be used by him to prepare the bid and enter into the Contract. The costs of visiting the Site shall be at the bidder's own expense. The bid submission means that the Bidder has examined the Site of future Works and has accepted all the existing conditions.

B. List of documents included in the bidding documents

7. Content of Bidding Documents

7.1. The set of bidding documents includes the following:

- (a) Instructions to Bidders (ITB);
- (b) Bid Data Sheet (BDS);
- (c) General Conditions of Contract (GCC);
- (d) Special Conditions of Contract (SCC);
- (e) Form of Bid;
- (f) Qualification Information;
- (g) Drawings;
- (h) Bill of Quantities;
- (i) Technical Specifications;
- (j) Form of Contract;
- (k) Form of Bid Security;
- (l) Form of Performance Security;
- (m) Form of Bank Guarantee for Advance Payment;
- (n) Form of Power of Attorney for signing the bid.

7.2 The Bidder shall examine all instructions, forms, conditions and technical specifications incorporated in the bidding documents. Failure to provide all information required in the bidding documents, or submission of a non-responsive bid may result in rejection of his bid.

8. Clarification of Bidding Documents

8.1 The Bidder requiring any clarification of the bidding documents may address the Employer at the address *indicated in the Bid Data Sheet* in writing by fax or electronic messaging. The

Purchaser will respond in writing to any request for clarification of the bidding documents to be received not later than 7 (seven) days prior to the deadline for submission of bids. Copies of response, including an explanation of matter's substance, but without identifying its source, will be forwarded by the Employer in writing to bidders who received the bidding documents within 3 (three) working days.

- 8.2 The Pre-bid conference will be conducted according to decision of the Purchaser and, if so, at the time, date and address indicated in the *Bid Data Sheet*. Before the conference Bidders may address the Employer with questions for the conference, and at the conference may ask any question and receive answer to the questions submitted regarding the bidding documents. All information obtained at pre-bid conference, requests of potential bidders related to clarification of the bidding documents, and responses to them shall be recorded by the Employer, and by the results of conference, a record is made and promptly communicated to all Bidders who received the bidding documents in order to enable bidders to take them into account when preparing their bids.

9. Amendment of Bidding Documents

- 9.1 In special circumstances, at any time before expiry of the deadline for submission of bids, the Employer, for any reason, whether at its own initiative or in response to request for clarification forwarded by the Bidder, may modify the bidding documents by issuing addenda to it. Any addenda issued shall be a part of the bidding documents, and should be sent to all bidders who received the bidding documents from the Employer, which may be done by using fax or electronic message. Bidders should confirm the receipt of each addendum in writing or by fax or electronic message, and these addenda shall be binding.
- 9.2 In order to give Bidders enough time to take into account the amendments introduced while preparing their bids, the Purchaser, at his discretion, may extend the deadline for submission of bids.
- 9.3 The Employer at any time before expiry of the deadline for submission of bids may vary the qualities by a 20 percent increase or decrease

B. Preparation of Bid

10. Language of Bid

The Bid prepared by the Bidder and all correspondence and documents related to this Bid that is exchanged by the Bidder and the Purchaser, should be written in the language *specified in the Bid Data Sheet*.

11. Documents Included in the Bid

The Bid prepared by the Bidder should include the following documents:

- (a) filled in Form of Bid;
- (b) qualification information and documents confirming that Bidder has a sufficient qualification required for the execution of the Contract in case if his bid accepted;
- (c) priced Bill of Quantities and priced list of consumable materials;
- (d) Bid Security provided in accordance with ITB Clause 15;
- (e) General Conditions of Contract and Special Conditions of Contract (signed by Bidder page-by-page);

- (f) Technical Specifications used for the execution of the Works;
- (g) Alternative offers (at the Purchaser's request);
- (h) other documents to be filled in by bidders in accordance with the requirements indicated in *the Bid Data Sheet*;
- (i) Power of attorney for signing the Bid.

12. Bid Price

- 12.1 The Contract is applicable to the whole amount of Works listed in priced Bill of Quantities and list of priced consumable material price presented by the Bidder in its bid.
- 12.2 The Bidder shall indicate the rates and prices for all kinds of works included in the Bill of Quantities, drawings and specifications. The kinds of works for which no rate and price is entered by the Bidder will not be paid for when executed, and it is considered that they are included in the rates and prices for other kinds of works.
- 12.3 When determining the bid price, the Bidder shall take into account the total value of labor, materials, plant, instruments, water, heat, electric power, transportation, machinery and equipment, and other services which are required during and for completion of the construction works.
- 12.4 All duties, taxes, and other levies payable by the Contractor under the current legislation of Guyana should be included in the bid price.

13. Bid Currency

The Bidder shall submit all documents on mutual settlements, and shall indicate the bid price in Guyana Dollars.

14. Period of Validity of Bids

- 14.1 Bids shall be valid during the number of days indicated in the Bid Data Sheet after the date of bid opening. The bid with shorter validity period should be rejected by the Employer as non-responsive to the bidding documents.
- 14.2 In exceptional circumstances, the Employer may request bidders to extend the period of validity of their bids for a certain period. Such requests and responses to them shall be made in writing, and may be sent by fax, telex or electronic mail. A Bidder may refuse the request on extension of the period of validity of his bid, without forfeiting the return of security. A Bidder agreeing to the request will not be required nor permitted to modify the bid, but will be required to extend the validity of bid security for a period of not less than 2 (two) weeks after the expiry of the extended period of bid validity.

15. Bid Security

- 15.1 The Bidder should provide, as part of his bid, the bid security (not more than two percent of bid price) in the amount and form specified in *the Bid Data Sheet* with a validity period of not less than 2 weeks after the expiry of a period of bid validity.
- 15.2 The Bid security should be expressed in the bid currency, or in another freely convertible currency, and shall be a bank guarantee issued by the bank located in Guyana or by local correspondent bank in case when the security is issued by the foreign bank, or in any other

form permitted by the Bid Data Sheet, such as debenture bond, cash, shares accepted for public transactions, certificates of deposit to bearer or promissory notes.

- 15.3 All bids not having a security shall be rejected by the Employer as non-responsive to the bidding documents.
- 15.4 The bid security shall be returned to unsuccessful Bidders as soon as possible but not later than fifteen (15) days upon the expiry of bid validity period, or after furnishing the performance security by successful bidder.
- 15.5 The successful Bidder shall receive the bid security after the signing of Contract pursuant to ITB Clause 34, and after furnishing the performance security (in the case when required).
- 15.6 The Bid security may be forfeited:
 - (a) if the Bidder:
 - (1) withdraws his bid after the opening during the period of bid validity specified in his bid;
 - (2) does not agree with the correction of arithmetical errors in his bid.
 - (b) in case of the Contract award to Bidder, if this Bidder fails:
 - (1) to sign the Contract on the terms and conditions specified in his bid, in accordance with ITB Clause 31, or
 - (2) to furnish the Performance Security, in accordance with ITB Clause 32.

16. Alternative offers at the request of the Purchaser

- 16.1 The Purchaser may request in the Bidding Documents for bid submission taking into account alternative conditions. In this case all requirements of the bidding documents are applied to alternative offers to that extent as well as to basic offers. The alternative offers shall not be considered, unless allowed or required in the bidding documents.
- 16.2 If so allowed by *the Bid Data Sheet*, the bidders wishing to submit the bids, taking into account the alternative conditions must also submit the bids that comply with the requirements of the bidding documents, including the basic technical features as indicated in the drawings and specifications. In addition to submitting the basic Bid, the Bidders shall provide all information necessary for a complete evaluation of the alternative conditions by the Purchaser, including design calculations, technical specifications, breakdown of prices, proposed construction methods and other relevant details.
- 16.3 Only the alternatives of Bidder who submitted the lowest evaluated Bid in accordance with the basic requirements of the bidding documents shall be considered by the Purchaser.

16.4 The Bidder, in his Bid, shall indicate the basic price of works to be executed, in accordance with the requirements of the bidding documents, and individually the price of works to be executed using the alternative offer.

17. Format and Signing of Bid

17.1 Each bidder shall prepare one (1) Electronic Copies (readable and searchable) to gpltenderbox@gplinc.com

17.2 The original and all copies of the bid shall be typed or written in indelible ink, and shall be signed by the Bidder or by a person (persons) having all authorities to sign the bid and obligations under the Contract. Permission to sign the bid should be specified in the power of attorney to be provided with the bid. All pages of the bid where new information, change or erasure inserted should be initialed (signed) by the person or persons signing the bid.

17.3 The bid shall contain no interlineations, erasures or overwriting, exclusive of the cases when the Bidder needs to correct errors which should be initialed by the person or persons signing the bid.

D. Submission of Bids.

18. Deadline for Submission of Bids

18.1 Bids must be received by the Employer at the address and on the dates specified in *the Bid Data Sheet*.

18.2 The Employer may, at his discretion, postpone the deadline for submission of bids for later period by modifying the bidding documents, and in this case the validity period of all rights and obligations of the Employer and the Bidders shall be extended subject to the changed deadline date.

19. Late Bids

All bids received by the Purchaser after the deadline for submission of bids specified by the Employer shall be rejected and returned to Bidder unopened.

20. Modification and Withdrawal of Bids

20.1 The Bidder may modify or withdraw his bid after the bid submission, provided that the Employer will receive a written notice of modification or withdrawal of the bid before the expiry of determined deadline for submission of bids, duly signed by an authorized representative, and accompanied by a copy of the authorization.

20.2 The Bidder's modification or withdrawal notice should be prepared, sealed, marked, and sent in accordance with the provisions of ITB Clause 18. In this case the outer and inner envelopes shall be additionally marked "**MODIFICATION**" or "**WITHDRAWAL**", as appropriate. A withdrawal notice may also be sent as a telegram by telex or fax with a subsequent written confirmation though post-office not later than the deadline for submission of bids.

20.3 No changes should be added in the bids after the expiry of the period determined for bid

submission.

20.4 No bid may be withdrawn or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity indicated by the Bidder on the Bid Form. Withdrawal of the bid during this interval may result in the Bidder's forfeiture of his bid security, in accordance with ITB Clause 15.6.

E. Opening and Evaluation of Bids

21. Evaluation of Bids

21.1 During the evaluation of bids, the Procuring Entity may, at his discretion, request the Bidder to provide clarification of his bid. The request for clarification and the response thereto shall be made in writing, and in that case no change in price or substance of the bid shall be sought, offered, or permitted.

21.2 The Procuring Entity shall determine the responsiveness of each bid to requirements of the bidding documents. For the purposes of this Clause a substantially responsive bid is one which satisfies all the indicated provisions without a material deviation or reservation.

21.3 The Procuring Entity may waive any minor nonconformity or small mistake or inaccuracy in the bid, which is not a material deviation from the requirements of the bidding documents, and such non-conformity or inaccuracy will not affect the bid evaluation. To the extent feasible and appropriate, for the purposes of comparing bids, acceptable deviations shall be quantified in monetary terms and reflected in adjustments to the bid price (for the purposes only of comparison of bids).

21.4 Arithmetical errors shall be rectified in the following manner: 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. If there is a discrepancy between words and figures, the sum in words shall be preferable. If the Bidder disagrees with such correction of errors, his/her bid shall be rejected.

21.5 The Procuring Entity shall evaluate and compare only the bids that are determined to be responsive to the bidding documents.

21.6 The methodology to adjust the price to reflect the price of the missing or non-conforming item or component is the average price of the item of all responsive bids.

22. Confidentiality and Contacting the Procuring Entity

22.1 No Bidder shall contact the Procuring Entity on any matter related to his/her bid from the date of bid opening until the date of contract award, except for requests related to clarification of the bid. Information concerning the evaluation of bids is confidential.

22.2 Any effort by the Bidder to influence the Procuring Entity's decision on bid evaluation and comparison, or contract award may result in the rejection of that Bidder's bid.

F. Award of Contract

23. Award Criteria

Exclusive of the cases provided for in Clause 24, the Employer will award the Contract to the Bidder whose bid is determined to be substantially responsive to the bidding documents, and who scores the highest Evaluated points, provided that this Bidder has been determined to be (a) eligible in accordance with Clause 2 and (b) met with qualification requirements in accordance with Clause 3.

24. Employer's Right to accept any Bid and Reject any or All Bids

24.1 The Employer reserves the right to accept or reject any or all bids, and to annul the bidding process at any time prior to the award of Contract, without thereby incurring any liabilities to bidders.

24.2 In case when the bidding process annulled, the Employer should, during 3 working days, send to all Bidders a notification indicating the reasons which served as a ground for the annulment, without giving evidences of that ground.

25. Notification of Award

25.1 Within 3 days after the conducted selection of the successful Bidder, and before the expiry of the period of bid validity, the Employer will notify the successful Bidder by telex, fax or email confirming by registered letter that his bid has been determined to be successful. This letter (hereinafter and in «*the General Conditions of Contract*» called «the Letter of Acceptance») should refer to the sum that the Employer shall pay to the Contractor for execution of the Works in accordance with the Contract (hereinafter and in the Contract called «the Contract Price»).

25.2 The notification of award shall be equivalent to entering into a Contract, subject to the Bidder providing the performance security pursuant to Clause 28 and will sign the Contract pursuant to Clause 27.

26. Signing of Contract

26.1 At the same time with notification of award, the Employer will send to the successful Bidder, the Form of Contract contained in the Bidding documents.

26.2 During seven (14) days of the receipt of a written Notice of acceptance and the Form of Contract, the successful Bidder should sign and date the Contract, and return it to the Employer.

27. Performance Security

27.1 Together with the signed Contract, the successful Bidder will send to the Employer, the Performance Security in the amount indicated in *the Bid Data Sheet*.

27.2 If the successful Bidder fails to provide the performance security, or during 14 (Fourteen) days does not return the Contract signed, then the Employer shall reject the bid and confiscate the bid security, in that case the Employer shall award the Contract to the next evaluated Bidder, whose bid is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily, subject to the Employer's right to reject all bids in accordance with Clause 28, and the applicable Law and Regulations.

28. Corrupt and Fraudulent Practices

28.1 The Employer requires that the Bidders observe the highest standards of ethics during the procurement and execution of such Contracts. In pursuance of this policy, the Employer:

(a) for the purposes of provisions of this Clause, uses the following notions:

- I. “corrupt practice” - means the offering, giving, the agreement requesting for remuneration in any form, or services rendering in order to influence the action of a public official in the procurement process or in contract execution; and
 - II. “fraudulent practice” - means a misrepresentation of facts in order to influence a procurement process or the execution of a Contract to the detriment of the Employer, including collusive practices among Bidders (prior to or after bid submission), to establish bid prices at artificial non-competitive level, and deprive the Employer of the benefits of free and open competition;
 - III. “collusive practice” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Employer, designed to establish bid prices at artificial, noncompetitive levels; and
 - IV. “coercive practice” means harming or threatening to harm (directly or indirectly), persons or their property to influence their participation in the procurement process or the execution of a contract;
- (b) will reject the bid if it determines that the Bidder recommended for award of the Contract has engaged in corrupt, fraudulent, collusive or coercive practices during the bidding process or execution of a contract;
- (c) will declare the Contractor for indefinite, or for a specified period of time to be ineligible to participate in the state-financed biddings in accordance with a Regulation on the establishment of Database of unreliable (unfair) suppliers and its application procedures.

33. Penalties

A penalty for slow or non-performance will be imposed as per the rate prescribed for Liquidated Damages. Slow or non-performance will be assessed against the project's approved work programme and will commence from the first quarter of the project life. (Note: This means that after 10 % of the contract sum is deducted for penalties, the Procuring Entity has the right to cancel the contract and demand all forms of damages).

Bid Data Sheet (BDS)

Below given the specific data on procurement of the works shall complement, supplement or amend the provisions of the Instructions to Bidders (ITB). Whenever there is a conflict between the provisions herein and the Instructions to Bidders, the former shall prevail.

Item №	A. General
ITB 1.1	<p>The Employer is: Guyana Power & Light Incorporated</p> <p>Identification Number GPL-PD-006-2023</p> <p>The works are: Construction of Pile Clusters and Repairs to Fuel Wharf at Canefield Power Station.</p> <p>The summary of scope of works is the construction of three 3-pile cluster, repairs to the wharf, repairs to the guard hut on the wharf and rehabilitation of the fuel pipeline.</p> <p>The source of financing is: The Guyana Power & Light Inc.</p>
ITB 1.2	<p>The Name of the Project is: Construction of Pile Clusters and Repairs to Fuel Wharf at Canefield Power Station.</p> <p>The Intended Completion Date is four (4) weeks after Award of Contract.</p> <p>The Defects liability period is three (3) months after completion.</p>
ITB 3.2	<p>At any time before the deadline for submission of Bids, the Procuring Entity may amend the bidding documents by issuing an Addendum and notifying the registered bidders. Only registered bidders will receive addendum/addenda and bid clarifications.</p> <p>Prospective bidders who registered after addendum/addenda and bid clarifications, will be provided with these documents via email.</p>
ITB 3.3	<p>To qualify for award of the Contract, bidders should meet the following minimum qualifying criteria, and provide the following information and documents with their bids:</p> <ul style="list-style-type: none"> (a) Verified evidence of completion of building works above G\$15 million and civil works contracts above G\$20 million each contract executed over the last five (5) years; (b) To own or to have the possibility to lease, hire, etc the essential construction equipment listed in the Qualification Information Form; (c) Managers and line employees with experience in executing works of a similar nature and size for not less than 3 (three) years.

	B. Bidding Documents
ITB 7.1	For <u>clarification purposes</u> only, the Employer's address is: Attention : Supply Chain Manager- Procurement Address : 40 Main Street, Cummingsburg, Georgetown, Guyana mail : tenderqueries@gplinc.com
ITB 8.2	A Pre bid meeting will be held at the Project Site on Tuesday February 21, 2023 at 11:00 hrs.
ITB 9.3	The Employer at any time before expiry of the deadline for submission of bids may vary the quantities by 10 percent, increase or decrease.
	C – Preparation of Bid
ITB 10.1	The language of Bid is English
ITB 12.2	The Bidder shall indicate the rates and prices for all kinds of works included in the Bill of Quantities, drawings and specifications. The kinds of works for which no rate and price is entered by the Bidder will not be paid for when executed, and it is considered that they are included in the rates and prices for other kinds of works.
ITB 13	The Bid Currency shall be in Guyana Dollars
ITB 14.1	The period of Bid validity is 90 days .
ITB 15.1	The amount and form of Bid Security is – 2% of the Bid Price in Guyana Dollars
ITB 16.2	Alternative bids will not be accepted for evaluation.
ITB 17.1	Number of Copies of the Bid to be completed and submitted are; one (1) electronic copy
	D – Submission of Bids
ITB 18.3	Certificates of compliances from NIS, GRA and Vat Registration
ITB 19.1	Deadline for Submission of Bids: Bids must be sent electronically addressed to : The Secretary to the Tender Board , Guyana Power & Light, 91 Duke Street, Kingston, Georgetown on or before 14:00hrs on Tuesday March 14,2023.
ITB 21	This clause is not applicable .
	E – Opening and Evaluation of Bids
ITB 22.1	Bid opening is scheduled for 14:30hrs on Tuesday <u>March 14,2023</u> in GPL'S Board Room, 91 Duke Street, Kingston via a virtual platform or in the presence of bidders/representatives who may choose to attend in person.
ITB 22.2	This clause is not applicable .
	F – Award of Contract

ITB 31.2	During seven (7) days of the receipt of a written Notice of acceptance and the Form of Contract, the successful Bidder should sign and date the Contract, and return it to the Employer.
ITB 32.1	The amount of Performance Security shall be 10% of Bid Price , and in the form of a Bank Guarantee, Manager's Cheque or Insurance Bond from a bank/financial institution registered and operating in Guyana.

General Conditions of Contract (GCC)

A. General provisions

1. Definitions

1.1 Below given terms in this Contract shall be interpreted as follows:

"Bill of Quantities" means the completed priced items of works and priced consumable materials which are the part of the Bid.

"The Completion Date" means the date of completion of the Works accepted by the Working Committee pursuant to Certificate of Commissioning, or in case of repair works, the final Certificate of Performed Works of the Contractor approved by the Engineer.

"Contract" means the Contract achieved between the Purchaser and the Contractor, and fixed as the form of Contract signed by the parties with all annexes and addenda to the Contract for the execution and completion of the Works.

"Contractor" means an individual or legal entity, or a partnership, whose Bid for the execution of the Works is accepted by the Purchaser.

"Contractor's Bid" means the completed bidding documents submitted by the Contractor to the Purchaser.

"Contract Price" means the amount to be paid to the Contractor under the Contract for the entire and duly performance of his contractual obligations.

"Days" mean calendar days; **"months"** mean calendar months.

"A Defect" means any part of the Works executed breaching terms of the Contract.

"The Acceptance Report of Corrected Defects" means the acceptance report drafted jointly by the Engineer and the Contractor after correction of defects by the Contractor.

"The Defects Correction Period" means the period to correct imperfections and defects indicated in the Special Conditions of Contract, and calculated from the Completion Date.

"Drawings" include all calculations, schemes, plans and other information provided, or approved by the Authorized Body for the execution of the Contract.

«**Compensation Events**» means the event defined in Clause 41 of the General Conditions of Contract.

"Employer" means the party, as defined in the SCC, which employs the Contractor to execute the Works.

"Machinery and equipment" mean all the Contractor's machinery, equipment and vehicles to be brought temporarily to the Site for the execution of the Works.

"The Initial Contract Price" means the Contract Price indicated by the Employer in the Letter of Acceptance.

"The Expected Period of Completion" means when the Contractor should complete the execution of the Works indicated in the SCC.

"Materials" means all consumable and raw materials to be used by the Contractor and subcontractor during the execution of the Works.

"Plant" means the integral part of the Works which has a mechanical, electrical, chemical or biological function.

"Engineer" means a competent person, identified in the SCC, appointed by the Employer to be the Engineer, and notified to the Contractor, to be responsible for supervising the execution and quality of the Works.

"Site" means the territory, as defined in the SCC, allotted for the execution of the Works.

"Technical Specification" means the technical specifications of the Works included in the Contract, and any modifications of, or addenda to these specifications approved by the Employer.

"The Start Date" means the latest date, as given in the SCC, when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.

"A Subcontractor" means an individual or legal entity, entering into a Contract with the Contractor to execute the part of the Works under the Contract, including the work of the Site.

"Temporary Structures" means the structures designed, constructed, installed and dismantled by the Contractor, and which are required for the execution of the Works.

"Modification" means a written instruction given by the Engineer to modify quantity of the Works, or items.

"The Works" means that the Contractor should construct, install, and hand over to the Purchaser under the Contract the execution of quantity of the Works, or completion of the Works, as defined in the SCC.

2. Contract Documents

2.1 Below listed documents shall constitute the Contract, and shall be its integral part, and shall be interpreted in the following order of priority:

- (a) Contract,

- (b) Letter of Acceptance,
- (c) Contractor's Bid,
- (d) Special Conditions of Contract,
- (e) General Conditions of Contract,
- (f) Technical Specifications,
- (g) Drawings,
- (h) priced Bill of Quantities, and priced Consumable Materials; and,
- (i) any other documents listed in *the Special Conditions of Contract* to be as a constituent part of the Contract.

3. Language and Law

- 3.1 The language of the Contract and the applicable laws governing the Contract are stated in *the Special Conditions of the Contract*.

4. Engineer

- 4.1 Except where otherwise specifically stated, the Engineer will decide contractual relationships between the Employer and the Contractor, representing the Employer.

5. Official communication between the Employer and the Contractor

- 5.1 Official communication between the parties under the implementation of the Contract conditions shall be effective only when in writing. A notice shall be effective only when it is delivered.

6. Entering into subcontract

- 6.1 The Contractor may enter into subcontracts with the approval of the Engineer, but may not assign the Contract without the approval of the Employer in writing. In case of entering into more than one Contract with subcontractors, the Contractor shall co-ordinate the activities of those subcontractors. Presence of subcontractors shall not alter the Contractor's liability for performance of the contract.

7. Personnel

- 7.1 The Contractor shall employ the personnel for key positions in order to perform the functions specified in the «Qualification Information». The Engineer shall approve any proposed replacement of the key personnel only if their relevant qualifications and skills are the same or better than those of the personnel listed in the Qualification Information».
- 7.2 If for any reason the Engineer asks the Contractor to remove the person who is a staff member or employee of the Contractor or subcontractor, the Contractor should ensure that this person leaves the Site within three days, and no longer be engaged in the work under this Contract.

8. Employer's and Contractor's Risks

8.1 The Employer and the Contractor carry the risks which are the Employer's risks or the Contractor's risks under this Contract.

9. Employer's Risks

9.1 From the Start Date and until the Completion Date, or until the defects have been fully corrected, the following risks will be the Employer's risks:

- (a) The risk of personal injury, or, death, or loss of or damage to property (exclusive of the Works, Plant, Materials, Machinery and Equipment) in consequence of:
 - (i) using or occupying the Site by the Purchaser for the execution of the Works, or for other purposes which may be an unavoidable result of the Works or
 - (ii) negligence, improper fulfillment of official duties, or violation of legal rights of the Contractor by the Purchaser, or by any person employed by him, or under the Contract, exclusive of the Contractor.
- (b) The risk of damage to the Works, Plant, Materials, and Machinery and Equipment to the extent that is due to a fault of the Employer, or in the Employer's design defect, or due to war or radioactive contamination directly affecting the country where the works are to be executed.

9.2 From the Completion Date and until the defects have been fully corrected, the risk of loss of or damage to the Works, Plant and Materials is the Employer's risk, exclusive of the cases when loss or damage caused by:

- (a) the defect which existed on the Completion Date;
- (b) the event which occurred before the Completion Date and which is related to the Employer's risks, or
- (c) the activities of the Contractor on the Site after the Completion Date.

10. Contractor's Risks

10.1 From the Start Date and until the defects have been corrected, the risk of personal injury, death, and loss of or damage to property (including the Works, Plant, Materials, Machinery and Equipment) which are not the Purchaser's risks are the Contractor's risks.

11. Contractor to Execute the Works

11.1 The Contractor shall construct and install the Plant in accordance with the Specifications, Drawings, Bill of Quantities and/or pursuant to the Defects Report.

12. The Works to Be Completed by the Expected Period of Completion

12.1 The Contractor may begin the execution of construction Works from the Start Date, and he should execute the Works in accordance with the Work Execution Schedule submitted by the Contractor and approved by the Engineer, and the Contractor must complete the construction Works by the Expected Period of Completion.

13. Construction of Temporary Structures

13.1 The Contractor shall submit to the Engineer the specifications and drawings indicating the expected construction of Temporary structures to be approved by the Engineer, provided that they comply with the Specifications and drawings.

13.2 The Contractor should, when required, co-ordinate the project of Temporary structures with the third party.

14. Accident Prevention

14.1 The Contractor shall be fully responsible for the safety of all activities on the Site.

15. Discoveries

15.1 Anything of historical or other interest or of significant value discovered on the Site shall be the property of the Employer. The Contractor should notify the Engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

16 Investigation and Use of Site

16.1 During the execution of the Works, the Contractor shall rely on the Site Investigation Reports, and may visit and investigate the Project Site. All information obtained by the Contractor during the Site visit, shall be used for the execution of the Works.

16.2 The Employer shall give the Contractor the right for using the whole Site which is allotted for project construction. If the right for using any part of the Site is not given by the date indicated in *the Special Conditions of Contract*, the Employer will be deemed to have delayed the start of the certain kinds of project works, in this case the Purchaser should extend the construction period for the period of transferring the Site.

17. Access to the Site

17.1 The Contractor shall allow the Engineer and any other person authorized by the Engineer, access to the Site or to any other place where work is being carried out or is expected to be carried out according to the Contract.

18. Orders and instructions

18.1 The Engineer, within his authority, may take a decision; give orders and instructions to be binding upon the Contractor.

18.2 If the Contractor assumes that decision taken by the Engineer exceeds the authority presented by the Engineer under the Contract, or decision was taken wrong, it shall be dealt with under clause 19.

19.0 Dispute or disagreement arising between the Employer and the Contractor shall be settled in accordance with the Laws of Guyana.

19.1 Notwithstanding any references to trial herein, the parties shall continue to perform their obligations under the Contract, unless otherwise agreed.

B. Time Control

20. Work Execution Schedule

20.1 Within the time period specified in *the Special Conditions of Contract*, the Contractor shall submit to the Employer for approval the Work Execution Schedule where general methods of arrangement, procedure and period of execution of works on the Project construction are stated.

20.2 The Contractor shall submit, within the time periods specified in *the Special Conditions of Contract* to the Engineer for approval, the updated version of the Work Execution Schedule, taking into account the actual progress of performed works, and its impact on the time period of remaining works, including available changes in the sequence of execution of the works.

20.3 If the Contractor does not submit the updated Work Execution Schedule during the indicated period, the Engineer may retain the amount specified in *the Special Conditions of Contract* from the next Certificate of Performed Works, and continue to retain that amount until the delayed Work Execution Schedule is provided.

20.4 The Engineer's approval of the Work Execution Schedule shall not alter the Contractor's obligations. The Contractor may revise the Work Execution Schedule, and submit it to the Engineer again at any time. The revised Work Execution Schedule should demonstrate the effect of Modifications and Compensation Events.

21. Delays Ordered by the Engineer

21.1 The Engineer has a right to give order to the Contractor to suspend the start or progress of execution of the works on the Project construction.

22. Early Warning

- 22.1 The Contractor shall inform the Engineer as soon as possible of likely specific events, or circumstances that may negatively affect the quality of the works, increase the Contract Price or delay the execution of the Works on the Project construction. The Engineer may require the Contractor to assess the expected impact of the future event or circumstance on the Contract Price and Completion Date. The Contractor should provide such assessment within a short time.
- 22.2 The Contractor shall assist the Employer in preparing and analyzing proposals regarding for that how to the consequence of such an event or circumstance can be avoided or reduced by anyone involved in the work, and in carrying out any instruction of the Engineer resulting from those proposals.

C. Quality Control

23. Identifying Defects

- 23.1** The Engineer shall check the works of the Contractor and notify the Contractor of the defects found. Such checking shall not involve the change in the Contractor's responsibilities. The Engineer is entitled to require the Contractor to search for a defect, and to uncover and check the results of works that the Engineer considers may have a Defect.
- 23.2** The "**Defects Liability Period**" for the work is **9 months** from the date of taking over possession or such other period as may be specified in the Bid Data Sheet.

24. Tests

- 24.1 If the Engineer instructs the Contractor to carry out tests not provided for in the specifications to check whether the performed work has a defect, and if as a result the test shows that it does, the Contractor shall pay for the test. If there is no defect, the payment for the test shall be done by the Purchaser and it shall be a Compensation Event.

25. Correction of Defects

- 25.1 The Engineer should notify the Contractor in writing of any defect before completion of the Defects Correction Period, which begins at Completion Date, and its duration is determined in *the Special Conditions of Contract*.
- 25.2 Upon receipt of each notice of Defect, the Contractor should correct the indicated Defect within the time period specified in the Engineer's notice.

26 Uncorrected Defects

- 26.1 In case if the Contractor has not corrected the Defect within the time period specified in the Engineer's notice, the Engineer will assess the cost of having the Defect corrected, and the Contractor should pay those costs.

D. Cost Control

27. Bill of Quantities

27.1 The Bill of Quantities includes the priced kinds of works and value of consumable material for the construction, installation, testing and commissioning of the Works to be executed by the Contractor.

27.2 The Bill of Quantities in the bid is used for calculation and payment for the Contract Price. The Contractor shall receive the payment for the executed amount of works at the rate and price, and value of consumable materials indicated in the Bill of Quantities for each kind of work.

28. Changes in Quantities

28.1 In exceptional circumstances, the Employer, as may be industrially required, may change quantity of any works, or individual kinds of works.

28.2 At the request of the Employer, the Contractor within 7(seven) days of receipt of request should provide the Employer with a detailed breakdown of prices of change in the quantities indicating the rates for kinds of works and value of consumable material. The Employer shall evaluate those rates and value of consumable material in comparison with the Bill of Quantities provided by the Contractor with his Bid.

28.3 In case if during the comparison, the rate and value of consumable material will correspond with the rate and value of consumable material given in the Bill of Quantities, the Employer shall issue the Contractor a "Work order" for the execution of changed quantities.

28.4 If the rate and value of consumable material shall not correspond with the rate and value given in the Bill of Quantities, or if in the Employer's judgment, shall be unreasonable, the Employer instructs the Engineer to prepare a budget for Changed quantities, or for individual kinds of works, and on the basis of his own forecast, issues the Contractor a budget in the Work order format to execute for changed quantities.

28.5 The Contractor does not have a right for additional payment as a compensation of expenditure which one might avoid by giving an early notice.

29. Certificate of Performed Works

29.1 The Contractor shall monthly submit to the Engineer for payment the certificates of actually performed works prepared pursuant to the Bill of Quantities after deduction of aggregate payments of previously approved quantities.

29.2 The Engineer should check the Contractor's monthly certificates of performed works and approve them for payment to the Contractor.

29.3 The value of performed works should be determined by the Engineer, and should involve the value of all actually performed quantities in accordance with items of works, rates and value of consumable material under the Bill of Quantities.

29.4 The value of performed works should include the value of Work order (additional works) and of Compensation Event.

29.5 The Engineer may exclude, based on subsequent circumstance, any items certified in a previous certificate of performed works for payment, or reduce the proportion of any item previously certified in any certificate of performed works for payment in the light of later information.

30. Payments

30.1 Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor sums according to the certificates of performed works confirmed by the Engineer during 28 days after the date of invoicing pursuant to the certificate of performed works. In case when the payment is delayed, the Employer shall pay interest to the Contractor indicated in *the Special Conditions of Contract* against the delayed payments. Interest is calculated from the date by which the payment should be made and until the date when the last payment has been made.

30.2 In case if the cost of certificate of performed works is increased as a result of decision of Arbitrator or Judge of General Jurisdiction, interests will be charged from the date of affirmation by the Engineer of the certificate of performed works for which the quantities have been increased without any dispute.

30.3 The kinds of Works for which no rate or price, and value of consumable material is entered in will not be paid for by the Employer, and shall be deemed included in other kinds of Works.

31. Retention

31.1 For the purposes of correction of possible defects, the Employer shall retain from each payment a portion of the funds in the sum of 10 % of the contract sum is paid only at the expiration of Defects Liability period

31.2 On the Completion Date half of the whole retention shall be returned to the Contractor and the second half shall be returned after completion of the Defects Correction Period, provided that all Defects indicated in the notice and certified by the Engineer have been corrected.

31.3 After entire completion of Works, the Contractor may substitute retention money with an “on demand” bank guarantee.

32. Liquidated Damages.

32.1 In case of a failure in the Completion Date towards the Expected Period of Completion, the Contractor shall pay the Purchaser liquidated damages specified in the *Special Conditions of Contract* for each date of delay of the actual Completion Date against the Expected Period of Completion. The total amount of liquidated damages shall not exceed the amount specified in the *Special Conditions of Contract*. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor’s liabilities. *Thereafter the procuring entity has the right to cancel the contract and demand all forms of damages.*

32.2 In case of extension of the Expected Period of Completion after liquidated damages have been paid, the Engineer shall repay the overpaid amount of liquidated damages by the Contractor at the expense of next certificate of performed works.

33. Force majeure

- 33.1 The Contractor shall not forfeit his performance security, and shall not be responsible for payment of liquidated damages, or termination of a Contract for disregard of provision, if the delay in execution of the Contract, or default is the result of an event of force majeure.
- 33.2 For the purposes of this Clause, “force majeure” means an event beyond the control of the Contractor, not connected with error or negligence of the Contractor, and not foreseeable. Such events may include but not restricted to such actions as: wars or revolutions, fires, floods, epidemics, quarantine and embargo affecting the execution of the Works.
- 33.3 When force majeure arises, the Contractor shall promptly notify the Engineer in writing of Such event and its cause. If no written instructions received from the Engineer, the Contractor shall continue to perform his obligations under the Contract as far as possible, and shall search for alternative ways of execution of the Contract, irrespective of force majeure.

35. Performance Security

- 35.1 Within fourteen (14) days upon receipt of notice of award, the successful Bidder shall furnish the Employer with the Performance Security, the amount and form of which is specified in the *Special Conditions of Contract*.
- 35.2 The Performance Security shall be returned by the Employer not later than fifteen (15) days after the date of completion by the Contractor of his obligations under the Contract, including all guarantee obligations, unless otherwise provided in the Special Conditions of Contract.

36. Cost of Repairs

- 36.1 Loss of or damage to the Works, Plant, or Materials included in Works and having been occurred between the Start Date and the Completion Date, including the Defects Correction Period shall be reimbursed by the Contractor at the Contractor’s cost if that loss or damage arose as a result of the Contractor’s action or inaction.

E. Finishing the Contract

- 37. Completion** 37.1 The Contractor, after completion of all works stipulated in the Contract, shall send the Employer a notice of Completion and shall request the Engineer to issue a certificate of Completion of the Works
- 38 Taking Over** 38.1 The Employer not later than seven (7) days after the Contractor’s notice, shall appoint the Working Commission to take over the Works. The Taking Over Certificate shall be prepared with participation of the Contractor. The date of approval of Taking Over Certificate by the Employer shall be deemed the Completion Date, and within seven (7) days of the date of taking over certificate, the Site and the Works should be taken over by the Purchaser.

39. Final Account

39.1 After the Certificate of Corrected Defects, the Contractor shall supply the Employer with a final account for the remaining amount that the Contractor considers payable under the Contract. Provided that all defects are corrected, and that the supplied invoice is correct and complete, the Engineer, during one month, shall certify the final certificate of performed works. If during the inspection, there will be the facts of finding a defect, and the supplied invoice is incorrect or inaccurate, the Engineer, within a month, shall submit a schedule for correction of defects. If the Final Account is still incorrect or inaccurate after it has been resubmitted, the Engineer shall determine independently the amount due to and shall decide to pay to the Contractor.

40. Termination

40.1 The Purchaser or the Contractor may terminate the Contract if the other party causes a fundamental breach of the conditions stipulated in the Contract.

40.2 Fundamental breaches of the Contract conditions shall include, but shall not be limited to, the following:

(a) the Contractor stops the works for 15 days, in this case that stoppage is not provided in the current Work Execution Schedule and is not authorized by the Engineer;

(b) The Purchaser instructs the Contractor to suspend the progress of the works, and such instruction is not canceled during the days specified in the Special Conditions of Contract;

(c) The Employer or the Contractor becomes bankrupt or goes into liquidation, exclusive of reorganization or amalgamation;

(d) The Employer does not pay the Contractor the amount confirmed by the Engineer within the days specified the Special Conditions of Contract of the date of invoice supplied to the Contractor for payment;

(e) the Engineer notifies and warns that non-correction of a specific defect is a fundamental breach of the Contract conditions; and the Contractor does not correct a defect within acceptable period of time established by the Engineer;

(f) The Contractor does not provide the required guarantee;

(g) The Contractor delayed the completion of the Works for a number of days correspondent to a maximum possible amount of liquidated damages as indicated in the *Special Conditions of Contract*.

(h) If the Contractor, in the Employer's judgment, has engaged in corrupt or fraudulent practices in the process of competitive selection or execution of the Contract.

For the purposes of this subparagraph:

(1) "corrupt practice" means the offering, giving, the agreement requesting for remuneration in any form, or services rendering in order to influence the action of a public official in the procurement process or contract execution; and

(2) "fraudulent practice" means a misrepresentation of facts in order to influence the procurement process or execution of a contract to the detriment of the Purchaser; including a collusive practice of bidders (prior to or after bid submission) to establish bid prices artificially at non-competitive level, and deprive the Purchaser from benefits of free and open competition;

(3) "collusive practice" means a scheme or arrangement between two or more contractors (subcontractors), with or without the knowledge of the Purchaser, designed to artificially rise the price in during the execution of a contract;

(4) "coercive practice" means harming or threatening to harm (directly or indirectly), persons or their property to influence their participation in the execution of a contract;

40.3 When either party of the Contract notifies the Engineer of breach for a cause other than those listed under Clause 45.2 above, the Engineer shall determine whether the breach is fundamental or not.

40.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

40.5 If the Contract is terminated, the Contractor shall stop the Works immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.

41. Payment upon Termination

41.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue the confirmed Certificate of the performed works and Materials ordered less advance payments received up to the date of the confirmation of the certificate and less the percentage of unperformed works, as indicated in the Special Conditions of Contract. Additional Liquidated Damages shall not be charged. If the total amount due to the Employer exceeds the amount due to the Contractor, the difference shall be a debt of the Contractor to the Purchaser.

41.2 If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Purchaser, the Engineer shall confirm the Certificate of the performed works,

Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the confirmation of the certificate.

42. Property

42.1 All Materials on the Site, Equipment, Temporary Structures, and Works shall be deemed the property of the Employer if the Contract is terminated because of the Contractor's fault.

43 Release from Performance

43.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor, the Engineer shall certify the impossibility of the Contract performance. The Contractor shall make the Site safe and stop work as quickly as possible after receiving such notice, and shall be paid for all work carried out before receiving an instruction, and for any work carried out afterwards to which a commitment was made.

44. Contractor to Protect Works Done, Materials and Plant

44.1 The Contractor should provide the protection of performed works and all materials, plant, resources and other items related to the Works from any or all kinds of damage, deterioration, destruction linked to rain, frost, fire, robbery, mysterious disappearance and other reasons. The Contractor during the execution of the works, shall additionally ensure the protection of other works on Project, and of property belonged to the Employer, and related structures from any damage, deterioration or for any other reason, including (but not limited to these) roads, buildings, warehouses and other kinds of movable and immovable property, exclusive of the event of force majeure. All costs incurred by the Contractor in view of the above-stated, shall not be subject to additional payment on the part of the Employer.

44.2 The Purchaser will not be responsible for any damage to the Contractor's works for the abovementioned reasons before they are fully completed and accepted, and the Contractor shall, without additional payment, carry out all corrections, repairs or replacements as applicable to the Works because of necessity to correct any defect, damage and other defects as a result of the above event.

45. Materials and Equipment of Contractor

45.1 The Contractor shall be responsible for the arrangement of supply, transportation, discharge and storage of all Materials and Equipment to be supplied, and delivered by the Contractor to the Project Site. The supplies shall be carried out only for the Contractor's name. The Employer shall in no case be responsible for expenses related to the supply, processing, storage and fee for stoppage of vehicle. No supplies shall be addressed to the Employer.

45.2 The Contractor shall provide the Employer with a Schedule of Receipt of materials and equipment on the Project Site. The sites only permitted by the Purchaser may be used for storage, stowage and stockpiling.

Special Conditions of Contract (SCC)

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict between the provisions herein and the General conditions of Contract, the Special Conditions of Contract shall prevail.

GCC Clause name	A. General
1.1	The Employer is: Guyana Power & Light Incorporated 40 Main Street, North Cummingsburg Georgetown The works are: Construction of Pile Clusters and Repairs to Fuel Wharf at Canefield Power Station.
1.1	The Intended Completion Date is four (4) weeks after award of Contract.
1.1	The Engineer is the Senior Civil Engineer of the GPL Facilities Department.
1.1	The Site is located at Canefield, East Canje, Berbice, Region 6
1.1	The Start Date shall be 14 days after the “Notice to Proceed” is issued to the Contractor.
3.1	The Language of Contract is English
3.1	The Applicable Law for this contract is The Laws of Guyana.
10.1	The minimum insurance amounts and deductibles shall be: (a) For the Works, Plant and Materials: G\$1,300,000 (b) For the loss or damage to Equipment: G\$1,300,000 (c) For loss or damage to property (except the Works, Plant Materials and equipment) in connection with the Contract: G\$1,500,000 (d) For personal injury or death: (i) Of the Contractor’s employees: G\$1,000,000 (ii) Of other people: G\$1,000,000
14.1	The safeguard/safety at the site, The Contractor shall; 1. Provide safety gear which should be worn by workers whilst works are ongoing. 2. Agree to abide with GPL safety plan for works on site as such the Contractor will be responsible for obtaining a copy from GPL Inc.
16.2	The date by which the Site has been transmitted to Contractor for use shall be the same date as the “Notice to Proceed”
19.0	Disputes or disagreement arising between the Employer and the Contractor shall be settled in accordance with the Laws of Guyana.
B. Time Control	
20.1	The Contractor shall submit for approval a Work Program within seven (7) days from the date of the Letter of Acceptance.
20.2	The period of submission of updated Work Program – within seven (7) days of request

	by Engineer.
20.3	The retention for untimely submission of Work Program is \$10,000 Guyana Dollars per day.
C. Quality Control	
23.2	The Defects Liability Period is three (3) months
26.1	Any correction of Defects must commence within fourteen (14) days of receipt of Engineer's notice.
D. Cost Control	
30.1	The Employer shall pay the Contractor sums according to the certificates of performed works confirmed by the Engineer during 28 days after the date of invoicing pursuant to the certificate of performed works. The Employer shall pay a rate of 0.02% interest of Certificate of Performed works when a payment is delayed without reasonable cause.
31.1	Retention The percentage of payments due to be retained of the value of works done to correct possible defects is 10%.
32.1	Liquidated Damages The penalty to be paid by the Contractor for delay of the completion of works is 0.5% per day to a maximum of 5%.
34.1	Mobilization/ Advance Payment The time frame by which mobilization/advance payment is to be provided and the amount is 15% of the contract sum and to be submitted in the form of a Bank Guarantee or a bond from an Insurance Company licensed by the Bank of Guyana.
34.3	Repayment of advance payment for mobilization and equipment shall be repaid at a rate of 30% of the amount of all interim (progress) payment certificates: The advance shall be repaid with percentage deductions from the interim (progress) payments certified by the Engineer under the Contract. Deductions shall commence in the next interim Payment Certificate following that in which the total of all such payments to the Contractor has reached not less than 15% of the Contract Price.
35.1	A Performance Security is required in the amount of 10% of Contract Price and in the form of a Bank Guarantee or a bond from an Insurance Company licensed by the Bank of Guyana.
E. Finishing the Contract	
40.2 (b)	When a suspension order is not revoked by the Employer after 30 days
40.2 (d)	When payment to the Contractor is delayed beyond 60 days following invoicing
40.2 (g)	The maximum number of days of delay is: 10 days; consistent with clause 32.1 on liquidated damages.

CLIENT: GUYANA POWER AND LIGHT INC
PROJECT: CONSTRUCTION OF PILE CLUSTER AND REPAIRS TO FUEL WHARF AT CANEFIELD POWER STATION
ENGINEER'S ESTIMATE



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BILL No. 1: PRELIMINARIES

NO.	DESCRIPTION	UNIT	QTY	RATE	TOTAL
1.0	BILL No. 1 - PRELIMINARIES				
	PRELIMINARY PARTICULARS				
1.1	Funding The funding shall be provided by the Guyana Power & light Inc., of 40 Main street, North Cummingsburg, Georgetown.				
1.2	Engineer The Engineer shall be the Civil Engineer - Administrative Department, Guyana Power & Light Inc.				
1.3	Contract The Bills of Quantities have been prepared in accordance with the General Conditions of contract, Form of Tender and Agreement. The Conditions of contract should be carefully read as such conditions may have a considerable bearing on the tender.				
1.4	Quantities The quantities shown in the Bills have been measured net, as fixed in position, and the bidder shall allow in his prices for waste, laps, etc. The quantities given are thus generally not suitable for the ordering of materials.				
1.5	Provisional Sum The term 'Provisional Sum' shall mean a sum provided for works or for costs which cannot be entirely foreseen, defined or detailed at the time the tender documents are prepared. Such sums shall be used in whole or in part as directed by the Engineer & shall be deemed to be inclusive of any profit required by the contractor, unless otherwise indicated.				
1.6	Description of Site The site of the proposed works is located at Garden of Eden, East Bank Demerara.				
1.7	Description of Works The works consists of the Construction of three (4 piles) cluster to the fuel wharf and repairs to the fuel wharf.				
1.8	Visiting the Site The Contractor is advised to visit the site of the proposed Works in order to ascertain the prevailing site conditions and to obtain all information necessary for costing and executing the Works.				

CLIENT: GUYANA POWER AND LIGHT INC
 PROJECT: CONSTRUCTION OF PILE CLUSTER AND REPAIRS TO FUEL
 WHARF AT CANEFIELD POWER STATION
 ENGINEER'S ESTIMATE



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BILL No. 1: PRELIMINARIES

NO.	DESCRIPTION	UNIT	QTY	RATE	TOTAL
2.0	BILL No. 1 - PRELIMINARIES				
	GENERAL MATTERS				
	Allow for the following General Matters in the Unit Rates of Plant and Tools.				
A.	Setting out of the works.				
B.	Holiday with pay.				
C.	Transportation of materials, plant & equipment				
D.	Site organization with regards to employment of Foreman-in-Charge, Storekeeper, Cleaner, and Security Guard.				
E.	Lighting and Power.				
F.	Programme and progress Chart.				
G.	Collection & payment of NIS contributions.				
3.0	TEMPORARY WORKS				
	Allow for the following Temporary Works, constructed to the Engineer's satisfaction, and for dis-mantling and removing from site on completion.				
A.	Toilet & Washing facilities for GPL supervisor and Contractors	Sum			
B.	Mass area for workers and barrier to prevent persons from coming into contact with the works.	Sum	1		
C.	Provide storage and workshop facilities	Sum	1		
D.	Provide a suitable furnished site office of size 15' x 15'.	Sum			
E.	Provide water for the works	Sum	1		
F.	Provide all scaffolding necessary for the works	Sum			
G.	Provide for the protection of all sections of the Works from inclement weather	Sum			
H.	Allow a Sum for the testing of concrete to be incorporated in the Works	Sum			
	CARRIED FORWARD				

BROUGHT FORWARD					
4.0	OTHER MATTERS				
A.	Allow for the following Insurance's: (1) Contractor's All Risk Insurance The Insurance must be for the entire contract period. (Construction Period + Defects Liability Period)	Sum	1		
	(2) Public Liability Insurance The Insurance must be for the entire contract period. (Construction Period + Defects Liability Period)	Sum	1		
	(3) Employer's Liability Insurance The Insurance must be for the entire contract period. (Construction Period + Defects Liability Period)	Sum	1		
B.	Allow for surety for providing Mobilization Advance.	Sum	1		
C.	Allow for surety for providing Performance Bond. Bond to be valid until the defects liability period has expired.	Sum	1		
D.	Allow for progress photographs, 12 exposures per week (digital)	Sum	1		
E.	Allow for clearing the site of all vegetation, and maintaining same during the execution of the project.	Sum	1		
F.	Allow for the removal of construction debris.	Sum	1		
G.	Allow for the safety and health of workers and keep on site an adequate First Aid Kit.	Sum	1		
H	Allow for supplying floating pontoon to carrying out the works for the repairs to the Wharf & Cluster Piles.	Sum	1		
TO BILL SUMMARY					

CLIENT: GUYANA POWER AND LIGHT INC
 PROJECT CONSTRUCTION OF PILE CLUSTER AND REPAIRS TO FUEL
 WHARF AT CANEFIELD POWER STATION
 ENGINEER'S ESTIMATE



BILL No.2: DEMOLITION WORKS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<p><u>General Note</u></p> <p><i>All rates must include for transportation, materials, labor, machinery and equipment, taxes, overheads</i></p> <p><i>Finish level of Timber Wharf will be the same as existing wharf</i></p> <p><i>Timber materials in good condition will be carefully removed and stored for re-used as directed by engineer.</i></p>				
2.0	<u>Demolition Works - Wharf Structure</u>				
2.1	Provide for demolishing of existing defective timber deck, stringers, pile caps & piles. Allow for timber piles to be cut at mud line where necessary.	Sum	1		
2.2	Provide for temporary supports and securing of existing HFO fuel lines during demolition and construction phases. Also include for removal of a section of the pipe line (approximately 70ft.), 4 valves	Sum	1		
TO BILL SUMMARY					

CLIENT: GUYANA POWER AND LIGHT INC
 PROJECT: CONSTRUCTION OF PILE CLUSTER AND REPAIRS TO FUEL
 WHARF AT CANEFIELD POWER STATION
 ENGINEER'S ESTIMATE



0-Jan-1900

BILL No.3: TIMBER WHARF CONSTRUCTION

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>General Note</u> <i>All rates must include for transportation, materials, labor, machinery and equipment, taxes, overheads and</i>				
	<u>Wharf Structure</u>				
3.1	Provide for the setting out of structure position, including piles .	Sum	1		
	<u>Deck Planks</u>				
3.2	Supply, tar (2 coats) and place 2" x 12" decking planks to wharf allow for 1" space between each planks and secure same with 6" coach screws, provide for double coach screws at each end or joints of each plank.	Bm	600		
	<u>Timber Curb</u>				
	Provide for supply, cut, tar (2 coat) & place into position GH curb wall, allow for all joints on spacers.				
3.3	Spacer - 6" x 6" x 12" long spacers	Bm	90		
3.4	Rail - 6" x 6" x 80'-0"	Bm	240		
3.5	Bolts - 3/4" dia. x 16" long (grade 8)	Nr.	20		
	<u>Hand Rail</u>				
	<i>Provide for the repairs to GH hand rail, allow for all joints on supports & 2 coats tar.</i>				
3.6	Rail support - 2" x 4" vertical member @ 4'-0" long, bolted to stringer. (bolts measured separate)	Bm	180		
3.7	Mid rail - 2" x 4" Horizontal member provide for securing with screws. Allow for notching rail support as shown in drawing (dressed)	Bm	360		
3.8	Top rail - 2" x 4" Horizontal member provide for securing with screws (dressed)	Bm	360		
3.9	Bolts - 1/2" dia. x 10" long (grade 8), allow for 2 side galvanized washers (wide)	Nr.	140		
TOTAL CARRIED FORWARD					

TECHNICAL SPECIFICATIONS (EXCERPT)

SECTION 000 - GENERAL

001 CONDITIONS OF CONTRACT

The Conditions of Contract shall be in accordance with (NPTAB).

002 DOCUMENTS

These specifications shall be read in conjunction with the contract drawings, and with the Bill of Quantities.

003 DESCRIPTION OF WORKS TO BE UNDERTAKEN

The works to be completed are as follows:

- a. Construction of reinforced concrete foundation and metal tank saddle.
- b. Construction of a Pump shed with appurtenance.
- c. Construction of a 1m x 1m x 330m length reinforced concrete drain.
- d. Construction of a Reinforced concrete culvert as detailed No. 01.

004 DATUM LEVELS

The level shown on the drawings refers to Assumed Datum.

SECTION 100 - PREAMBLES TO ALL WORK SECTIONS

101 DESCRIPTION TO APPLY

Description of materials and workmanship referring to items, which are not included or required in the Works described in the Bills of Quantities, shall be disregarded unless subsequently introduced as a variation. All measurements shall be taken net as described in the Bill of Quantities.

102 RATES

The rates inserted by the Contractor shall include for complying with all provisions of this section unless specifically otherwise stated or measured.

103 DEFINITIONS

"Engineer" herein shall mean the individual, partner, company or firm appointed by the Government of Guyana to supervise the construction of the Works.

The term "the Works" shall mean, "the whole of the Works envisaged by the Contract"

Words importing the singular only shall also include the plural and vice versa.

The following abbreviations are used:

BS - British Standard

BSCP - British Standard Code of Practice

ASTM- American Society for Testing and Materials

104 DEFECTIVE WORK

The Engineer reserve the right to check the work executed by the Contractor at such times as he deems fit; there is however, no duty on his part to make such checks and any failure by him to observe errors shall not relieve him of his responsibilities in these respects.

105 MATERIALS AND WORKMANSHIP

All materials and workmanship shall conform to the highest standard and quality, and shall always be to the approval of the Engineer.

Materials rejected by the Engineer shall be removed immediately from the site and replaced with that in accordance with these specifications.

Workmanship rejected by the Engineer shall be taken down/demolished immediately, and the work re-done to the approval of the Engineer.

106 CALCULATION OF QUANTITIES

All work unless otherwise described has been measured net as fixed in position and the Contractor is to allow in his prices for waste, laps etc. The quantities, therefore, are NOT suitable for the ordering of materials.

Throughout these Bills of Quantities, the following abbreviations have been used.

Kg - Kilogram

Nr. - Number

Lin.m - Linear Meter

Sq.m - Square Meter

Cu.m - Cubic Meter

Sum - lump sum

mm - Millimeters

All weights and measurements mentioned in these Bills of Quantities are those normally used in Guyana.

Description of materials and workmanship given in any one-work section shall apply equally to all work sections, unless otherwise described.

Notwithstanding any of the foregoing the whole of the materials and workmanship shall be subject to the approval of the Engineer.

107 PROPRIETARY PRODUCTS

All proprietary products shall be used strictly in accordance with the manufacturer's instructions unless otherwise described.

SECTION 200 - PROVISIONAL AND PRIME COST SUMS

201 DEFINITIONS

202 General Attendance

General attendance on Nominated Sub-Contractors, Local Authorities and Public Undertaking, that is including "the use of Contractor's temporary roads, paving and paths, standing scaffolding, standing power operated hoisting plant, the provision of temporary lighting and water supply, clearing away rubbish, provision of space for the sub-contractor's own offices and for the storage

of his plant and materials and the use of mess rooms, sanitary accommodation and welfare facilities"

In addition, general attendance shall be deemed to include arranging with Local Authorities, Public Undertakings, Nominated Sub-Contractors and Nominated Suppliers the time for commencement of their work on the site or manufacture and delivery of their goods and materials, obtaining particulars of holes, mortises, chases, recesses, fixing and the like and supplying them with all dimensions and other information required for the proper execution of the Works.

203 PRIME COST SUMS

203.1 Nominated Sub-Contractors

The P.C. Sums given are for which the terms of **Contract Conditions** will apply.

Except for loss or damage the nominated Sub-Contractor shall be responsible for loss and damage and insurance against such loss or damage to any materials and goods brought onto or delivered to the site for his own use until such materials and goods have been fully, finally and properly incorporated in the Works except also for any loss or damage due to any negligence, omission or default of the Contractor, his servants or agents, or any other Sub-Contractor of the Contractor, or of the Employer of any person for whom the Employer is responsible.

The Contractor shall make arrangements with the various Nominated Sub-contractors so that their work proceeds in accordance with the agreed programme and shall furnish to them all necessary dimensions, marks, lines, levels, pegs, etc., for setting out and shall be responsible for the accuracy of same.

Nominated Sub-contractors will be responsible for covering up and protecting their Works during its execution but immediately upon its completion the Contractor shall assume this responsibility.

203.2 Nominated Supplies

The P.C. sums given are for goods and materials to which the terms of Contract Condition apply.

The cost required to be paid by the Contractor for conveying goods and materials to the site, of any special packing and the like, are included in the appropriate prime cost sums and particulars are not given in the measured items.

206 PROVISIONAL NET SUMS

The Provisional net sums given are inclusive of any profit or cash discounts to the Main Contractor. Any item of Profit is therefore included which the Contractor should price accordingly as part of his tender.

207 TEST OF MATERIALS

The provisional net sum is for charges for testing materials, which will be executed by the Laboratory named by the Engineer and to which the terms of Contract Conditions will apply.

The term Contractor's services in connection with these tests is to be read as take test sections of the work when required, store, pack, label, record details and dispatch carriage paid to the testing laboratory.

SECTION 300 – SITE CLEARING

301 CLEARING

All areas within the site which requires clearing as determined by the Engineer shall be cleared of all trees, bush, pits, rubbish and other objectionable matter, and such materials shall be removed from the site or otherwise disposed as approved by the Engineer.

Fences, walls, buildings, ruins and similar items shall also be cleared from site and suitably disposed as approved by the Engineer.

Trees and shrubs designated by the Engineer shall be left standing and care shall be exercised by the Contractor not to damage or injure such trees and shrubs.

Any damage to the works, public or private property caused by the Contractor's operations in clearing and grubbing shall be repaid or replaced at the expense of the Contractor.

All clearing operations shall be performed well in advance of other construction operations.

302 GRUBBING

Grubbing shall consist of removing all trees, stumps, roots, vegetable matter and other objectionable matter from areas to be occupied by the permanent works.

Grubbing to areas not occupied by the permanent works shall be done only if approved in writing by the Engineer.

All suitable materials generated from grubbing shall be used as far as practicable for purposes of filling of site or landscaping.

303 REDUCED LEVEL EXCAVATION

Reduced level excavation shall be done only if approved in writing by the Engineer.

Excavation arising out of reduced level excavation shall be spread and leveled on site.

304 FILL TO MAKE UP LEVELS

Fill to make up levels shall consist of materials generated from site and imported materials.

Imported material shall consist of white sand or other material approved by the Engineer. All imported material to be used to make up levels shall be free from deleterious matter.

This work shall consist of supplying, placing, spreading and compacting of selected granular fill materials, or other approved material, all as shown on the plans or as directed by the Engineer and as specified herein.

305 WHITE SAND

White Sand shall be local white sand free from foreign and deleterious materials and with the following gradation requirements:

<i>ASTM</i>	<i>Sieve No.</i>	<i>Limited of % Passing</i>
4	(4.75 mm)	100
8	(2.36 mm)	93 - 100
16	(1.18 mm)	87 - 98
30	(600 micron)	78 - 95
50	(300 micron)	65 - 85
100	(150 micron)	40 - 75
200	(75 micron)	15 - 45

CBR obtained shall not be less than 15% when compacted to the standard proctor density in accordance with AASHTO T 99, method C, and tested after soaking for four days. In addition, the materials shall be non-plastic.

Placing and compacting: The fill materials shall be placed in uniform layers not exceeding 150mm thick and compacted to the 95% of its proctor value and to the lines, grades and cross sections shown on the plan or as directed by the Engineer.

306 PROTECTION

Protect adjoining property from damage.

Existing trees, shrubs and plant materials to remain shall be protected by barricades, planking, fences or other acceptable means.

Existing site improvements shall be adequately protected. Damage to site improvements shall be repaired to former condition or replaced with approved equal work.

Existing structures to remain shall be protected from settlement or other damage. Damages shall be repaired to former condition or replaced with approved equal work.

Existing utilities to remain shall be protected and maintained to prevent leakage, settlement or other damage. Damage shall be repaired or replaced to former condition and as required by the utility company, municipal or land owner affected.

Damages shall be reported immediately to the Engineer and repairs made immediately by the Contractor at his expense.

307 DISPOSAL OF REFUSE

Refuse material removed shall be disposed of by removal from the site, except as permitted by law and as approved by the Engineer.

The Contractor shall be responsible for compliance with all local laws and regulations concerning the disposal of waste materials.

308 UTILITIES

The Contractor shall prevent damage to pipes, conduits, wire, cables or structures above or below ground that are the property of the Utility Companies or concern Utility Companies. The Contractor must consult the appropriate Utility Authority to determine the exact location and extent of all services that are likely to be affected by the Works. The drawings are provided only as a guide to the general location of major service. The Contractor is to take the necessary care and precautionary measures and provide the necessary protection as required by the Utility Authorities. The Contractor will be required to bear the cost of such protection and other measures unless specifically stated otherwise.

SECTION 400 - EXCAVATION AND EARTHWORK

401 GENERAL

The excavation is to be carried out to the lines and levels shown on the drawings or to such other dimensions as the Engineer or his representative may supply.

Excavation and backfilling shall be carried out in such a manner as to avoid damage to underground services. The Contractor shall be fully responsible for damages to any services or property, which might be disturbed or damaged.

402 NATURE OF GROUND

A. Ascertain the nature of the ground and sub-soil to determine whether water, running sand or any other difficulties that are likely to be encountered and whether cutting by hand or mechanical means must be used.

B. Using mechanical and/or pneumatic equipment for excavations the Contractor shall ensure the equipment capacity and suitability so as not to hinder the progress of Works, The Contractor shall employ experienced operators and take precautions so as not to disturb the material at the bottom of the finished excavation level. Over excavation may be carried out after obtaining a written permission from the Engineer and excavation shall be filled with mass concrete (10 N/mm^2) at the Contractor's expense.

C. Remove any large pieces of rocks encountered with wedges and layers or rock drills. Blasting will not be permitted on site without the written permission of the Engineer and the relevant Local Governing Authority.

D. Excavations must be kept dry regardless of the source of the water. If sump holes are necessary, the positions are to be approved by the Engineer.

E. Measures must be taken to ensure that moisture conditions in the soil are so controlled as to have no deleterious effect on the foundations. Excessive drying out or wetting must therefore be avoided during construction. Foundations are to be cast promptly after completion of excavation.

403 SURPLUS EXCAVATION

All excavated material shall be deposited on a spoil heap on site for reuse as fill. All cleared vegetation shall be burnt or otherwise disposed of by the Contractor as approved. Burning will not be permitted on site, without the written permission of the Engineer and the Relevant Local Governing Authority.

404 WATER-LEVEL

Ground water level has not been established. The Contractor will be responsible for establishing the ground water level.

405 APPROVAL OF BOTTOMS

A. The excavation for all foundations shall be inspected by the Engineer or his representative before any concrete is placed and the Contractor shall give minimum of twenty four (24) hours notice that such an inspection will be required.

B. The bottom 50mm of excavation for concrete shall be removed on the same day as the concrete (or blinding layer) is placed on it. If the excavation should become disturbed or weakened by water or other means the Contractor shall be required to remove a further thickness of soil as the Engineer or his representative may direct and to backfill same with plain concrete with characteristic strength of 10 N/mm² at the Contractor's own expense

406 LEVEL AND RAM

A. Compaction of fill material in general and in confirmed areas is to be carried out with a suitable compactor respectively to compact excavated materials in layers not exceeding 150mm when loose. Stones likely to hinder proper compaction shall be removed before and during compacting operation.

B. The Contractor is to allow for watering where necessary and for delays, which may occur to allow soil to dry out to appropriate moisture content. Any soft areas, which may develop during compaction, shall be moved and replaced with selected fill material.

407 EXCESSIVE EXCAVATION

Should excavation be taken below the specified levels, the difference in level shall be made up in concrete 10 N/mm² at the Contractor's own expense.

408 BACKFILL

A. Backfilling shall be carried out around foundations and at the back of walls, etc., up to the reduced level or as directed. It shall be carried out in horizontal layers not exceeding 150mm loose thickness, moistened or dried as required and thoroughly compacted by mechanical or other approved means to a dry density not less than 95% of the Standard Proctor Density.

B. The Contractor shall take due precaution to ensure the safety of any block or reinforced concrete walls which may be subject to excessive load during the compaction of the fill and/or hardcore by shoring or otherwise protecting these walls.

C. No fill material shall be placed where free water is standing on the surface of the area where the fill is to be placed and no compaction of fill will be permitted with free water on any point of the fill to be compacted.

E. No backfilling shall be carried out which covers work which has not been inspected and approved.

Fill under slabs on ground

F. Fill material to areas under floor slabs shall be materials approved by the Engineer or his representative and compacted in layers not exceeding 150mm compacted thickness. Where molten rocks, quarry overburden or similar approved materials have been used, the Contractor shall ensure that the moisture content is suitable for optimum density after compaction and shall water where necessary and allow for delays which may occur to allow the soil to dry out to an appropriate moisture content. Any soft areas, which may develop during compaction, shall be removed and replaced with selected materials as directed.

Materials arising

G. Materials found in the excavations are to be used in the Works with the written permission of the Engineer.

H. Hardcore is defined, for the purposes of this contract, as material that can be excavated by mechanical equipment including a D8 tractor with ripper. Rock is defined, for the purposes of this contract, as materials that can be excavated only by the use of wedges and levers or rock drills and blasting.

409 PLANKING AND STRUTTING

The Contractor shall provide adequate timbering to prevent collapse of the earth cuts where appropriate. The Contractor shall be entirely responsible for the excavations and any damage caused by them to other parts of the Works. Excavations are to be exposed for as short a time as possible.

410 DAMP-PROOF MEMBRANE

- A.** The damp proofing is to be done using 500 gauge polythene (polyethylene) sheeting.
- B.** The polythene sheeting is to be laid over blinded hardcore with minimum 300mm end and side laps double welted and carried over wall for the full area of the ground floor slabs.

411 SUB-TERRANEAN TERMITE PROOFING

A. Treatment of the site of the building shall be of the following toxicant as an emulsion in water at the minimum concentration listed:

Aldrin	--	0.5 %	by weight
Chlordane	--	1.0 %	by weight
Dieldrin	--	0.5 %	by weight
Heptachlor	--	0.5 %	by weight

B. Toxicant emulsion shall be applied by spray immediately before pouring of concrete at the rate of 5 liters per m² of surface area of excavations and 2.5 liters per m² on filling and sand beds.

C. Treatment shall not be carried out when rain is falling or when the ground is wet. A warranty of at least 10 years shall be obtained against infestation.

412 PRICING

Prices for Excavation and Earthwork shall include:

1. All considerations arising from the specification.
2. Hand and/or mechanical excavation and disposal in whatever types of soil and fittings are encountered excluding concrete and rock but including roots, drain pipes and other obstructions and the Contractor shall judge for himself the nature of the conditions.
3. Separating vegetable soil from sub-soil including the provision of separate spoil heaps.
4. Extra difficulties of getting out and disposal and the extra bulking of concrete and rock.

5. Planking and strutting left in at the Contractor's volition
6. Temporary retention of fillings.
7. Disposal of trees and other vegetation cut down and grubbed up.
8. Excavation in gravel and hardcore.
9. Allow for excavation in items measured as "extra over excavation" for any additional cost of disposal.
10. The description "get out" shall include for all wheeling, bucketing out, double handling or re-excavating from temporary spoil heaps of surplus material as may be necessary preparatory to removing from site.

SECTION 500 - CONCRETE WORK

501 GENERAL.

Concrete shall be made with cement, fine aggregate, coarse aggregate and water. No other agent shall be incorporated in the mix without the prior approval of the Engineer. The Contractor shall ensure that the use of any such approved additive will not adversely affect the strength, durability or appearance of the finished concrete Works.

Definitions

The following terms whenever used in this Specification shall be taken to have the meaning assigned to them below;

A. "Plain Concrete" shall mean concrete used in members made with a structural grade of concrete, listed, but not containing steel reinforcement.

B. "Structural props" shall mean those components of the strutting formwork, which will be retained from concrete faces.

C. "Satisfactory" shall mean to the satisfaction of the Engineer or his representative.

D. "Approved" shall mean to the satisfaction of the Engineer or his representative.

E. "Required" shall mean require by the terms of this Specification or any other Contract documents.

F. "Passed by the Engineer or his representative" shall mean accepted as complying with the Specification's requirements as far as can be judged from visual inspection.

G. "Current issue" shall mean latest issue at the date of tender invitation.

H. "Failure to comply with this Specification" shall mean failure to comply satisfactorily with all the requirements of this Specification.

Responsibility

No approval or acceptance by the Engineer or his representative shall in any way relieve the Contractor of his responsibility for the quality of materials and the standard of workmanship in the finished Works, and for the strength, durability and appearance of the finished concrete Works.

502 REINFORCED CONCRETE

The reinforced concrete Works have been designed generally in accordance with the recommendations contained in the British Standard Code of Practice for the Structural use of Concrete (BS 8110: 1985). The reinforced concrete Works are to comply with the recommendations of this Code of Practice, unless specifically excluded or modified hereafter.

503 PLAIN CONCRETE

Plain concrete shall comply with all the relevant requirements for the reinforced concrete.

504 MATERIALS

General

All materials in the Works shall comply in all respects with the best standard available locally,

Sieve Size	Fine	Aggregates	Zone 3	Coarse	Aggregates	14-5mm
	Zone 1	Zone 2		40-5 mm	20-5 mm	
50mm				100	-	-
37.5mm				90-100	100	-
20mm				35-70	90-100	100
14mm				-	-	90-100
10mm				1-40	30-60	50-85

based on the relevant British Standard except for any deviations specifically authorized in subsequent clauses of this Specification.

The constituent materials of concrete shall be cement, aggregates and water. No admixtures to this concrete shall be permitted without the prior approval of the Engineer.

A. Cement

Cement shall be Portland Cement complying with B.S.12. All cement shall be delivered to site in sealed bags.

No re-bagged cement will be permitted during the course of the construction and every endeavor shall be made to ensure that the colour of the cement is constant throughout the contract except with permission of the Engineer.

B. Aggregates

Aggregates shall comply with the recommendations of B.S.882. In special circumstances, a deviation from B.S.882 in respect of grading of aggregate may be accepted, subject to the prior approval of the Engineer.

The nominal maximum sizes of coarse aggregates shall be 20mm, except where otherwise directed

5mm	-	-	-	0-5	0-10	0-10
2.36mm	60-100	65-100	80-100			
1.18mm	30-90	45-100	70-100			
600µm	15-54	28-80	55-100			
300µm	5-40	5-48	5-70			
150µm	-	-	-			

by the Engineer.

Percentage by weight passing.

C. Water

Water to be used in the Works shall be clean and free from all harmful matter, in suspension or solution, that would have adverse effects on setting, hardening and strength of Portland Cement. A continuous supply of water shall be available during all mixing, placing and curing operations.

D. Reinforcement

Mild steel reinforcement shall be hot rolled mild steel with specified characteristics complying with the B.S.4449 or approved equivalent. Hot rolled high yield steel shall have a specified characteristic strength of 410. N/mm² and comply with B.S. 4449 or approved equivalent. Cold rolled high yield steel shall have specified characteristic strength of 461.24 N/mm² for bars up to and including 0.64" diameter and 425.15 N/mm² for bars exceeding 0.64" in diameter. Welded steel fabric shall comply with B.S.4483 or approved equivalent.

GRADING OF COARSE AND FINE AGGREGATES (BS882)

E. Admixtures

Admixtures for improving the concrete may be permitted but only after the Contractor has satisfied the Engineer that it will be to the advantage of the Employer. Use of the Admixtures shall be made only on the written permission of the Engineer and in any case the permission to use the same shall not be construed to mean that extra will be paid.

When admixtures are used in the Works, very strict control is to be maintained to ensure that the correct quantity is used all times.

F. Storage

All cements shall be stored in weather proof shed of adequate size having a raised dry floor.

Aggregates shall be stored on hard paved areas with adequate dividing walls, or in approved containers to prevent mixing of different types of aggregates and be kept clean and free from contamination.

Cement and aggregates shall be used in the order in which they are received on the site and their storage shall be arranged to facilitate this procedure.

Reinforcement shall be stored in racks clear of the ground. Where materials are to be stored on suspended floors or roofs, the Contractor shall ensure that such storage will not overload or distort the structural frame.

All materials which have been damaged and contaminated, or do not comply with the requirements of this Specifications shall be rejected and shall be removed from the site immediately at the Contractor's expense.

505 TESTS

A. General

Before the commencement of the Contract, the Contractor shall submit to the Engineer for his approval, names of the Local Testing Authority he proposes to employ.

The Contractor shall provide for all equipment necessary for carrying out all tests on site specified or described in this Specification, and he shall make and provide for all necessary arrangements for the delivery of all samples and test pieces to be tested by the approved Testing Authority.

The Contractor shall provide for maintaining all testing equipment on Site in proper working order to the satisfaction of the Engineer.

The Contractor shall provide for sending copies of tests results to the Engineer or his representative where these are required.

The Contractor will be paid for all tests specifically required in this Specification.

The Contractor will not be paid for any special test called for by the Engineer in consequence of any failure by the Contractor to comply with this Specification.

The Contractor will be paid, at rates to be agreed, for any other special tests called for by the Engineer unless the tests results show failure by the Contractor to comply with this Specification.

B. Cement

The Contractor shall state his source of cement to be used on the Site and verify these are to the relevant B.S.

The manufacturer's certificate of tests including compressive strength tests carried out in accordance with B.S. 12 for Portland cement shall be supplied and kept on site for each consignment of cement delivered to the Works. At the commencement of the Contract, the Contractor shall deliver a 23Kg sample of each type of cement he intends to use to the approved Testing Authority.

C. Aggregates

Samples of aggregates to be used shall be supplied if so requested by the Engineer.

All sampling and testing of aggregates shall be carried out in accordance with the relevant recommendations of B.S.882.

At the commencement of the Contract, the Contractor shall deliver to the approved Testing Authority for inspection and analysis, three separate samples of each type of aggregates to be used in the structural concrete grades. For each type of aggregate, the three samples shall be taken at the proposed source of supply at intervals of not less than one day. For fine aggregate, the samples shall be 23Kg weight each and for coarse aggregates the samples shall be 45Kg weight each.

To ensure that no significant variation in the grading of the aggregate occurs during the Contract, sieve analysis shall be carried out on site at fortnightly intervals. The results of these analyses shall be recorded on a chart to be kept on the Site and to be handed to the Engineer on completion of the structural concrete Works.

If the grading of any aggregate is changed, the Engineer shall be notified before any of this aggregate is used in the Works.

The quantity of water contained in the aggregate shall be determined by an approved method at least once a day, when concrete mixing is in progress.

D. Mixing Plant

Weight batching shall be checked weekly in the presence of the Engineer or his representative. The checking shall be carried out with approved weights provided by the Contractor for this purpose.

E. Materials

The water gauge of the concrete mixer shall be inspected and tested daily when concreting is in progress.

If any fault in the mixing plant is detected by these tests or otherwise the fault shall be rectified to the satisfaction of the Engineer before any further use is made of the equipment.

F. Concrete Tests

Concrete test cubes shall be made, cured and tested and the results recorded in accordance with the recommendation of the current issue of B.S. 1881, unless specifically modified in subsequent clauses of the Specification.

The test specimens shall be 150mm cubes, made in steel moulds of approved design. The test cubes shall be taken from typical batches in the presence of the Engineer or his representative, with prior notice.

Slump test or compaction factor tests of the mixed concrete shall be carried out at regular intervals and the results recorded and kept on the Site.

Exposed Concrete Finishes

Where exposed concrete finishes are required, the Contractor shall provide in a suitable position, test samples of each type of finish to be used in the Works. The Engineer shall approve the test samples before these finishes are put in hand in the Works.

Load Test

Load test of completed parts of the structure may be called for by the Engineer at any time.

The test procedure and the standard of acceptance will be specified by the Engineer.

Where the results of such tests indicate that any member or part of the structure does not comply with this Specification, that part of the structure shall be classed as defective work.

A reduction in the specified strength may be permitted subject to the following conditions:-

- (i) The Contractor shall satisfy the Engineer that the standard of supervision and concrete control to be exercised on site for the duration of the structural Works, justifies such a reduction.
- (ii) The average strength of the concrete used in the Works shall be assessed according to a statistical method, applied to Works cube tests results.
- (iii) Trial mixes are made from three separate batches of concrete which are prepared and three cube tests obtained from each batch.

The trial mix proportions will be approved provided that:

- (a) The mixes have sufficient workability to allow concrete to be placed and properly compacted by the methods to be used on site.
- (b) The average strength of the mix cubes tested at 28 days exceeds the specified characteristic strength by the current margins less 3.5 N/mm^2 .
- (c) Tests at an earlier age may be permitted provided that satisfactory age-strength relationships have been established by experiment.

The mixes shall be designed to have sufficient workability to allow concrete to be placed and properly compacted by the methods to be used on site.

Compacted calculations for the mix proportions and the information and assumptions on which they are based, shall be submitted to the Engineer, for each mix listed in the Table, before the cubes for the preliminary strength tests are made.

506 PRELIMINARY STRENGTH

Preliminary Strength cubes test shall be carried out to check the calculated proportions for each structural concrete mix.

Preliminary cubes shall be made for each mix from three samples of aggregates and the sample of cement sent to approved Testing Authority. From each sample of aggregate, 6 cubes shall be made, 3 for test at seven days and 3 for test at twenty-eight days.

Each of three cubes tested at twenty-eight days shall be accepted as satisfactory if, either all 3 cubes have a crushing strength greater than the preliminary design strength or the average strength of the 3 cubes is greater than the preliminary design strength and the difference between the greatest and the least is not more than 20% of that average.

If for any mix, the test result of one set of 3 cubes tested at twenty-eight days fall below this requirement the mix shall be rejected, the proportions revised and the testing procedure repeated.

For each structural concrete mix, the twenty-eight day preliminary strength shall be calculated as the average of all the cubes tested at twenty-eight days and the seven day preliminary strength of all the cubes tested at seven days.

Results of all preliminary tests shall be sent to the Engineer prior to the execution of any concrete works.

507 WORK STRENGTH

Compliance with the specified characteristic strength shall be judged by test made on concrete cubes at 28 days. Tests at an earlier age may be accepted provided that satisfactory age strength relationships have been established by experiment.

The minimum rate of sampling shall be for every 6 m³ or every 20 batches of concrete supplied whichever is the lesser volume. No variation in this sampling rate will be permitted without the prior approval of the Engineer.

Four cubes shall be made from each sample for testing at 28 days or at an earlier age approved by the Engineer.

The samples where practicable shall be taken at the point of discharge from the mixer or in the case of ready-mixed concrete, at the point of discharge from the delivery vehicle.

Each set of four cubes tested at 28-days shall be accepted as satisfactory provided that:-

- (a) The average strength determined from any group of four consecutive test cubes exceeds the specified characteristic strength by not less than 0.5 x the current margin.
- (b) Each individual test result is greater than 85% of the specified characteristic strength.

If at any time the mean strength or the standard deviation fails to satisfy the requirement given above, the Engineer shall be notified immediately and action shall be taken as the Engineer shall direct.

In all cases any estimate of the corresponding 28 days strength may be obtained from the seven day cube tests by assuming the ratio of 28 to 7 day strengths to be the same as that obtained from the average strengths of the preliminary tests for the same mix.

Results of all Works cube tests and test analysis shall be kept on Site and copies shall be sent to the Engineer as soon as the results are available. All records of Works cube tests shall indicate clearly which part of the structure each sample of concrete represents.

508 WORK TEST FAILURE

If any set of 7 days cube test results indicates a low 28 days strength to be expected, the Engineer shall be notified immediately and no props shall be removed from the effective part of the structure until the cause is determined.

If any set of 28-day cube test results fall below the specified strength, the Engineer shall be notified immediately and the cause of the failure investigated.

The extent of the area of the structure affected shall be defined by the Engineer.

All the costs of, and all the charges in consequence of the courses of action the Contractor is directed to follow shall be borne by the Contractor.

509 SITE CONTROL

The water-cement ratio determined in the calculation of proportions for each mix shall be accurately maintained. The amount of water used in each batch shall be controlled by direct measurement and due allowance shall be made for water content of the aggregates as is determined by the daily test.

The slump test or compaction factor test shall be used as a guide to the workability of the mixed concrete.

If a change in the grading of any aggregate is unavoidable, the proportions of all structural concrete mixes affected shall be revised to take account of the altered grading.

510 READY-MIXED CONCRETE

Permission must be obtained and the name of the supplier submitted before the use of ready-mix concrete. Permission must also be obtained from the Engineer to change the supplier of ready-mixed concrete and also to revert back to site mixed concrete. The concrete must be discharged into the formwork within 1 hour of mixing. All the requirements for site mixed concrete, previously given must be complied with, except for time of discharge. Any ready mixed concrete that has not been deposited within one (1) hour of mixing shall not be used and shall be removed from the site. If required to do so, the Contractor shall produce certificates showing batch records of the ready mixed concrete. Experienced ready mixed truck drivers only will be allowed to deliver the ready mixed concrete and they, if dry mix is delivered to the site then, when told to mix-up by the Contractor's Supervisor, the truck drivers will discharge into a mixer drum the exact amount of water required in accordance with previous clauses of this specification. The amount of water in the mix can only be changed on the authority of the Engineer.

Although the ready mixed concrete suppliers sometimes perform testing, the Contractor must carry out his own testing in accordance with the requirements for site mixed concrete. The concrete cubes shall be tested for strength by an independent authority and the results submitted to the Engineer without delay.

511 REINFORCEMENT

A. General

Reinforcement bending schedules will be provided listing the cut length, diameter or size, bending dimensions and location of each bar in the Works.

Before the bars are cut to length the Contractor must check:-

- (1) that reinforcement schedules are provided for each part of the structure sufficiently in advance of his concreting programme;
- (2) that each schedule includes the correct quantities of reinforcement as detailed on the drawing to which it relates;
- (3) that the grades of reinforcement given in each schedule corresponds to those shown on the relevant drawings.

The Engineer shall be notified of any errors disclosed by these checks.

The Contractor shall be responsible for all delays and charges arising directly from the failure to comply with these requirements.

B. Bending

All reinforcement bars shall be accurately shaped in a manner that will not injure the materials, to the details shown on the drawings and bending schedules. Bars shall not be bent hot.

The minimum diameter of frames to be used when bending high tensile bars shall be six times the bar diameter. The bar diameter shall be the diameter of the largest circle that can be inscribed in the cross-section of the bar.

C. Cleaning

All reinforcement shall be free of all loose mill scale and thoroughly cleaned to remove all loose rust, oil, grease or other harmful matter, immediately prior to being placed in position in the Works.

D. Placing

All reinforcement shall be accurately placed, securely fixed and adequately maintained in the positions shown on the drawings.

The concrete cover to the reinforcement detailed on the drawings shall be maintained by use of approved methods.

The Contractor shall supply and fix all necessary chairs required to maintain the reinforcement in the correct position. The spacing of chairs and the diameter of bars used in their manufacture shall be agreed with the Engineer.

All laps of fabric and all intersections of bars shall be securely connected with malleable iron wire of suitable size or by another approved method. The wire is to be arranged with ends bent away from the formwork so that the concrete cover is not reduced by more than the diameter of the wire.

No metal part of any device used for connecting bars for maintaining reinforcement in the correct position shall remain permanently within the specified minimum concrete cover to the reinforcement.

The concrete cover to reinforcement shall be as detailed on the structural drawings.

E. Welding

Welding of steel reinforcement is not required for structural purpose unless specifically detailed on drawing. No welding or reinforcement for fixing shall be put in hand without the written permission of the Engineer.

Welding of cold worked high tensile steel reinforcement will not be permitted.

A. General

Before construction commences the Contractor shall notify the Engineer of the general method and system of formwork he proposes to use for all the main structural members.

Formwork and its supporting members shall be sufficiently strong to carry the Works and the entire incidental loading. The props and lateral supports shall be sufficiently closely spaced to prevent displacement or visible deflection of the shutters under the weight or hydraulic pressure of the wet concrete. All joints in the formwork and joints between the formwork and previous work shall be sufficiently tight to prevent loss of liquid from the concrete through these joints.

Methods of fixing and locating formwork, which result in holes through the concrete section where the formwork is removed, shall not be used.

No metal part of any device for maintaining formwork in the correct location shall remain permanently within the specified concrete cover to the main reinforcement.

The use of concrete retarders or similar preparations on the formwork surface shall be subject to the prior approval of Engineer.

B. Mortises, holes, chases in concrete

Fixing blocks, ends of brackets, bars, bolts, etc., shall be cast in the concrete at the time of placing and all mortises, holes, apertures, chases, grooves, etc. shall be accurately set out in the formwork as the concrete is placed. No part of the concrete Work shall be cut away from any such item or for any other reason, without the Engineer permission.

The Contractor shall obtain from all sub-contractors; complete information of their requirements regarding conduits, pipes, fixing blocks and boxes, chases, holes and any other items to be cast or formed in the concrete members, subject to the condition that failure of a sub-contractor to supply such information shall not be allowed to delay the progress of the Contract.

The Contractor shall ensure that all sub-contractors are informed of his programme for all the structural work at the commencement of the Contract. He shall also ensure that sub-contractor's requirements relating to the concrete are approved by the Engineer before work is commenced.

At the commencement of the Contract, the Contractor shall supply all sub-contractors with written copies of the items under this heading of the Specification.

C. Propping

The vertical propping to all formwork shall be carried down sufficiently far to provide the necessary support without damage, overstress or displacement of any part of the construction.

Structural props shall be retained in position until the new construction is sufficiently strong to support its own weight and any loads to be placed on it during the construction period.

Structural props for beams and slabs shall be positioned to divide the clear span of each member into equal lengths. The number of props provided in each span shall be at least three per span. For two-way spanning slabs, structural props as specified above shall be provided for each direction of span. For slabs spanning in one direction only, the placing of props in the direction perpendicular to the spans shall not exceed one quarter the span. All members with spans exceeding 12.2 m shall be propped to the Engineer 's satisfaction.

D. Beam and slab formwork

All formwork to soffits shall be constructed so that it can be removed without disturbing the structural props.

Unless otherwise detailed on the Drawings, the formwork of all floor beams and slabs shall be constructed with an upward camber giving a rise at mid-span of 3mm for each 3.1m span. For roof beams and slabs, the formwork shall be cambered to give a rise at mid-span of 6mm for each 3.1m of span.

E. Final Preparation

The internal faces of the formwork may be coated with an approved preparation to prevent adhesion of the concrete to the forms, provided that the use of this preparation will not stain the surface of the finished concrete. None of this preparation shall be allowed to touch the reinforcement.

Immediately before the concrete is placed in any section of the formwork, the interior of that section shall be completely cleared of all extraneous materials.

Each section of the formwork to structural members shall be inspected and passed by the Engineer or his representative immediately before the concrete is placed in that section. At least 24 hours notice shall be given when such an inspection is required.

F. Exposed Concrete Faces

Unless otherwise specified, all concrete faces to be exposed on the finished Works shall be left as struck with a fairfaced, true to line and level within the specified tolerances for Works.

After inspection, all superfluous fins and similar projection shall be carefully removed. No render or other applied finish shall be used to obtain a fairface to the concrete.

All concrete faces to be exposed in the finished Works shall be adequately protected against damage and surface staining during the execution of the subsequent Work.

Any finished Works which the Engineer shall judge inferior in any respect to the standard of the relevant approved sample of which is subjected to subsequent damage or surface staining, shall be rejected and treated as defective work.

G. Formwork to produce a board marked finish

Form or form lining to consist of approved rough textured softwood boards seasoned to a moisture content of not more than 25% and not less than 18%.

Arrange boards of varying textures and uniform 100mm width alternating the thickness by 96.5mm to give indentations to the surface and a uniform overall pattern. Assemble boards to prevent

penetration of grout between them and soak reassembled forms with clean water before erecting and keep damp until concrete is placed.

Obtain approval for use and type of release agent.

Do not cover spacers without approval. Formwork ties to occur in a regular pattern in positions agreed with the Engineer.

The finish is to be left as struck. Making good will not be permitted.

F. Striking for formwork

General

The structure shall not be distorted, damaged or overloaded in any way by the removal of the formwork from concrete members.

The responsibility for the safe removal of any part of the formwork or strutting shall rest with the Contractor.

Minimum Striking Times

The minimum striking times for removing formwork to structural members shall be determined from the Table F. The times are given in days, where each day is to be of 24 hours duration. Before the formwork is removed for any structural member, the Contractor shall ensure that the concrete in that member has attained sufficient strength for striking to proceed.

TABLE F – MINIMUM STRIKING TIMES

LOCATION	MINIMUM TIME O.P.C. CONCRETE (Days)
Vertical formwork to Columns	2
Soffit formwork to slab (structural props left in)	4
Soffit formwork to beams (structural props left in)	10
Slab structural props	14
Beams structural props	14

For a multi-storeyed structure, after striking the formwork of the suspended beams, the beams shall be propped as specified and the props shall be removed only after striking the formwork of the beams for the floor above.

513 CONSTRUCTION JOINTS AND EXPANSION JOINTS

A. Position of construction Joints

The Contractor shall ensure that all construction joints are arranged to minimise the effect of shrinkage of the concrete. Generally, the distance between construction joints in walls and slabs shall not exceed 6.1m-0mm.

The position of all joints shall be agreed with the Engineer before work is commenced.

Concrete placing shall be carried continuously between consecutive construction joints.

Construction joints between different grades of concrete and between concrete mixes using different cements shall be made and positioned as the Engineer will direct.

B. Treatment of construction Joints

All construction joints shall be formed with Neo Seal. Boards shall be fixed vertically unless otherwise directed. All joints shall be joggled.

All construction joints shall be hacked and all laitance and honeycombed concrete removed from the contact face before the adjacent section is concreted. Where an adjacent face of the concrete is to be exposed in the finished Works, hacking of the contact face shall be terminated 25mm away from the face to be exposed. Air and water jetting immediately after striking stop-ends may be used instead of hacking subject to the prior approval of the Engineer. All loose materials shall be removed from the contact face immediately after hacking or jetting has been completed.

When work is to be resumed at a construction joint, it shall be swept clean and treated with 2:1 sand/cement slurry or approved bonding agent before starting the new pour.

At vertical joints the fresh concrete shall be placed directly against the hacked and treated contact face.

C. Expansion Joints

Expansion joints shall be positioned and formed in accordance with the details shown on the drawings.

All expansion joints shall be filled with an approved compressible material unless otherwise indicated on the drawings.

514 CONCRETING

A. Mixing

Concrete shall be mixed in approved mechanical batch type concrete mixer. Mixing shall be continued until there is a uniform distribution of the materials in the mixer and the mass is uniform in colour. The mixing time for each batch shall not be less than the minimum period recommended by the mixer manufacturer.

The volume of mixed materials in each batch shall not exceed the rated capacity of the mixer. Each batch of concrete shall be completely discharged before the mixer drum is re-charged.

The mixer drum shall be thoroughly washed out with clean water when mixing ceases, including short stoppages for meals or on any change of type of cement used in the mix.

B. Transporting

Concrete shall be transported as rapidly as possible from the mixer to its final position without segregation or loss of any of the ingredients.

All plant and equipment used for transporting concrete shall be kept clean; all containers used for transporting concrete shall be thoroughly washed out whenever mixing ceases.

Runs and gangways for concrete transporters and main runs for foot traffic shall not be supported or allowed to bear on the fixed reinforcement.

C. Placing

Concrete shall be placed while still sufficiently plastic for adequately compaction.

At all times when reinforced concrete is being placed, a competent steel fixer shall be in continuous attendance on the concrete; he shall adjust and correct the position of any reinforcement which may be displaced.

The Contractor shall keep on site a complete record of the Works showing the time and date when concrete is placed in each part of the Works. This record shall be available at all times for inspection by the Engineer.

D. Compacting

Concrete shall be thoroughly compacted by mechanical means during the placing and shall be carefully worked around all reinforcement and embedded fixtures and into the sides and corners of the formwork, using a heavy-duty, and high frequency vibrator.

E. Curing

All surfaces of freshly placed concrete structural concrete shall be covered with approved material and kept constantly wet for 7 days, except that for concrete made with rapid hardening cement, the minimum curing period shall be 3 days.

Soffit and site forms left in position shall be regarded as effective in keeping those surface wet.

The Contractor shall notify the Engineer of the system methods of curing he proposed to use for all structural concrete members before the Works are commenced.

F. Concrete strength requirements (BS 1881 & BS EN 12390)

Concrete Use	Minimum Cement Content (Kg/m³ of Concrete)	Maximum free water / cement ratio	Specified Characteristic Compressive Cube Strength at 28 days (N/ mm²)
Reinforced	175	0.45	30.0

Mass	175	0.45	30.0
Infill	160	0.48	25.0
Blinding	145	0.50	15.0

515 CONCRETE IN WATER TIGHT CONSTRUCTION

A. General

All work required to be watertight in the finished Works will be so indicated on the drawings.

The Contractor shall include in his rates for any water- proofing additives he proposes to use but the use of such additives shall be subjected to prior approval of the Engineer.

Where in the opinion of the Engineer damp patches of leakage of water in the finished work are due to incorrect placing or inadequate compaction of the concrete or to incorrect preparation of the joints or to inadequate allowance for shrinkage, the affected work shall be made good at the Contractor's expense.

B. Water-bars

Where shown on the drawings, water-bars of approved material make and design shall be incorporated in construction joints in concrete in watertight construction. Water-bars shall be joined in an approved manner.

Before commencing the Works, the Contractor shall obtain the Engineer's approval of the methods to be used to support and maintain the water-bars in the correct locations while the concrete is placed.

516 FINISHING WORK TO CONCRETE FACES

A. General

After removal of the formwork, no treatment of any kind other than that required for curing the concrete shall be applied to the concrete faces until the Engineer or his representative has inspected them.

B. Plastered concrete faces

All concrete faces, which are to be plastered or rendered in the finished Works, are to be thoroughly hacked with a suitable tool to provide an adequate surface key.

The use of adhesives or other preparations on any concrete faces shall be subject to the prior approval of the Engineer.

517 STANDARD OF WORKMANSHIP

A. Working tolerances

Unless otherwise indicated on the drawings, the setting out dimensions and levels of the finished Works shall be within the maximum tolerances shown below.

DESCRIPTION	MAXIMUM TOLERANCE
All dimensions of 3.1m and over	6mm

All dimensions less than 3.1	3mm
Slab top surfaces levels (all points in the surfaces)	6mm

At any construction joint in a continuous concrete faces any discrepancy in the face across the joint shall not exceed 3mm.

Columns and walls shall not be more than 6mm out of plumb in any one-storey height, and not more than 20mm out of plumb in the total height.

B. Defective Work

Where, in the opinion of the Engineer, any of the finished Works, or the materials or workmanship in any part of the Works, does not comply with all the relevant requirements of this Specification, that part of the Works shall be classed as defective work.

All work classed, as defective work shall be cut out and removed from the Works and replaced to the satisfaction of the Engineer.

The extent of the work to be removed and the methods to be used in the removal and replacement of this work shall be in accordance with the Engineer directions. In all cases, cutting out of defective concrete work shall be carried back to a satisfactory construction joint before the replacement of the defective work and any other work thereby affected is commenced.

All removal and replacement of defective work and all costs or charges arising from such removal or replacement shall be at the Contractor's expense.

SECTION 800 - ANCHOR BOLTS

General

Anchor bolts shall be set as shown on the plans unless changes are permitted by the Engineer. If anchor bolts are cast in substructure concrete, templates, or other suitable means, shall be used to keep the bolts vertical at the required embedment and in the correct horizontal position during concrete placement.

If the Contractor elects to drill the finished, cured concrete in order to set the anchor bolts, the reinforcing steel shall be positioned prior to casting the concrete so that it will not be damaged during drilling. If anchor bolts are drilled and grouted, material and construction details shall be in conformance with the drawings.

The Contractor shall accurately mark the location of anchor bolts to be installed, establish the elevation of bearing surfaces and check bearing plates to insure installation at their exact elevation.

A. Bolts, Nuts and Washers

Nuts and washers shall meet the requirements of ASTM A325M. Bolts, nuts and washers shall conform to the following unless specified otherwise on the plans, standard sheets, manufacturer's drawings', or in the contract documents.

Bolts ASTM F568 Class 4.6

Nuts ASTM A563M Grade A or Better

Washers ASTM F436M

B. Setting Anchor Bolts

Anchor bolts shall be carefully set to proper location, alignment, and elevation by using templates. Templates cast into the footing concrete shall have minimum 50 mm diameter perforations or be made of bar sock to prevent honeycombing. Templates exposed in the end product shall be galvanized. Elevations shall be determined by the Engineer. Anchor bolts shall not be realigned

by bending to fit the base plate. Anchor bolts that do not fit the sign base plates will be rejected. The Contractor may propose a remediation method for rejected anchor bolts subject to approval of the Regional Director. Rejected anchor bolts, and the concrete they are embedded in shall be replaced by new materials at no cost to the Department

C. Finish to Column Bases

Column bases and base plates shall be finished in accordance with the following requirements:

- 1) Steel bearing plates 2 in. (50 mm) or less in thickness are permitted without milling provided a satisfactory contact bearing is obtained. Steel bearing plates over 2 in. (50 mm) but not over 4 in. (100 mm) in thickness are permitted to be straightened by pressing or, if presses are not available, by milling for bearing to obtain a satisfactory contact bearing. Steel bearing plates over 4 in. (100 mm) in thickness shall be milled for bearing surfaces.
- 2) Bottom surfaces of bearing plates and column bases that are grouted to ensure full bearing contact on foundations need not be milled.
- 3) Top surfaces of bearing plates need not be milled when complete-joint penetration groove welds are provided between the column and the bearing plate.

D. Fit of Column Compression Joints and Base Plates.

Lack of contact bearing not exceeding a gap of 1/16 in. (2 mm), regardless of the type of *splice* used (*partial-joint-penetration groove welded* or bolted), is permitted. If the gap exceeds 1/16 in. (2 mm), but is less than 1/4 in. (6 mm), and if an engineering investigation shows that sufficient contact area does not exist, the gap shall be packed out with non tapered steel *shims*. Shims need not be other than mild steel, regardless of the grade of the main material.

E. Holes for Anchor Bolts.

Holes for anchor bolts shall be permitted to be *thermally cut*.

SECTION 900 – PILE INSTALLATION

901 PILING

A. General

The Contractor shall conduct particular geotechnical investigations at the job site to determine economic piling operations – as local expertise is available.

Test-piling has to be done upon instructions of the Engineer to confirm the recommendations.

The specifications below and the designs are preliminary and may be superseded by the results of the above operations.

The piles shall be peeled greenheart at least 350 mm butt diameter in 20-meter maximum lengths, butt ended, and provided with tightly fitting mild steel or wrought iron rings 50 mm wide × 19 mm thick at their heads. Piles shall be free from short or reverse bends and free from cracks greater than one half of the diameter of the pile at the middle of the bend. In short bends, the distance from the center of the pile to a line stretched from the center of the pile above the bend of the center of the pile below to the bend shall not exceed 4% of the length of the pile or 62 mm. A line drawn from the center of the butt and to the center of the tip shall lie within the body of the pile.

All knots and limbs shall be trimmed or smoothly cut flush with the surface of the pile. The butt and the tip shall be sawed square with the axis of the pile.

The piling operations to all sections of the work shall be executed in one continuous operation. In the event of the Engineer issuing written instructions requiring pile driving plant and equipment to be moved about the site additionally to the requirements of this document, payments for such moves shall be made on a time basis at the rate included in the Basic Price List Section of this document, unless otherwise instructed.

All piling will be carried out at the original ground level.

Before commencing work, the Contractor shall ascertain the position of all works, buildings, pipes, cables, etc, which may be damaged either directly or indirectly as a result of pile driving operations and shall take all practical steps to prevent or minimize such damage and shall make good any damage at his own expense.

The Contractor shall establish all lines and levels and shall be responsible for the correct location of each pile. At the conclusion of each section of the Works, the Contractor shall furnish the Engineer with three copies (one electronic and two in print) of the survey showing the exact locations of each of the driven piles.

The Contractor shall maintain accurate records of the piling operations and at the conclusion of each section of the Works, shall furnish the Engineer with three prints/copies of these records.

The driving hammer shall weigh not less than 2.25 tons and shall not drop a greater distance than 1.8m.

All piles shall be driven vertically and shall be accurately pitched since no erasing, drawing or wedging into position will be permitted.

No pile shall deviate from the vertical by more than 25 mm in 2.4 m and the maximum deviation of the center point of any driven pile from the correct center point shown on the drawings shall be 75 mm in any direction. Particular attention shall be paid to the accuracy of pitching and driving as no drawing or wedging into the line shall be permitted. The cost of any additional work, including the provision of additional piles, which may be caused by reason of work not being executed within these tolerances, shall be borne by the Contractor.

Piles shall be driven in such a manner that no previously driven pile is disturbed. If such disturbances should occur or should lifting or heaving of any driven pile take place, then the Contractor shall re-drive such piles and take such other remedial measures as the Engineer may direct, at the Contractor's own expense.

In the event of obstructions being encountered below ground level, and other than obstructions of which the Contractor should have been aware of in accordance with the foregoing, the Contractor shall immediately inform the engineer. Should it become necessary to suspend piling operations for a period in excess of two hours in any one case, the Contractor shall be paid at the rate appearing in the Bills of Quantities.

The rate shall include for all costs of moving plant and equipment, etc., as necessary and returning same to re-drive the pile. Periods of less than two hours of such suspension shall not be paid for and payment for periods of more than two hours shall be made only for period commencing after the initial two hours. A provisional number of hours have been included in the measurement in respect of this item and this shall be adjusted as necessary.

In the event of any pile failing to satisfy the specification requirements by reason of faulty materials or workmanship, the contractor shall provide and drive such additional pile or piles as may be required to make good the deficiency at his own expense.

After timber piles have been driven to the required set and to the satisfaction of the Engineer, the heads shall be cut off square at the levels shown on the Drawings or as directed by the Engineer. When estimating the lengths of timber piles, the Contractor shall make allowances for the removal of damaged timber in pile heads

SECTION 1000 – STRUCTURAL TIMBER

1001 DESCRIPTION

This work shall consist of timber structures and timber portions of composite structures constructed in conformity with the line, grades, dimensions and designs shown on the drawings or ordered by the Engineer and in accordance with these Specifications.

This work shall include the furnishing, preparing, erecting, fixing and painting of structural timber of the type, sizes and dimensions specified and for all hardware, in accordance with the drawings or ordered by the Engineer.

1002 MATERIALS

All timber structural timberwork shall be grade A Greenheart, free from sap, splits, checks, snakes, large loose knots, or other defects, air seasoned, and with a minimum unit weight of 65 pounds per cubic foot as 25 percent moisture content. All timber shall be approved by the Engineer's Representative before being used in the permanent work.

Machine bolts, drift bolts and dowels may either be wrought iron or medium steel. Washers shall be ogee gray castings or malleable castings, unless washers cut from medium steel or wrought-iron plate are indicated on the plans. Bolts shall have square heads and nuts, unless otherwise stated. Nails shall be cut or round nails of standard form. All this hardware shall be galvanized in conformity with ASTM A153.

1003 HOLES FOR BOLTS, DRIFT BOLTS, DOWELS, TIE-RODS AND LAG SCREW

Holes for bolts, round drift bolts and dowels shall be drilled with a bit one-sixteenth inch smaller in diameter than the bolt, drift bolt or dowel to be used.

Holes for lag screws shall be drilled with a bit not larger in diameter than that of the body of the screw at the base of the thread. If required to prevent splitting, the hole for the shank shall be drilled to the same diameter as that of the shank. The depth of the holes for lag screws shall be approximately one inch less than the length under the head.

TECHNICAL SPECIFICATIONS



- 1.0 GENERAL AND PRELIMINARIES
- 2.0 BLOCKWORK
- 3.0 BRICKWORK
- 4.0 CARPENTARY & JOINERY
- 5.0 CONCRETE
- 6.0 FLOOR, WALL AND CEILING FINISHES
- 7.0 PAINTING
- 8.0 PLUMBING
- 9.0 ROOFING AND GUTTERS
- 10.0 ELECTRICAL INSTALLATIONS

GENERAL AND PRELIMINARIES

- A. Allow for tools, vehicles and transport for work people
- B. Allow for safety, health and welfare of workplace and work people
- C. Allow for safe guarding the works, materials and plant against damage , theft
- D. Allow for keeping noise levels down to a minimum
- E. Allow for the provision of water for the works and work site
- F. Allow for providing lighting and power for the Works
- G. Allow for the construction and maintenance of temporary buildings
- H. Allow for the construction, furnishing and maintenance of a site office of at lest 150 sq. ft. of floor space
 - I. Allow for general scaffolding for the Works
 - J. Allow for protecting the Works from inclement weather
- K. Allow for keeping the site clean and tidy during construction and for a final cleaning to be carried out on completion
- L. Allow for costs pertaining to the contract/site administration overheads e.g. storekeeping, purchasing, book-keeping, Head Office charges.
- M. All discarded materials shall be the property of the Sponsor

GENERAL

2.1 No separate payments shall be made for complying with provisions of the General Specifications. In particular no separate payment shall be made for the construction and maintenance of temporary drain diversions and testing of materials.

Whether specified or not no separate measurement shall be made in respect of items to be built in or fixed to concrete or timber; for painting contact surfaces; drilling; bolting inclusive of bolts nuts and washers; jointing and jointing materials; shuttering; boxing out and filing thereof; grouting; packing; making good; cutting; waste; labour, materials; Temporary Work; Construction Plant; storing; handling and all incidental work to the item concerned and their surroundings.

2.2 EARTHWORKS IN STRUCTURE

2.3 Excavation in open cut shall be measured where the sides of the finished excavation are shown on the Drawings as free-standing.

Excavation in foundation shall be measured as the volume of the product of the horizontal area of the base of the Permanent Work to be constructed and the mean depth from the original undisturbed surface or as the volume below the said surface displaced by the Permanent Work or to the limits of excavation shown on the Drawings, whichever is the greater and which is defined as the net excavation.

Back-fill shall be measured as the volume from the approved excavation level up to the formation level as shown in the drawings or ordered by the Engineer. The cost of special compaction shall be included in the rates.

Fill from approved borrow area shall be arranged by the Contractor irrespective of any haul distance and the volume available from associated excavation.

2.4 CONCRETE WORKS

Unless otherwise described in the Bill of Quantities, concrete work as specified in the Technical Specification shall be measured in terms of three categories of work, namely; concrete shuttering and reinforcement as described below and set out in the Bill of Quantities.

No separate payment shall be made, inter alia, for the surface finishes whether given by shuttering or obtained from the use of tamped screed boards, wood or steel floats; mixing concrete; transporting; placing and compacting concrete; construction joints (whether shown on the Drawings or not; precaution for concreting in unfavorable weather; curing; ascertaining requirements of reinforcement, bending, cutting and fixing reinforcement or work space for erection and handling back shuttering.

2.5 CONCRETE

Concrete shall be measured as the net volume of concrete to the dimensions specified in the Permanent Works, but no deductions shall be made in respect of the volume occupied by reinforcement or in respect of small openings, recesses, chases and embedded fixtures.

2.6 SHUTTERING

Shuttering shall be measured for all final surfaces of in situ concrete which require temporary support during casting except where otherwise specified or indicating on the Drawings.

2.7 REINFORCEMENT

Steel bar or rod reinforcement used be measured by mass, as calculated from the dimensions shown on the Drawings. Laps in reinforcement shall not be measured except where these are indicated on the Drawings.

Wire or other material required for support and securing the reinforcement in its correct position shall not be measured.

2.8 TIMBER

Measurement shall be made for the payment of timber used in the Permanent Works of the structure. The rate for Greenheart members include for the supply, handling, labour, waste, painting, fixing and placing in position as per Drawings.

2.9 LUMP SUM ITEMS

These items shall be considered for payment by the Engineer partly/wholly based on the judgement and satisfaction of the Engineer in respect of progress, quantity and quality of the Works done under each item.

2.10 BLOCKWORK

CEMENT AND WATER

Cement, sand and water shall be as described under “CONCRETE”.

MORTAR

Mortar shall be mixed in 1:4 proportions on site in a similar manner to concrete. Mortar which has commenced to set is not to be re-used.

CLAY BLOCKS

Hollow clay blocks shall conform to BS 3921:1965 of first quality, good, sound hard and well burnt, true to shape and size, ribbed and scored for plaster.

CONCRETE BLOCKS

Concrete blocks shall conform to BS 1180:1944 of first quality, good, sound, hard and well cured and true to shape and size, of the types described.

Thoroughly wet concrete blocks before laying. Solidly bed all joints of block work with mortar 1/8" thick. Tool joints of exposed block work which is not to be plastered for a depth of 3/8" before the mortar has set to form a concave joint and leave the edges of the blocks well defined.

Build block work in running or garden bond and carry up regularly and truly with no part rising more than three courses above the adjoining work. Keep perpendiculars joints etc. Strictly true and the whole properly bonded together. Build cross walls at the same time with main walls and properly bond together.

3.0 BRICKWORK

Clay bricks shall be used as specified on the drawing.

All clay bricks shall be of thickness equal to the wall thickness shown on the drawings thoroughly saturated with water before placing and shall be wet at the time of laying, all joints to be thoroughly buttered up with the mortar as the work proceeds and to be not more than 3/8" thick.

Clay bricks shall be the full nominal thickness and shall be well built of good shape free from cranks. The use of badly cut bricks will not be permitted.

All masonry is to be built true to line, plumb, square and level with vertical joints in proper alignment.

4.0 CARPENTRY AND JOINERY

QUALITY

All timber shall be the best quality available of the respective types, free from rot, excessively large or loose knots, splits, fungus or other defects.

SPECIES

Sawn timber for structural members' joints, trusses etc. shall be greenheart or other hardwood approved by the Engineer with the standard minimum strength characteristics as set out in the British Standard Code of Practice 112:1967. Sawn timber for non-structural members shall be Greenheart, Purpleheart, Kabukalli, Tatabu, Shibadan, Manni, Toura nira, Hubaballi or other species approved by the Engineer.

All joinery timber is to be Crabwood, Brown Silverballi, Yellow Silverballi, Dukali, Simarupa, Hububalli or other species approved by the Engineer, dried to achieve an equilibrium moisture content of around 14%.

CARPENTRY WORK

The workmanship shall be of the best quality. Scantlings and boring shall be accurately sawn and be of uniform width and thickness throughout.

Carpentry shall be accurately set out in strict accordance with the drawings and shall be pruned together and securely fixed with properly made joints. All brads, nails, screws, plugs and pins are to be provided as necessary.

All timber of large scantlings is to be sawn immediately the building is commenced to allow for any shrinking that may take place. Boarding to treads and landings of steps and staircase shall be greenheart.

NAILS, SCREWS AND BOLTS

Nails, screws and bolts where applicable shall be in accordance with BS 1202, 1210 and 916 respectively.

CHIPBOARD

The Chipboard shall be made from particles of wood bonded with synthetic resin all in accordance with BS 2604 with the inclusion of a termite inhibiting chemical.

HARDBOARD

Hardboard shall be 1/8" thick standard minimum having a density of 50 lb per cu. ft.

EXPOSED FACES

Timber which is to be exposed in the finished work shall be 'dressed' unless otherwise described or instructed.

TOLERANCES

An allowance of one-eighth of an inch shall be permitted from the nominal size for each dressed face of the timber; sawn timbers shall be the full nominal thickness.

PLYWOOD

Plywood shall be external and internal quality in accordance with BS 1455 but with termite resistant glue.

DOORS

Doors shall comply in all respects with BS 495 part 2 and shall be constructed in a joinery shop or by a specialist joinery manufacturer. Timber for use in doors shall be specially selected for straightness and be free from faults, tenoned, glued and pinned together. The rates for doors shall include for ironmongery and the thicknesses. Plywood covering for doors shall be glued to the framework and lipped at all edges.

PLASTIC LAMINATE

Plastic laminate shall be arborite, fornica or other equal and approved and shall be as BS 3749 and be pressure-bonded to timber plywood or other backing with a top grade contact adhesive.

NAILS

Prices for carpenters' and joiners' work shall include for all labours, cuttings, splays, notchings, halving to other timbers, holes, countersinking, mortising, tenoning and wedging, pre-drilling, hardwood pins, gluing and making joints with lead, plugging with lead, plugging to concrete or block work where so described. All timber work shall be left clear and clean and the Contractor is to allow for this in his prices.

5.0 CONCRETE

CEMENT

Cement used in the Works except where otherwise specified shall be Ordinary Portland Cement complying with the requirements of B.S. 12 part 2 or AASHO M85/ASTM C150. All cement shall be delivered in the original sealed containers of the manufacturer. No re-bagged cement will be permitted to be brought on site. Cement shall be stored 18" above the ground, protected from the weather.

Cement which has become stale with hardened lumps shall not be used in the Works.

AGGREGATE

The aggregates for use in concrete shall conform in all respects with BS 882 or AASHO M6 and shall comprise inert, inorganic mineral matter only.

Fine aggregate for concrete shall be clean natural white sand.

The coarse aggregate shall consist of natural gravel crushed stone. The grading shall be within the limits laid down in BS 882 nominal size $\frac{3}{4}$ " to $\frac{3}{16}$ ". The grading shall be such as to produce a dense concrete of the specified proportions, and of a consistency that will work readily into positions without segregation and without the use of excessive water content.

All aggregate shall be clean and free from impurities.

All aggregate shall be stored in such a manner as to prevent segregation of sizes and to avoid the inclusion of dirt and other foreign material.

WATER

The water to be used in the Works shall be clean and free from all harmful matter in suspension or solution and shall be from a source approved by the Engineer. Sea water is not to be used under any circumstances.

REINFORCEMENT

All reinforcement steel bars shall be mild steel bars and shall comply with BS 4449. Mesh reinforcement is to be welded steel fabric complying with BS 4483. Reinforcing steel shall be thoroughly cleaned of all mud, oil, rust and other foreign matter before surrounding with concrete.

The number, size, form and position of all steel reinforcing bars, ties, links, stirrups and other parts of the reinforcement shall be in exact accordance with the Drawings, BS 4466 and CP 8110 and they shall be kept in the correct position and with the required cover without displacement during the process of compacting the concrete in place in a manner approved by the Engineer.

Bends, cranks or other labours on reinforcement bars shall be carefully formed in accordance with the Drawings, BS 4466 and CP 8110.

The bars shall be bent cold in a manner which does not injure the material. Where splices or overlapping in reinforcement are required the bars shall, unless otherwise shown on the Drawings have an overlap of not less than thirty diameters where a U-hook is employed on each of the overlapping bars and forty-five diameters for bars without hooks.

Timber blocks for wedging the steel off the formwork will not be allowed.

Bars shall be bound together with best black annealed mild steel wire No. 16 SWG in diameter. The binding shall be twisted tight with pliers and the free ends of the binding wire shall be bent inwards.

The straightening or re-bending of steel already bent will not be permitted.

MIXING CONCRETE

Concrete shall consist of cement, graded aggregate and water thoroughly mixed and compacted to achieve a satisfactory strength and workability. The concrete shall be thoroughly compacted using a mechanical vibrator of a type approved by the Engineer.

The mixed concrete shall have a minimum cube crushing strength of 3000lb/sq. in. when tested in accordance with BS 1881. The Engineer may take samples of freshly mixed concrete at any time for testing in this manner. The nominal volumetric proportion of the mix shall be one part cement to two parts of fine aggregates to four parts coarse aggregates.

The Contractor will inform the Engineer of the exact proportions which he proposes to use in order to achieve the required strength.

Slump tolerances for the mix shall be agreed with the Engineer before commencement of the Works and these shall be strictly adhered to during the works. Suggest permissible ranges.

Footings: 1" – 3"

Slabs, beams, columns 1" – 4"

PLACING OF CONCRETE

The concrete shall be deposited in the form as nearly as possible in its final position without segregation and in a manner to avoid displacement of the reinforcement.

The mixing of concrete by batch mixer shall continue not less than 1.5 minutes after all the materials are in the mixer and the mixer shall rotate at a speed of 14 to 20 revolutions per minute. When hand-mixing is authorized by the Engineer it shall be done on a water-tight platform. The fine and coarse aggregate in appropriate shall be spread on the platform and thoroughly blended before the cement is spread evenly over the blended aggregate. Only sufficient water to produce the desire consistency shall be added as the batch is turned.

Concrete shall be thoroughly compacted during placing and shall be carefully worked around all reinforcement and into the sides and corners of the formwork, using a heavy duty high frequency vibrator.

FORMWORK

Formwork and its loading shall be sufficiently strong to carry the work and all incidentals loading. The props and lateral supports shall be sufficiently closely spaced to prevent displacement or visible deflection of the shutters under the weight of the hydraulic pressure of the wet concrete. All joints in the form and joints between the formwork and previous work shall be sufficiently tight to prevent loss of liquid from the concrete through these joints.

Formwork must be constructed to the approval of the Engineer.

The inside surfaced of forms shall be coated with a releasing agent to the approval of the Engineer.

The position of all expansion and construction joints shall be agreed with the Engineer before work is commenced.

The structure shall not be distorted, damaged or overloaded in any way by the removal of the formwork by the concrete members.

The responsibility for the safe removal of any part of the formwork shall rest with the Contractor.

6.0 FLOORS, WALL AND CEILING FINISHES

CEMENT FINISHINGS

Cement Finishing's shall be laid with a mix of cement and sand 1:3 with the addition of 'Cementone Nr. 8', 'Lithurin', or other approved hardening compound.

GRANOLITHIC FINISHINGS

Granolithic finishings shall be laid with a mix of cement, sand and hard limestone chippings graded from ¼ inch (6mm) to 1/8 inch, (3mm) and free from dust in the proportions of 1:1:2 with the addition of an approved hardening compound.

After placing and compaction of the finishings, the surface shall be lightly trowelled to smooth out surface marks and shall then be left until such time as it can withstand a hard trowelling without the course aggregate being disturbed. Dry cement shall not be used to

hasten the final trowelling.

CERAMIC FLOOR TILING

Ceramic floor tiling shall be accurately laid in a 3/8 inch (10 mm) thick bed or mortar or alternatively fixed with an approved adhesive to a trowelled bed. Joints between tiles shall not exceed 1/8 inch (3 mm) in

width and grouting shall be with white or coloured cement. Tiles bedded in mortar shall be well-soaked in clean water immediately prior to laying.

TERRAZZO

White and coloured cements shall be 'Cementone or other approved and pigments shall comply with B.S. 1014.

Aggregates for terrazzo shall consist of crushed Italian marble chippings of approved colour and size or approved equivalent. The chippings shall be sharp and angular, not flakey, and free from dirt, dust or other impurities and shall contain no fines.

All work shall be carried out in accordance with CP 204 part 3.

The Terrazzo shall be composed of 2 ½ parts of marble chippings of up to 3/8 inch (10 mm) gauge or approved equivalent and one part of coloured cement. The finished appearance of in-situ and precast work shall be identical. Terrazzo tiles shall be through in shape and have a smooth even finish. Tiles shall be laid in 3/8 inch (10 mm) thick bed of mortar. Joints between tiles shall not exceed 1/8 inch (3 mm) in width and grouting shall be well soaked in clean water immediately prior to laying.

DIVIDING STRIPS

Dividing strips shall be set accurately in position, all joints being closely made at points of intersections only. On completion of the floor finishing, the strip shall be level with the finish and completely visible.

CURING AND PROTECTION

In-situ floor finishings shall be cured and protected by covering with polythene sheet or other impervious material for at least five (5) days after final trowelling or grinding. Floor tiling shall be similarly covered until practical completion of the Works.

PLASTERWORK

The mix for plasterwork shall be 1:3 cement and sand with the addition of an approved mortar plasticizer and shall be carried out in the number of coats specified. Single-coat

work shall be ½ inch (12 mm) thick and two-coat work ¾ inch (19 mm) thick in two-coat work, the first coat shall be well-scored to assist adhesion of the second coat.

Unless otherwise described, all internal work shall be finished with a steel trowel and all external work with a wood float. The plasterwork shall be finished with surfaces perfectly flat and flush to stand the straight-edge every way. All work shall be free from cranks, blisters or other defects and be left perfectly clean. The Contractor shall complete each section of the work in one operation. External angles shall be true and slightly rounded.

Solid bases shall be thoroughly brushed to remove dust, efflorescent salts and loose particles. High suction bases shall be thoroughly wetted immediately before plastering.

CERAMIC WALL TILING

Ceramic wall tiles shall comply with the provisions of B.S. 1281 and be fixed in accordance with CP 212.

BEDS AND BACKINGS

Beds and backings shall be screeded, floated or trowelled as described. The materials for beds shall be mixed with a minimum of water so that no water appears on the surface when screeded, floated or trowelled. Screeded backings for wall tiling may be likely scored to assist adhesion.

7.0 PAINTING

Prior to the application of any paint on any item, the Engineer must verify that the particular item is as per the Drawings and Specifications.

All paints are to be delivered to site in the manufacturers' sealed containers and to be used strictly in accordance with the manufacturers' instructions. All materials used unless otherwise stated shall be **anti-fungus**.

PREPARATION AND APPLICATION

Thoroughly dust and clean down surfaces to be painted, cut out cranks, stop holes and clean steelwork of rust in accordance with approved practice.

Apply paint by brush, roller or spray with the minimum of dilution.

Allow to dry well and rub down each coat of paint before the next is applied.

No paint shall be applied to a damp surface, and no external painting shall be carried out during wet weather.

WOODWORK

All wood surfaces to be painted shall be properly rubbed down, timed and stopped before painting.

Woodwork is to be painted with one coat of lead free wood primer after which all cracks, holes etc. shall be filled with anti-fungus putty which shall be allowed to set before sanding and applying two coats of oil paint.

All timber will be painted as specified above with the exception of the underside of floors, traders, landing boards and all roof members when not exposed.

METAL WORK

The surfaces of metal work to be painted shall be prepared by removing dirt, grease etc. with an approved solvent and rust and scale by wire brushing and allowed to dry.

The surfaces are to be painted with one coat of primer and two coats of oil paint allowing at least one hour drying between coats.

MASONRY

Masonry surfaces are to be prepared for painting by allowing to dry for as long as possible remaining all mortar splashes by rubbing with a pumice or flat stone and thoroughly brushing to remove dust.

The priming coat shall be allowed to dry. All cracks, holes etc. shall then be filled with patent filler which shall be allowed to set and sanded to a smooth finish before the application of subsequent coats.

8.0 PLUMBING

GENERAL

The plumbing works shall be carried out by experienced craftsmen and shall be carried out in accordance with the local building by-laws.

WATER SUPPLY AND WASTE PIPES

PVC pipes shall conform to BS 3505: 1968 for “unplasticised PVC pipes”. Fittings shall be of the solvent-weldable type. Traps shall comply with the provisions of B.S. 3943 and have a zinc seal. Brackets and clips shall be of non-ferrous metal or P.V.C. coated steel.

Pitch fiber pipes and fittings shall conform to BS 2760: 1966/7.

Cast iron pipes and fittings shall conform to BS 78: 1961.

SOIL PIPES

To be 4” diameter PVC pitch fiber pipe jointed as per manufacturer’s instructions, fixed to

concrete columns with metal bands and to timber parts by heavy duty timber screws and brackets, the soil pipe is to be connected to the septic tank.

PEDESTAL CLOSET

The pedestal closet is to be glazed earthenware with trap, hinged plastic seat cover, 3 or 2 ½ gallon white glazed earth ware low level cistern with 1 ½” flush pipe. The closet is to be screwed to wood floor and jointed to the soil pipe. The cistern is to be screwed to bearers fixed to the wall.

The whole of the service is to be tested and left in satisfactory working order.

SOLDER

Plumbing’s solder shall comply with B.S. 219 Grade D and flux shall be Tallow.

TAPS AND STOP VALVES

Drain-off taps and stop-valves shall comply with B.S. 1010.

9.0 ROOFING AND GUTTERS

GALVANISED STEEL SHEETING

Roof covering shall be corrugated galvanized zinc sheeting of approved manufacture to the gauge specified conforming in all respects to BS 3083 (for standard corrugated sheeting).

ALUMINUM SHEETING

Aluminum sheet roofing shall comply with B.S. 2855 (for corrugated sheeting) and B.S. 3428 (for troughed sheeting).

Fixing aluminum sheets to timber shall be with aluminum alloy drive screws with saddles, plastic washers and covers.

FIXING ROOF SHEETING

Lay sheets as described with at least one full corrugated side lap or 6 inches over lap. Sheets shall be securely nailed to the roof with galvanized broad-headed roof nails of suitable length at intervals not exceeding ten inches to give continuous lines. The laying of sheets shall commence at the western-most end of the roof slopes so that exposed edges are downwind.

RIDGINGS AND FLASHINGS

Ridges and flashings shall be 22 gauge aluminum or 24 gauge galvanized sheeting cut to the size, and bent to the profile shown and accurately fixed with galvanized drive screws and reopened washers.

WATER TIGHT

Leave roofs clean and watertight at completion to the satisfaction of the Engineer.

All cavities between roof and ceiling are to be adequately ventilated.

11.0 ELECTRICAL INSTALLATIONS

1 SECTION 1: MATERIALS, WORKMANSHIP & INSTALLATION INSTRUCTIONS

1.1 REGULATIONS

The installations shall comply in their entirety with the requirements of the Government Electrical Inspector of Guyana, and the current edition (including up to date amendments) of the Regulation for Electrical Installation issued by the Institution of Electrical Engineers of the United Kingdom.

The “Contractor” shall ensure that all tests to ascertain compliance with these regulations are carried out before the hand-over date.

1.2 ELECTRICAL SUPPLY

The electricity supply in Guyana is 60 HZ.

1.3 WORKMANSHIP

All workmanship shall be of the highest recognized standards, and in conformity with the code of practice, issued by the British standards Institution or internationally recognized equivalents.

1.4 DRAWINGS & SPECIFICATIONS

The drawings and specifications are complementary, and any discrepancy between them must be brought to the attention of the “Supervisory Consultant” for a decision. Failure to do so by the “Contractor” will result in a total cost to him for any rectification or replacement.

1.5 MATERIALS

All materials used, including those not specifically described shall be the best of their respective type, and of adequate size and strength, to ensure, the mechanical and electrical

soundness of the installation. Such detail being in the form of the manufacturers' literature, sketches, etc.

1.6 SETTING OUT

The "Contractor" shall be responsible for the accurate marking and setting out of the installation. The drawings indicate the proposed positions of the fittings and outlets, but the "contractor" must refer to the architectural and structural details, in order to ensure integration with the other services, building structure, ceiling tile arrangement, etc.

1.7 CUTTING AWAY, MAKING GOOD & TRENCHING

Cutting away, making well and trenching will not be a part of the "Contractor's" work. The "Contractor" shall identify and accurately locate all cutting away, trenching, and other builders' work and arrange for the execution.

1.8 (a) DESCRIPTION

The main supply shall comprise P.V.C. cables with copper conductors as sized and indicated on drawings.

(a) INSTALLATION

The cable shall be run in high impact P.V.C. conduit, sized as indicated on the drawing, and run at high (eaves) level from the main switch (provision been made for metering) in the building to the service entrance as indicated.

1.9 MAIN SWITCH

DESCRIPTION

This shall be as indicated on the appropriate drawing.

The switch shall be the H.R.C. fused type suitable for A.C. application and surface mounting. The enclosure shall be fabricated from rust proof material or material treated for application in a humid and high saline atmosphere.

The enclosure shall be fitted with locking facility; if padlock is to be used this must be provided.

INSTALLATION

The switch shall be installed, only where the distance between the supply cable entry and the main switch-gear exceeds twenty feet (20' – 0") and shall be secured to the building structure by no less than (4) four corrosion resistant screws and rawlplugs.

1.9 (a) MAIN SWITCH

Where this is the case, it shall be sited as instructed by the “Supervisory Consultant”, and positioned at a height of no less than eight feet (8’ – 0”) from floor level, and fixed by four # 12 x 1 1/4” brass or similar corrosion resistant screws with appropriately sized washers.

NOTE: On some sites, no supply lines of the Supply Authority existed at the time of the installation design.

1.10 METER

DESCRIPTION:

The meter shall be provided and installed by the Supply Authority.

INSTALLATION:

The “Contractor” shall build the meter circuit and make provision for the installation of the meter (provide meter board). The meter shall be sited and positioned as agreed by the Supply Authority and the Supervisory Consultant.

1.11 DISTRIBUTION BOARD

The board shall be the MCB type suitable for surface mounting. The enclosure shall be fabricated from corrosion resistant material or treated for use in a salt laden atmosphere.

The breakers shall operate at their rated capacity at a minimum of 30 C without derating and have a minimum 1 c of 10,000 A symmetrical on 240V.

INSTALLATION

The board shall be fixed to the building by no less than four (4) corrosion resistant screws, washers and rawlplugs.

The internal wiring shall be neatly arranged connections firmly made and the neutral wire fixed on the neutral bar in a position corresponding to that of the breaker controlling the circuit.

All distribution boards shall carry fixed indelible circuit charts to indicate the number and locations of lights or points (socket outlets) controlled by the breaker.

1.12 SUB-MAINS

DESCRIPTION:

The cables taking the supply from the main switch-gear to the distribution boards (panel).

Unless otherwise indicated, these shall be P.V.C. insulated, single core copper conductors, rated at no less than 500V, and sized as indicated on the drawings. The cables shall be red for the lines and black for the neutral or colour coded with P.V.C. tape at each termination.

INSTALLATION:

The cable shall not be knicked, brushed or in any way damaged, to permit the ingress of water to the conductor, which may lead to low conductor reading to earth.

1.13 CONDUIT & PIPING

DESCRIPTION:

Adequately sized, high impact P.V.C conduit shall be used for all high level runs within the buildings.

Water tight P.V.C. piping of adequate size, shall be used for all linking of the buildings and all below ground level.

INSTALLATION:

The conduit shall be installed in its entirety before cables are drawn in.

Inspection boxes, draw boxes, bend tees, etc., and shall be accessible for the purpose of withdrawal or addition of cables. All boxes in which underground conduit (pipe) are terminated must be positioned at 2' – 0" above finished floor level. All conduit (pipe) rising below ground, must run concealed in the wall, and all boxes in which such conduit (pipe) terminate, must be flushed, and the covers (lids) must be fixed with four screws, in order to minimize vandalism.

All conduit (pipe) run below ground must be permanently watertight, and be run at a depth of 18".

The number of cables drawn into any conduit shall exceed that given in table B5 and B6 of I.E.E. regulation (14th edition).

Conduit running below ground across open areas, shall be protected by 6" x 1" greenheart slab, and the route marked by 9" concrete cube partly buried cable marker at 20' – 0" intervals; on the top of the cable marker shall be inscribed "ELECTRIC CABLES".

1.14 CABLES

INSTALLATION:

The PVC/PVC/SWA cable shall be run from the switchgear to the distribution. The cable shall be run partly on the building structures and partly in free earth. Where the cable run

in free earth, it must be laid on a 6” bed of sand 18” below ground and protected by cable tiles or equivalent material. Where the cable run on the building structure, it must be supported by straps, at no more than 4’ 0” intervals.

The loop-in system of wiring shall be used in the installation of the PVC ECC cables, and joints would only be permitted when approved by the Engineer.

1.15 Light Emitting Diode (LED) Lamps and Fixtures

All LED light engines (combination of diodes, driver, heat sink, housing and optics), whether

screw - in or hardwired, shall meet all of the following criteria:

- The rated driver input wattage and total number of LEDs shall be published by the manufacturer for each funded Fixture Unit (driver and LED combination) and shall be the same wattage used in the Fixture Counts Page of this Lighting Workbook.
- All equipment must have model - identification that is specific and clear enough to accurately match installed equipment with equipment submittals and specific product entries in the qualification lists referred to below.
-

1.16 SOCKET OUTLETS (POINTS)

DESCRIPTION:

13A Socket Outlet: This shall be the surface mounting type of non paneled wall and the flush type on paneled walls.

The outlet shall be ivory or white plated.

INSTALLATION:

The outlet box shall be mounted flush in the wall at a height of 12” centre from finished floor level and 6” centre from working tops and must be effectively earthed.

The outlet must be fixed to the box by no less than two (2) security screws.

NOTE: A minimum of four (4) screw drivers or appropriate tools for the screws must be provided and handed over to the Client at the completion of the project.

DESCRIPTION:

10/15A Socket Outlet.

These shall be the surface mounting type on non paneled walls and flush type on paneled walls.

The outlet shall be ivory or white plated. The receptacle for the outlet pins shall be oblong and parallel for line and neutral and semi-circular for the earth (North America type).

NOTE: The voltage supply to each outlet must be clearly and permanently marked on the wall (not on the outlet) adjacent to the outlet.

INSTALLATION:

Similar to that of the 13A sockets outlet.

1.17 SWITCHES (FOR LIGHT CONTROL)

DESCRIPTION:

These shall be suitable for use on A.C. circuits and for switching fluorescent fittings. They shall be the surface mounting for non-paneled walls and flush type for paneled walls.

Switches rated at no less than 5A shall be used on all 240V lighting circuits, and no less than 10A on all 110V lighting circuits.

INSTALLATION:

Unless otherwise instructed, all switches shall be positioned at a height of 4'6" centre from finished floor level, and 5" from the adjacent door jamb.

The Architect's drawing must be checked to ensure that the position of the switched is not in conflict with door swings, and other structural limitations.

1.18 EARTHING

The earth terminals of all socket outlets, and the mounting boxes shall be permanently and effectively connected to earth.

All exposed non-current carrying metal parts of fittings, electrical components; equipment and the steel frame of the building shall be effectively bonded to earth.

The earth loop impedance of all circuits shall be low enough to ensure the proper operation of all circuit breakers and fused in accordance with table 41A of I.E.E. Regulation 413-5.

The earth continuity conductor shall be of copper, adequately sized, and bonded to the earth electrode to ensure compliance with the regulations.

The earth electrode shall be ¾" solid copper rod, or galvanized steel pipe of no less than 1" diameter, driven to a minimize of (8' – 0") eight feet into the ground.

Connection of the earth continuity conductor to the main switch and switch-gear shall be made of soldered or crimped lug, spring and flat washer and bolt and nut.

1.19 AIR CONDITIONING UNITS

SPLIT SYSTEM

Condensing Unit:

The condensing unit shall be the direct expansion type. The cabinet shall be constructed from galvanized coated steel and all metal parts and screws treated for external use in a salt laden atmosphere.

Removable panels to facilitate electrical and refrigerant maintenance shall be provided. The fan motors shall be totally enclosed type.

The compressor shall be the hermetically sealed type with temperature and current protection devices and the condenser coils shall be the copper tubes with mechanically bonded aluminum fins.

Air Handler: These shall be matched with the condensing unit and suited for wall and ceiling mounting.

The cabinet shall be fabricated from galvanized steel, treated and attractively finished off-white or similar attractive colour. The fan assembly shall be mounted on anti-vibration mounts for quiet operation.

Washable filters shall be provided for economical maintenance.

1.20 LABELLING

The Contractor shall supply and fix trifoliate or similar approved permanent tables, to indicate the function of all main switches and breakers on the main switch-gear and wherever the function of such items are not obvious.

Printed circuit lists shall be fixed on the inside covers of all distribution boards, to indicate the lights/points on the circuit and their location.

All labels shall be fixed to their respective positions before the hand-over date.

The following notice, of such durability, as would remain legible throughout the life of the installation, shall be fixed in a prominent position near the main switch-gear.

IMPORTANT

This installation shall be inspected every year, and a compliance certificate obtained from the Government electrical Inspector.

DATE OF THE LAST INSPECTION:

1.21 TESTING

The Contractor shall arrange for the installation to be inspected and tested by the Government Electrical Inspector and a certificate of compliance issued to the owner.

1.22 WARRANTY AND REPAIRS

The Contractor shall ensure that whenever possible, all items used are covered by the manufacturers' warranty.

All faulty items replaced under the manufacturers' warranty shall be at the Contractor's cost.

Any breakdown in the installation, fault, or mal-functioning of any component of the installation, due to poor workmanship or non-adherence to the regulation, shall be promptly rectified by the Contractor, at no cost to the owner, for a period not exceeding twelve (12) months.



Safety, Health & Environmental
Guidelines
(Contractors)

Safety Health Environmental Unit – September 2020

1 **INTRODUCTION**

1.1 **Purpose**

The Guyana Power and Light Inc. (hereafter refer to as (GPL) Safety Health and Environmental Plan (hereafter refer to as SHE Plan) describes the minimum requirements expected of GPL’s employees, contractors, customers and visitors.

The SHE Plan is part of GPL’s total commitment to provide a safe working environment at all times and the goal of achieving incident free workplaces.

This SHE plan outlines how GPL shall comply with all relevant Acts, Regulations, Codes of Practice, standards and requirements. This will be updated as may be necessary and tailored to suit the requirements and needs of GPL and in keeping with any new legislative requirements.

This plan applies to all activities associated with and carried out on all GPL’s locations.

1.2 **Abbreviations and Terminologies**

ARAP	-	As Reasonable and Practicable
OSH Act	-	Occupational Safety and Health Act Cap. 99:06
SHE	-	Safety Health and Environment
SHEO	-	Safety Health and Environmental Officer
ASHEO	-	Assistant Safety Health and Environmental Officer
PPE	-	Personal Protective Equipment
MSDS	-	Material Safety Data Sheet
BPN	-	Best Practicable Means
ECC	-	Emergency Control Center

1.3 **References:**

- Occupational Safety and Health Act Cap. 99:06
- Environmental Protection Agency Act Cap 20:05
- Fire Prevention Act Cap. 22:01 and Fire Prevention (Amendment) Act No. 34 of 2009

2 **HEALTH AND SAFETY MANAGEMENT SYSTEM**

The SHE management system is made up of the following documents:

Document	Description
Policies	Policies set the overall guidelines and direction of GPL’s approach to SHE.
SHE Procedures	Procedures relevant to the management and administration of jobs relating to all GPL’s activity.
Emergency Response	GPL response plan which includes identified emergency and environmental response.
Environmental Management Plan	Describes the environmental controls to be implemented and measures to be taken for a particular geographic work area, process or discipline.
Safety Health and Environmental Plan	Describe the SHE administration and management framework for GPL. This includes responsibilities, risk

(This Plan)	assessment, training and inductions, general safety rules and protocols, risk controls, audits and management controls.
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3 **MANAGEMENT LEADERSHIP AND COMMITMENT**

3.1 **Responsibilities**

Divisional Director – Human Resources

The Divisional Director has the overall responsibility of ensuring the objectives of the SHE Plan and policies are met and that all jobs within the company is delivered injury and incident free, this will be achieved by:

- Ensuring that all relevant and necessary human and material resources to enable the teams to meet their responsibilities.
- Ensuring that the appropriate SHE systems are developed, approved, implemented and maintained during operations.
- Ensuring that competent personnel are recruited and that adequate training is provided to ensure that all employees have the necessary knowledge and skills to competently perform their jobs.
- Establish a process for review and continual improvement.

Safety Health and Environmental Officer

The SHEO is responsible for the development of the SHE plan, and work with the various levels of Management to implement same. This will be achieved by:

- Develop and provide training on the implementation of the company’s SHE plan.
- Liaison with statutory and local regulatory authorities where required, to ensure that safety and health issues which arise are resolved in a timely manner to the benefit of the company.
- Review workplace health and safety documents, procedures, risk assessment, etc.
- Assist to resolve disputes which may impact personnel, plant or equipment.
- Undertaking regular safety and health inspections to all locations.

Supervisory Personnel (GPL)

The GPL personnel with direct oversight of the project/contract is responsible and accountable for the implementation of the provisions of this SHE plan by Contractors. This will be achieved by:

- Acting in compliance with the provisions and requirements of the SHE plan.
- Ensuring that the Contractor and all employees of GPL follow the requirements of the plan.
- Ensuring that GPL’s emergency response plans are followed should any incident or emergency arise.
- Reporting all OHS non-conformances; including, safety and environmental breaches, incidents and dangerous practices and occurrences.
- Ensuring that reasonable care is being taken by the Contractor to maintain a high standard of workmanship so as to protect the health and safety of themselves and other persons.
- Ensuring that all work sites are returned to a safe state by the Contractor at the completion of all tasks.

Contractors

Contractors shall be required to:

- Provide copies of this SHE plan to their supervisory personnel prior to the commencement of any contract for work to be done.
- To comply with all GPL's SHE policies, requirements and practices.
- To provide MSDS for all hazardous materials which they intend to use on any GPL'S site.
- Comply with all reasonable instructions given to them by GPL's representative.
- Attend any safety deliberations that may be convened by GPL's representative.
- Convene tool box discussions with their employees to ensure that all the necessary SHE protocols are followed.
- Conduct and participate in worksite inspections and make observations necessary to mitigate any risk to persons or property.
- Observe all statutory requirements relating to health, safety, quality and the environment.
- Cooperate fully with procedures and consultative arrangements.

Employees

Employees of Contractors shall be required to:

- Report to work fit for duty.
- Have the appropriate skill, qualifications and training to undertake the task they are performing.
- Follow all reasonable health and safety instructions given.
- Wear all approved company issue PPE during the execution of their duties.
- Rectify and report all hazards.
- Follow work procedures, and to stop and reassess if the work methodology or risk changes.

3.2

SHE Policy

GPL is committed to ensuring a safe and healthy working environment for all personnel associated with their operations as well as caring for the environment.

This SHE plan shall support the SHE policies which provide a framework for management's commitment through visible leadership and a vigilant culture which rigorously supports the implementation and continuous improvement in the SHE program.

The GPL's policies shall be widely circulated and prominently displayed in all areas.

3.3

Goals and Objectives

The goal of this SHE plan is to ensure that all the GPL's operations are conducted in accordance with the minimum requirements of all legislation pertaining to Occupational Safety and Health and the Environment. For this to be achieved management, employees and Contractors are required to demonstrate a personal commitment to achieving excellence in all tasks being undertaken.

This will aid in achieving our goals:

- To operate incident and injury free.
- To have available and post copies of the relevant legislation pertaining to OH&S and the Environment in work places for access by employees.
- To take all reasonable steps for the protection of Health and Safety of employees.

- To ensure that the environment is not adversely affected by any operations carried out by and on behalf of the GPL.
- Foster a quality culture “Do it once and do it well”
- To respect the community
- To provide our customers with a great experience.

4 **CONTRACTORS MANAGEMENT**

All contractors and contractor employees have an obligation to adhere to and comply with all relevant legislation, policies, procedures and instructions in striving for an injury and incident free operations whilst being engaged by the GPL.

4.1 **Contractor SHE Systems and Procedures**

The contractor shall at a minimum comply with:

- The Occupational Safety and Health Act Cap. 99:06;
- The Environmental Protection Agency Act Cap. 20:05;
- This SHE Plan;
- Applicable GPL rules and regulations;
- Any other requirement specified by the GPL.

4.2 **Assessment of Contractors**

Prior to engagement, all contractors shall provide copies of the relevant licenses, insurance, and any other relevant documentation for review by GPL.

Only after a successful review and approval, shall the contractor be permitted to commence operations.

At times, GPL may request that a contractor submit additional records, procedures, training records or other information for assessment and/or validation. Upon any reasonable request, the contractor will submit such documentation.

5 **COMMUNICATION AND CONSULTATION**

An integral part of the SHE management system is the open communication of information between all levels of management, employees and contractors. In achieving this goal, GPL and their Contractors, as well as the Contractor and their employees, shall conduct SHE meetings, inclusive of tool box talks and other safety discussion prior to commencement of all tasks. It is the expectation that the Managers/Supervisors of the various work groups shall take the lead in ensuring that these discussions are held and documentation are made.

5.1 **SHE Meetings**

The standard SHE meetings that maybe carried out may include at a minimum:

- Tool Box Talks prior to commencement of a task.
- Management/Contractor’s coordination meetings.
- Safety Committee Meetings (by law or request by GPL).

Formal records of such meetings should be maintained for review.

5.1.1

Tool Box Talks

Tool Box Talks should be convened prior to commencement of a task or as otherwise determined and agreed. These meetings should involve Contractor's supervisors and employees and should be documented for review by GPL, if required.

The topics covered by tool box meetings shall include:

- Discussion of incidents and occurrences at the work sites.
- Presentation of SHE topics which in the view of the supervisor that would assist the employees to perform their jobs safely and competently.

5.1.2

Contractor's Coordinating Meeting

Contractors' Coordinating Meetings will be scheduled by GPL's personnel.

These meetings may include:

- Projection of works.
- Integration of activities
- Review of hazards identified during inspections and risk assessments.
- Health, Safety and Environmental issues.

5.1.3

Safety Committee Meetings

The formulation of Health and Safety Committees and the appointment of Health and Safety Representatives shall be done in accordance with the OSH Act.

5.2

SHE Issue Resolution

The Contractor will endeavour to resolve SHE issues whilst, wherever possible, maintain productive work. It is emphasized that at all times employees must accept responsibility for their own safety. In general the process shall follow the procedures outlined in the OSH Act:

- A. Where the health and safety problem exist which can be rectified by the individual, it shall be rectified; otherwise
- B. Report the problem to the supervisor for rectification, allowing sufficient time; otherwise
- C. Report the problem to an elected safety representative (where elected) for rectification, allowing sufficient time; otherwise.
- D. Report the issue to the GPL personnel with oversight of the project/contract who shall consult with the Contractor to have issue rectified as soon as practicable.


Where Contractor fail and/or refuses to rectify SHE issue reported to them, GPL may take whatever steps it deems necessary, in accordance with the contract.

6

RISK MANAGEMENT

Risk Management is the systematic process of identifying hazards, evaluating risk, implementing controls and monitoring effectiveness. Throughout the duration of the operation, hazard identification tools and techniques shall be used and documented evidence kept for review.

Controls of risk identified shall be determined using the Hierarchy of Controls process.

	Most Effective	Elimination	Remove hazards completely
		Substitution	Replace/reduce the hazard with a lower risk alternative
		Isolation	Isolate the worker from the hazard
		Engineering Controls	Involves some changes to the work environment or work process to place a barrier to, or interrupt the transmission path between the worker and the hazard
		Administrative Controls	The use of procedures, hazard control plans, signs, training, etc
Less Effective	PPE	The use of Personal Protective Equipment/Clothing.	

Note: Where the risk cannot be eliminated, a combination of controls can be utilized to control the risk.

6.1 **Risk Assessment**

All hazards or risk should be evaluated using the following risk matrix. Attached appendix

I.

6.2 **Hazard Register**

All hazards identified during an inspection or when a risk assessment is done must be documented. These records will be progressively reviewed to track progress of rectification.

6.3 **Hazard Observation and Reporting**

The reporting of all hazards shall be encouraged so that they are investigated and assessed to ensure timely, remedial and preventative action(s) are taken.

All persons especially supervisory staff should be trained in this procedure. They are encouraged to use this SHE tool to record any observed risk hazards or unsafe conditions that presents immediate threat to health, safety and environment.

6.4 **Work Place Inspections**

- Informal Inspections
- Formal Inspections
- Impromptu Inspections
- Follow up inspections
- Plant and Equipment Inspections
- Inspections and Audits as required by contract.

An inspection report shall be compiled and retained for records and follow up.

7 **TRAINING AND COMPETENCY**

7.1 **Personnel Selection**

All personnel employed or engaged by GPL shall have adequate knowledge and experiences for the task for which they are being engaged and shall be the holder of the appropriate qualification / licenses for the position.

7.2 **Licenses and Certificates of Competency**
All persons being engaged shall satisfy at minimum the GPL job requirements regarding qualifications and work experiences for the job function for which they are being engaged.

All persons performing activities or task that required licenses or certificates of competency shall submit a current copy of all such licenses or certificates of competency prior to engagement as outline in 4.2. Copies shall be retained for records.
Other training certificates, such as First Aid, held by employees are to be copied and attached.

7.3 **First Aid Training**
All GPL's worksites including construction sites where work is being undertaken by a contractor shall be equipped with a First Aid kit to assist in dealing with any accident or emergencies. There should also be in those workplaces person(s) trained to administer emergency first aid. It shall be the responsibility of all contractors to make these provisions for their employees for the duration of any work being undertaken on behalf of GPL.

7.4 **Emergency Response**
Emergency response requirement shall be considered in all operations.
Personnel shall be required to participate in regular emergency drills based on likely incident scenarios.

7.5 **Training Assessment**
In an effort to ensure that all employees remain competent in the performance of their duties and function, continuous training shall be provided to equip them with the knowledge and skills required to perform their jobs in a safe and competent manner. Training needs will be determined using:

- Information provided in employee's performance appraisals.
- Training needs assessment.
- Job and task assessments.

7.6 **Training Records**
Records shall be maintained of all SHE training undertaken and provided to employees. The records kept shall include:

- The type of training convened.
- The date, time and place the training was conducted.
- The names and signatures of the trainees.
- The content covered during the training.

8 **OCCUPATIONAL HEALTH**

8.1 **Fitness at Work**
No person shall be allowed on the worksite while being fatigued or under the influence of alcohol or illicit drugs, or otherwise deemed to be a RISK.
GPL through the respective supervisor shall reserve the right to request that an employee or contractor who is suspected to be under in influence whilst being on official company business or on any company premises to subject themselves to such tests to determine their fitness to be work. Such test shall be conducted in accordance with the standard procedures to be done by agencies to be determined by GPL.

8.2 **Hazardous Substances and Dangerous Materials**

GPL shall comply with all State Guidelines, Legislations and relevant Codes of Practices as it relates to Hazardous Substances and Dangerous Materials. All Hazardous Substances and Dangerous Materials shall be handled, transported, stored, used and disposed of using the prescribed methods.

8.2.1 **Material Safety Data Sheet (MSDS)**

MSDS for all Hazardous Substances and Dangerous Materials approved for use by GPL must be available on site for inspection and reference in the event of an emergency. Provisions including PPE and first aid as recommended by the MSDS shall be made available to all employees required to handle such materials. Personnel using Hazardous Substances and Dangerous Materials shall be appropriately trained in the correct use of such substances or materials.

8.3 **Working in Heat**

Heat exhaustion is common among persons who work in construction and in environment which requires that certain PPE be worn whilst carrying out certain tasks e.g. power generation. This is also true for persons who engage in manual labour and those who work in areas where ventilation is poor. In an effort to protect employees, the following practices shall be adopted:

- Provide suitable and sufficient PPE/C.
- Provide adequate supervision.
- Provide adequate training, inclusive of tool box discussion prior to commencement.
- Ensure that emergency systems are in place in the event of an incident and that all persons are adequately trained in such.

8.4 **Noise and Hearing**

8.4. loss. The effects of sound above 85 dB over an 8 hours period can result in permanent hearing

As such, it is the responsibility of the Contractor to provide hearing protection and to take such measures as may be appropriate for the protection of persons that may be exposed to such by:

- a) Installation of signs mandating that hearing protection be worn in certain places.
- b) Train employees as to the dangers of working in an excessively noisy environment for prolonged periods.
- c) Incorporate engineering controls in the construction of buildings and offices in an effort to reduce sounds at its source.

It is the responsibility of the supervisory staff to ensure that all employees adhere to all PPE/C usage compliance.

8.5 **Hygiene**

Occupational Hygiene is the discipline of anticipating, recognising, evaluating and controlling health hazards in the working environment with the objective of protecting worker health and well-being and safeguarding all persons.

It is therefore recommended that good hygienic practices should be maintained at all times to ensure personal and environmental cleanliness and preventing the spread of diseases.

9 **ENVIRONMENT**

9.1 **Surrounding Land Uses, Hazards, Interfaces and Related Restrictions**

Contractor must allow for and carry out a survey, to detect and verify the location and status of all known overhead and underground services, prior to commencing any demolition, site clearance or earthworks where required.

Where there is an imminent risk from GPL's overhead or underground conductors, Contractor must make a formal request to GPL for disconnection, diversion or protection of such overhead or underground conductors as necessary, prior to commencing work. The purging of existing pipe work, tanks or plant containing hazardous substances must be carried out prior to stripping out, removal, dismantling, alteration or extension. Control measures must be established for safe systems of work and the safe disposal of purge effluent. An appropriate Risk Assessment will be required for all work, and performed under a permit to work as / where necessary.

9.2 **Interfaces with the General Public**

Contractor shall take all measures necessary to protect the general public from any risks arising from works being undertaken. Wherever possible, Contractors shall programme the works and sequences of operations to allow for the complete segregation of all construction activities from the general public. Where this is not possible the Contractor shall identify all known hazards and risks and take appropriate measures to control the risks e.g. provision of hoardings/ barriers, protection from falling materials, avoidance of uneven surfaces, adequate illumination.

9.3 **Contractor Obligations**

All aspects of environmental management associated with the proposed works shall be the responsibility of such company. This encompasses all stages of work from commencement to final hand-over to the GPL. This includes ensuring that all necessary licences and/or consents are obtained for the construction works from the relevant authorities, including those for temporary activities and discharges. Work shall be conducted in such a way as to minimise any adverse environmental impacts of those works throughout their duration.

9.4 **Environmental Control and Monitoring**

There are a number of specific environmental issues to be considered during the Project: -

- Noise and Vibrations
- Pollution
- Emissions and Discharges
- Fuel and Chemical Management
- Energy Management
- Waste Management
- Control of potential spills

9.4.1 **Noise and Vibrations**

The general objective for the management of potential impacts in respect of noise and vibration shall be to control and limit noise and vibration levels from activities at source, by the use of Best Practicable Means (BPM) (e.g. by careful selection of plant, maintenance and location of plant, operation methods and programming, use of noise barriers/screening), ensuring compliance with relevant legislation.

9.4.2 **Atmospheric Pollution**

During operation the principal considerations in respect of atmospheric pollution involve potential dust nuisance and the release of other air pollutants associated with aerial emissions. The general objective for the management of potential impacts in respect of

atmospheric pollution shall be to carry out the works, so far as is reasonably practicable, to minimise emissions to air of dust and other pollutants, including odour, in accordance with appropriate legislation and GPL guidelines. Employees shall take all reasonable steps to avoid the creation of dust nuisance by making provision for; The screening, enclosure and spraying of stockpiles of soil, rubble and construction materials, especially in dry, windy conditions Damping down soil/other materials before depositing. Ensure that adequate covering is provided on each storage load of material to prevent/reduce aerial propellants

9.4.3 **Fuel and Chemical Management**

It is the contractor's responsibility to ensure that all hazardous chemical substances on site are controlled in accordance with local regulations.

9.4.4 **Control of Potential Spills**

Systems for dispensing fuel and other contaminants to mobile and other equipment, should be done in a manner to prevent the possibility of spillage. Spillage catchment kits, designated area with impervious surface, correct type of fuel containers, etc should be used to reduce the possibility of environmental contamination.

9.4.5 **Waste Management**

All waste on site shall be managed and disposed of in the appropriate and approved manner.

10 **INCIDENT / INJURY REPORTING AND INVESTIGATION**

In order for GPL to meet its SHE objectives, the effective reporting and investigation of incidents/injuries is crucial for:

- Preventing recurrence of similar incidents
- Identifying and rectifying system inadequacies
- Involving and educating personnel
- Informing regulatory and other bodies

10.1 **Incident and Injury Reporting**

All Accident/Incidents and dangerous practices must be verbally reported immediately by the Contractor or their representative on the site to the GPL personnel with oversight of the project/contract who shall conduct an investigation as soon as practicable and prepare and submit the required reports i.e. in the case of an accident, within 24 hours. The Manager responsible for the section, the SHEO and ASHEO as well and the Industrial Nurse shall be informed as soon as practicable after the Accident.

10.2 **Guidelines for Incident Response and Investigation**

All incidents shall be investigated to determine its root cause with the ultimate aim being to eliminate all

risk and to implement preventative measures. The responsible GPL personnel shall ensure that the scene of any incident is secured and made safe to prevent any continuation and or escalation of the situation. The GPL personnel shall also ensure that details of the incident are gathered as soon as possible so that no evidence is lost, contaminated, tampered with or forgotten. At a minimum, the following information shall be obtained to assist the investigation:

- Photographs of incident site/injuries
- Statements from the victim (where practicable), witnesses and the immediate supervisor.

- Any other important information including but not limited to work instructions, work procedure, inspection and maintenance reports etc.

10.3 **Incident Notification**

All incidents must be verbally reported immediately and followed by written confirmation and reports as soon as reasonably practicable after the event. Notifications will be in accordance with legislative and GPL requirements.

10.4 **Statutory Notification**

Under the Occupational Safety and Health Act, all occupational accidents that resulted in lost time are notifiable to the authority i.e. Ministry of Labour within 3 days of occurrence.

However, if such accident resulted in death, serious injury or serious illness of a person(s), such is notifiable immediately to the authority.

10.5 **Injury Management**

Injury management is a coordinated and managed process consisting of activities and procedures to facilitate a timely and safe return to work for injured workers. The success of an injury management programme will depend on:

- Actively managing incidents
- Managing open communication between all stakeholders
- Providing temporary alternative duties (modified and/or alternate) as necessary, which are within the injured worker's restriction, physical limitation and abilities.

Early intervention is essential to both the worker's recovery, and the cost effective management of the claim. An immediate planned response can be initiated to determine if the worker is capable of staying at work performing their regular pre-injury duties, modified duties, or alternate duties whilst the injury heals.

If the worker does require time away from the workplace, an effective programme will help the worker return to meaningful, productive and safe work as early and safe as possible.

11 **EMERGENCY RESPONSE**

11.1 **Emergency Procedure**

A major incident is one that may affect several departments within premises; endanger the surrounding community; involve major injuries or fatalities or dangerous occurrences; result in adverse publicity for an organization with ensuing loss of confidence.

Such incidents may be brought about by a malfunction of the normal operating procedures, by the intervention of some outside agency, such as a severe electrical storm, flooding, an act of arson or sabotage, or as a result of terrorist activities, by bomb threats, by riot or fighting, or contamination threats. Other examples are a pressure vessel explosion, pollution, gas leakage, collapse of a crane, and so on.

All of these events have one thing in common - they are not planned. They will therefore throw the whole workforce/community into panic unless sound Emergency Procedures have been thought through and written down in simple understandable

terms and then tested in training sessions for appropriate numbers of people. People must know what to do in emergency situations. This is particularly true of Managers and Supervisors on whose actions under stress their subordinates depend and in whose hands their lives may be placed.

The Company must develop its own strategy aimed at reducing the potential for such major incidents. The design of plant and buildings; the proximity of processes; the integrity of planned maintenance procedures; the use of condition monitoring of key plant items; planned cleaning schedules; frequent inspections of hazardous areas; sound security procedures; well-positioned, well-maintained fire-fighting equipment; well-rehearsed fire drills and procedures; good job training; sound 'No Smoking', alcohol and drug policies; all these things are part and parcel of a well-run business which seeks to minimize the risk to its ongoing welfare from unexpected events.

In considering the types of emergency that might occur, account must be taken of the areas likely to be affected. The interdependence and proximity of plant, buildings, storage areas, conveyor systems and exit points from the site should be considered, as should such factors as the general effect of the direction and strength of prevailing winds on the spread of fire and toxic materials, the site defenses against severe flooding in the area, etc.

Preparation

1. A copy of this procedure/plan should be lodged with all key Managers. Its contents may or may not be considered confidential, depending on circumstances.
2. List all key telephone numbers of both internal and external personnel and organizations
3. Ensure that there is an up-to-date Site Plan available at the Main Gate/Security Office and in the key Control Rooms and in the Senior Manager's office. This should show and have labeled all the main buildings, identify fire hydrant points and the location of shut-off valves for supplies of energy and dangerous process materials, show storage areas for oils, gases and other flammable, dangerous or toxic materials.
4. Ensure that outline drawings are available for each floor in each building, showing key plant items, fire escape routes and the position of fire-fighting equipment.
5. Ensure that notes and Data Sheets are also available concerning any specific site hazards such as dangerous chemicals, underground supplies or drains, overhead power lines.
6. Define all emergency exit routes from buildings and from the site.
7. Ensure that back-up lighting systems, such as battery operated lighting, torches and hand lamps, are available and in good working order at all times.
8. In the event of an emergency, define, in advance, who will be in charge of proceedings. This might be a Shift Supervisor or the Senior Manager on site (if quickly available). There must not be a situation where more than one person thinks he is in overall charge. This person must have access to the Emergency Procedures Manual and be able to refer to it quickly and authoritatively.
9. An Emergency Control Centre (ECC) should be nominated, or created if none exist, from where the emergency operations can be controlled. Good communications are the key to this facility. It is often based on the telephone exchange area where there are internal and external telephones and the control console for mobile

radios/telephones. A back-up should be considered for the case where the prime choice is out of action, e.g. fire, bomb, etc. An alternative means of communication may be necessary if the telephone lines are down or the power supplies are lost or the back-up batteries are out of action, e.g. cell phones or hand held radios. Clearly, the relative probabilities of each of these possible events need to be carefully considered so that money is not wasted on unnecessary hardware.

10. Ensure that Medical facilities are available to cope with a situation involving several casualties and that an emergency procedure is available for transporting several casualties to the nearest hospital, if required.
11. Have in place agreed procedures with the local authorities such as Fire, Hospital and Police force.
12. Familiarize every employee with the procedures to be carried out in the event of an emergency arising, including making them aware of the positioning of essential equipment and, if appropriate, its use, e.g. alarms, fire-fighting, escape routes, assembly points, etc.
13. Train key personnel in all the appropriate procedures, e.g. use of breathing apparatus, fire-fighting, first aid, fire warden duties, etc.
14. Test warning systems and evacuation procedures at appropriate intervals.
15. Ensure that a complete list of names and addresses of all employees is kept accessible in the event of emergency. This will assist in the calling in of key, competent personnel or in the contacting of relatives in the event of injuries or fatalities.
16. As a major incident will attract the attention of the media, it is essential to make arrangements for official releases of information to the press and other news services. This is best achieved by nominating one Company Spokesperson who may be the Company Public Relations Manager (PRM). All other employees must be instructed not to release information but to refer any enquiries to the PRM who should keep a record of any media enquiries dealt with during the emergency.
17. Review the Emergency Plan at specified intervals, e.g. every two years.

12

HSE AUDITS

Regular Safety, Health and Environmental audits are essential to ensuring that the safety management system performs at an optimal level. The schedule of such audits shall be in keeping with the Safety, Health and Environmental Unit schedule for each work location, including sites where construction activities are being carried out on behalf of GPL. Audits will generally be done once per year and a report generated and circulated to all the relevant stake holders within seven days of the exercise. Follow up on progress made with the issues which were identified during the exercise will be done periodically throughout the year.

13

PROCEDURES AND WORK PRACTICES

13.1

Portable Hand Tools

The following guidelines should be followed when using portable hand tools in the execution of a task:

- Hand tools should be inspected regularly for defects e.g cracked or damage insulation, damage plugs, broken handles etc. and where defects are found; the tool should be removed from use and tagged until suitable and sufficient repairs are carried out.

- Hand tool must be inspected at least once every 6 month and a record kept of the findings of the inspection. Where there is more than one of the same type of hand tools, a unique serial number should be placed on the tools to differentiate between them.

13.2

Confines Spaces

The following procedures provide guidance on the precautions to be followed when assigning employees to work in confined spaces:

- Where practicable, conduct test to determine the quality of the air before permitting persons to enter any confined space.
- A permit to work should be prepared prior to the commencement of the work.
- Ensure that workers are provided with the required safety equipment (extractor and ventilation fans, breathing apparatus, safety harnesses and rope etc.).
- Where works such as cleaning is required and lighting would have to be used, do not permit employees to enter vessels with electrical cords and bulbs rated above 24 volts.
- Take care to ensure that employees are not allowed to work alone.
- Close supervision should be provided for the duration of the task.

13.3

Cranes, Rigging and Lifting Operations

In an effort to prevent injury to persons and to protect property from damage, the following guidelines should be followed during lifting:

- All cranes, lifting tackles, wire ropes, chains and cleats must be inspected daily for defects.
- The safe working load which the device can lift must be clearly posted on the equipment including the chains and wire ropes.
- All wire rope chains and lifting tackles must be stored in the approved manner.
- No worn rope or chain should be used where there is a visible signs of wear e.g. elongated eyes and strands.

13.4

Working at Heights

Whenever work would have to be performed at heights above 2 meters the following safety precautions must be taken:

- Suitable and sufficient access equipment (ladders, scaffold and safety nets) should be provided.
- Where necessary, provide roof ladders for workers to use in the execution of roof work.
- Suitable and sufficient harness and anchor ropes should be provided and workers should be trained in their correct use.
- Suitable anchor points should be established and anchor ropes tied as close as possible to restrict the free fall.

13.4.1

Perimeter Guard Rails

Guard rails may be used to provide effective fall prevention:

- At the edges of roofs
- At the edges of floors, walkways, stairways, ramps and landings
- On top of plant and structures where access is required
- Around openings in floor and roof structures.
- At the edges of shafts, pits and other excavations.
- Guard rails should incorporate a top rail of 1100 mm a mid rail of 750 mm and a toe board of 100 mm above the working surface.

13.4.2

Elevating work platforms

Elevating Work Platforms (EWP) include scissor lifts, cherry pickers, boom lifts and travel towers. There are battery powered and internal combustion engine types. Some are designed for hard flat surfaces only, while others are designed to be operated on rough terrain. Safety considerations include that:

- workers operating the platform are trained and instructed in safe operating procedures for the particular brand and type of equipment, as well as the safe use of fall-arrest equipment and emergency rescue procedures
- the platforms are only used as working platforms and not as a means of entering and exiting a work area unless the conditions of Cranes, hoists and winches - Safe use - Mobile elevating work platforms are met
- Unless designed for rough terrain, the platforms are used only on a solid level surface
- The surface area is checked to make sure that there are no penetrations or obstructions that could cause uncontrolled movement or overturning of the platform
- workers are licensed when operating boom-type elevating work platforms with a boom length of 11 meters or more

13.4.3

Safety mesh/nets

Safety mesh/nets are designed to prevent internal falls through a roof and external falls off the sides of buildings when working at heights. If securely fixed, safety mesh provides fall protection for roof installers and offers long-term protection against falling for maintenance and repair workers.

As such, GPL would require that contractors working at such heights and location should ensure that safety mesh/nets are in use.

13.5

Manual Handling and Lifting

GPL shall require that contractors ensure that safe systems of work are adopted to mitigate the risk of manual handling injury. This may include:

- Identifying manual handling risks and implementing adequate controls
- Using mechanical means wherever it is reasonably practicable.
- Sound purchasing and procurement practices.
- Appropriate training for employees in proper lifting technique.

13.6

Electrical

GPL shall require that contractors ensure that the use of electrical wiring, portable tools and extension leads complies with applicable Codes of Practice or conformance to the provisions of Building Code: Section 4 Electrical Code Guide, Wiring Rules.

13.6.1

Inspection and Tagging

All electrical leads, portable power tools, junction boxes and earth leakage devices shall be tested and inspected by a suitably qualified person. The item shall be labeled with a tag of current date before being brought on site. A record of the current of all electrical equipment will be recorded on an electrical equipment register. The inspection frequency is 6 months.

13.6.2

Selection and Use

GPL also would require that contractors subscribe to the following:

- Whilst on site any electrical equipment found without a tag of current date issued by a suitably qualified person shall be placed 'out of service'.

- Where an electrical item is located without a current inspection and test tag, proof of the electrical items compliance shall be provided or the item removed from site immediately.
- When used on site all equipment shall be connected to a residual current device.
- Extension leads shall not be joined together.
- Electrical equipment shall not be placed on or near wet areas unless the equipment is designed for the specific purpose (e.g. pumps).
- Where electrical equipment is hired, the contractor shall ensure that the same site requirements apply.

13.7

Fire Prevention

Contractors must have a Fire Prevention Plan for preparedness in the event of an occurrence. Requirements for such plan are listed below:

- A fire prevention plan must be in writing, be kept in the workplace, and be made available to employees for review. However, an employer with 10 or fewer employees may communicate the plan orally to employees.
- A list of all major fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard;
- Procedures to control accumulations of flammable and combustible waste materials;
- Procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent the accidental ignition of combustible materials;
- The name or job title of employees responsible for maintaining equipment to prevent or control sources of ignition or fires; and
- The name or job title of employees responsible for the control of fuel source hazards.

An employer must inform employees upon initial assignment to a job of the fire hazards to which they are exposed. An employer must also review with each employee those parts of the fire prevention plan necessary for self-protection.

13.8

House Keeping

Good housekeeping refers to the practice of keeping your site clean and tidy. A tidy work area reduces the risk of accidents and improves fire safety. Good housekeeping also improves productivity, since storage of all equipment and materials are done in a systematic manner making such readily retrievable.

The minimum requirements to maintain a good standard of housekeeping are:

- There must be designated area for all waste which should also be sorted by type.
- Storage of materials and equipment should be in a systematic and safe manner. Storage should also allow for safe and unobstructed access.
- Progressive and frequent cleaning of work area to remove potential hazards should be practiced.
- Avoid trailing cables and other risk such that can create as trip hazard.
- Inform all of present dangers and advise accordingly.

13.9

Out of Service Equipment

When equipment is broken and needs repair, it is highly important to eliminate the risk of the person performing the repair becoming injured or the equipment becoming further damage from accidental start up. As such, tags indicating “out of service” are usually placed on the equipment and their starters to ensure that accidental startup do not occur.

These tags usually yellow or red in color and is used to warn persons that the equipment is out of service and should not be operated. Whenever such tags are posted, only a Supervisor should be permitted to remove such tags after verifying that the machine is safe to return to operation. Where necessary, tags are sometimes used in conjunction with locks to further reduce the chance of accidental start up of a machine. This is commonly referred to as the lock out/tag out system.

13.10 **Personal Protective Equipment (PPE)**

The OSH Act mandates that employees be provided with suitable PPE for their protection whilst they are at work. Making the workplace safe includes providing instruction, procedures, training and supervision to encourage people to work safely and responsibly. Determining the type of hazards associated with a job and the PPE needed to mitigate any risk and is usually determined by a risk assessment. Training employees in the correct use of PPE is also a critical part in ensuring that employees remain safe whilst at work. It shall be the responsibility of the Contractor to ensure that all its employees use the PPE provided to them; and in the correct manner.

13.11 **Signs and Barricades**

Safety Signs provides warning of the existence of hazards in the work place and to convey critical information about an operation to employees. These can be temporarily or permanently affixed to the locations where hazards exist. Signs convey both general and specific messages by means of words or symbols and must be visible at all times when work is being performed. The following provides a general guideline on the color of safety signs and their meaning:

- Signs painted in yellow or orange is used to indicate that caution should be taken.
- Safety signs painted in red are usually used to indicate emergency equipment such as fire points, or to draw persons attention to a source of danger.
- Safety signs painted in green are usually used to indicate the presence of emergency equipment such as emergency eye wash station and shower, first aid station.
- Safety signs painted in blue is used to indicate that certain protective devices are mandatory such as the use of ear muffers or safety glasses in some areas.

Barricades on the other hand is used to restrict access to a specific or general part of a workplace and can take the form of an actual barrier or could be in the form of a danger or caution tapes. Barricades are used as a means of isolating persons from the source of danger. In an effort to be effective, barriers are sometimes used in conjunction with safety signs especially in areas where there is the risk of serious injuries or damage to equipment, property or the environment.

13.12 **Vehicles and Mobile Equipment**

The Contractor shall ensure that all plant and equipment is regularly inspected and maintained in accordance with a legislative and manufactures requirements. All mobile plant shall be inspected daily prior to commencement of shift with a daily pre-start inspection completed and retained. All faults are to be noted and reported to the GPL personnel with oversight of the project/contract. Any fault that may cause the plant to be unsafe, damage the plant or cause environmental harm will require the plant to be tagged out of service and repaired.

13.13 **Welding and Cutting**

- All welding and cutting operations shall be carried out in a manner, which will maintain:
- The health and safety of personnel directly engaged in the work, their work mates and other nearby persons
 - The safety of near-by-plant and equipment. Depending on GPL requirements, hot work permits will be required when hot work is to be conducted in hazardous condition.
 - Suitable fire safety arrangements shall be in place e.g. fire watch, adequate extinguisher and sand buckets.
 - Screens or barricades to protect other employees from arc flashes.
 - Adequate PPE for the welders and their helpers including face shields, gloves, sprats, sleeve and aprons.
 - Suitable and sufficient means of ventilation shall be provided for welders and where this is not practicable, frequent breaks should be allowed.

13.14

Ladders

Any person using a ladder shall inspect it prior to use.

- Any ladder with damaged rails, rungs or joints shall be removed from site. All ladders shall have non-skid feet.
- Ladders shall only be used on a stable base and the areas at the top and bottom of the ladder kept clear of obstructions
- Extension ladders shall be placed against walls with a height to base ratio of approximately 4:1, and secured at the top, and reach at least 1 meter above the point to be accessed.
- Only Platform ladders may be used to work from provided they are fully enclosed

RECEIVED BY:.....

NAME OF CONTRACTOR:.....

CONTRACT NAME AND NO.:.....

DATE:.....

Form

Form

QUALIFICATION INFORMATION

1. For individual bidders or individual members of a partnership

1.1 Constitution and legal status of Bidder (*attach copy*).

License No. and its validity period to execute the Works: _____ (attach copy)

Place of registration: _____

Principal kind of business: _____

Power of Attorney issued to signatory of the Bid: (*attach*).

1.2 Total volume of the Works executed for the last (2) two years in GYD:

1.3 Experience as a prime Contractor during the last two years. The value is indicated in GYD.

No.	Project name and location	Name of Purchasers and their telephone numbers	Items of Works and Year of Completion	Value of Contract

1.4 The availability of the following items of equipment to the Contractor is of substantial importance for the Works. The Bidder must respond to all request listed below:

Item equipment of	Model and year of production	Number of available items	Condition (new, good, poor)	Owned, rented (from whom?) to be purchased (from whom?)

1.5 Qualifications and experience of employees proposed for the key administrative and line positions in order to execute the Contract.

Position	Full Name	Years of experience	Years of experience at similar position
Manager			

Foreman			
Quality Inspector			

1.6 Main subcontractors (when required)

Nature of Works	Value of Subcontract	Subcontractor (name, address, telephone number)	Years of experience in carrying out similar works

1.7 Presence of tax debts, of payments to Social Fund (reply and attach supporting documents).

1.8 Information on current litigation (and recent – within past 2 years) in which the Bidder involved.

Other party (ies)	Cause of dispute	Disputed amounts

1.9 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List below and attach copies of support documents.

1.10 Equipment availability must be supported by proof of ownership and or letter of commitment to lease.

2 For a partnership (syndicate)

2.1 Information specified in 1.1—1.8 shall be provided for each partner of the partnership (syndicate).

2.2 Information given 1.9 shall be provided by the partnership (syndicate).

2.3 Attach the power of attorney of the signatory (ies) of the Bid authorizing him or them to sign the bid on behalf of the partnership (syndicate).

2.4 Attach the Agreement between the partners of the partnership (syndicate) (to be binding on all partners) which shows that:

- (a) all partners shall be jointly or severally liable for execution of the Contract in accordance with the Contract conditions;
- (b) one of the partners shall be nominated as being in charge authorized to incur liabilities, and receive instructions on behalf of any or all partners of the partnership (syndicate); and
- (c) the execution of the entire Contract, including payment shall be done exclusively by the partner in charge.

I certify the authenticity of all the above information.

_____ (Full Name) _____ (Position) _____ (Signature and Seal)

Dated on « _____ » day of _____ 200_.

Form

CONTRACTOR'S BID

Date:
IFB No:

TO: _____

(Name and address of Employer)

Having examined the bidding documents including Annexes and Addenda No _____ *[specify numbers]*, the receipt of which is hereby acknowledged, we offer to execute _____ *[description of works]* in accordance with the Contract conditions attached herein for the total amount of _____ GYD *[the Total Amount of Bid in Words and Figures]*.

Alternative bids (at the Employer's request):

Also we offer to execute the works pursuant to alternative bids for the amount of _____ GYD,

(add or reduce to basic bid price)

and we declare that:

- (a) We, including all subcontractors, regarding any part of the Contract, in accordance with these bidding documents, have no conflict of interests pursuant to sub-clause 3 (i) of the Instruction to Bidders;
- (b) We, including all subcontractors, regarding any part of the Contract, in accordance with these bidding documents, have not been declared by the [National Procurement and Tender Administration] to be ineligible, or are not ineligible pursuant to laws of Guyana.

If our Bid is accepted, we shall furnish the Performance Security for the amount of _____ in order to execute the Contract properly and within the dates specified in the bidding documents.

If our bid is accepted we request advance payment in the amount of [...] thousand GYD for proper performance of the contract. From our part, we undertake to furnish a bank guarantee for the advance payment in the above amount.

We hereby confirm that this bid shall be valid within _____ days of the date established from the bid opening date, and it shall remain binding on before the expiry of indicated period.

Prior to preparation and execution of a formal Contract, this Bid together with your written confirmation of its acceptance shall be equivalent to conclusion of a Contract to be binding upon both parties.

We understand that you are not required to accept the lowest or any bid you receive.

Dated the _____ day of _____ 200__.

Duly authorized to sign the Bid for and on behalf of _____ *(name of Contractor)*

(FULL NAME))

(Title)

(Signature and Seal)

Form

**PUBLIC PROCUREMENT CONTRACT FOR WORKS
BETWEEN THE EMPLOYER AND CONTRACTOR**

CONTRACT

This Contract made the _____ day of _____ two thousand and _____
(date) (month)

BETWEEN the Employer (name and address of organization)

_____ and the Contractor (name and address of organization)

_____ for execution of the Works (name and location of Works)

In view of that the Employer wishes to have the Contractor execute _____
(name of contract)

(hereinafter called the Works) and the Employer has accepted the Contractor' Bid for the execution and completion of the Works, and for correction of any defects therein.

THIS CONTRACT WITNESSES the following:

1. The words and expressions in this Contract have the same meanings as they do in the General Conditions of Contract.
2. Below listed documents shall form this Contract and shall be deemed the integral part of it, namely:
 1. Contract,
 2. Letter of Acceptance,
 3. Contractor's Bid,
 4. Special Conditions of Contract,
 5. General Conditions of Contract,
 6. Technical Specifications,
 7. Drawings,
 8. Priced Bill of Quantities, and priced Consumable Materials ; and,
 9. Other documents included in the Contract Documents:

_____ (specify additional documents which the Purchaser is intended to included in the Contract Documents according to the General Conditions of Contract)

3. Taking into account the payments to be made by the Employer to the Contractor in accordance with the above-stated, the Contractor shall enter into the Contract with the Purchaser to execute and complete the Works, and to correct any defect therein in full accordance with conditions of the Contract.

4. The Purchaser shall pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects wherein 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.

EMPLOYER

(signature and seal)

(name, last name, title)

CONTRACTOR

(signature and seal)

(name, last name, title)

Contract No:	Dated:
Purchaser(name of organization):	
Contractor(name of organization):	
Amount of Work order GYD:	
Agreed(signature of the person agreed with Work order):	
Date of agreement:	

WORK ORDER No. _____

(to be made up by the Purchaser for any change against decrease or increase of items of works)

No	Name of item and consumable materials	Unit	Quantity	Unit price in Bill of Quantities	Unit price offered	Value of change	Contractual value	Amount of increase (+) decrease (-)
I	Use of unit prices							
II	Consumable materials							

Signature of Contractor _____

Signature of Engineer _____

SETTLEMENT

payable contract No. _____ dated _____ 201_____

(in GYD)

No.	Types of settlement	Amount
1	Initial Contract Price	
2	Total amount of Work orders	
3	Total Contract Price - total	
4	Works done for the previous period	
5	Works done for the last month	
6	Works done for the previous period according to Work orders	
7	Works done for the last month according to Work orders	
8	Works done from the Start Date – total	
9	Advance payment made	
10	Advance payments retained for repayment for the previous period	
11	Advance payments to be retained for repayment for the last month	
12	10% retained from the volumes of works done for the previous period	
13	10% to be retained from the volumes of works for the last month	
14	Other retention	
15	Total to be retained	
16	Total to be paid	
17	The remaining amount by the Completion Date	

The Employer

_____ Seal

(signature, full name, title)

the Contractor

_____ Seal

(signature, full name, title)

Form

Bid Security **(Bank guarantee)**

Whereas _____ [*name of Bidder*] (hereinafter called "the Bidder") is ready to submit his bid dated [*date of bid submission*] for the execution of [*description of works*] (hereinafter called "the Bid"),

KNOW ALL PEOPLE that WE _____ [*name of bank*] from _____ [*name of country*] having our registered office at the address _____ [*address of bank*], (hereinafter called "the Bank"), are bound to _____ [*name of Employer*] (hereinafter called "the Employer") for the amount of _____ by which the payment shall be made in whole and on time to the indicated Purchaser; and the Bank is bound with these obligations on behalf of its name, its successors and authorized. This is to confirm that the license issued to the Bank shall provide for activity on issuance of the security, and the person (s) signing this security is entitled to act on behalf of the Bank, and if the approval of Board of Directors, or of General Stockholders Meeting is required, then it is already received, and there is no other approval required.

THE CONDITIONS of this obligation are as follows:

1. If the Bidder:
 - (a) withdraws his Bid during the period of bid validity specified by the Bidder in the Form of Bid; or
 - (b) rejects the adjustment of bid price pursuant to Clause 27.
2. If the Bidder, having received a notice of that his Bid is accepted by the Employer, during the validity period of that bid:
 - (a) fails or rejects to sign the Contract, at the request; or
 - (b) fails or rejects to furnish the Performance Security in accordance with the Instructions to Bidders;

We undertake to pay the Employer the above sum upon receipt of his first written request, without needing the Employer to show grounds or reasons of that request, provided that the sum requested by the Purchaser is due to him because of the occurrence of one or both conditions, specifying the condition (s) occurred.

This security shall remain valid during _____ days inclusive following the expiry of the Bid validity period, and any request in respect thereof should reach the Bank not later than the above date.

(Full name of Bank's representative) (Title) (Signature and seal)
Dated on ____ day of _____ 201__.

Address of the Bank issued the guarantee: _____

Form

Performance Security

(Bank guarantee)

TO: _____

[Name of v]

WHEREAS _____ *[name of Contractor]*
(hereinafter called "the Contractor") has undertaken in pursuance of the Contract N *[Contract number]* dated _____ 200 ____ to execute the Works *[description of works]* (hereinafter called "the Contract"),

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish You with a bank guarantee by a reputable bank for the sum specified therein as a security for compliance with the Contractor's obligations under the Contract;

AND WHEREAS we have agreed to furnish the Employer with a security,

THEREFORE WE hereby confirm that we are the Guarantors and are responsible to you on behalf of the Contractor up to a total of _____ *[Amount of Security in words and figures]* and, we undertake to pay You on your first request notifying of the Contractor's default with the Contract, and without cavil or argument, any sum or sums within the above limits, and as aforesaid, without your needing to show grounds or reasons of your request or the sum specified therein.

Any modification or addition, or amendment in the terms of Contract which may be made by the Employer and the Contractor by Additional Agreement shall in no way release us from obligations under the Guarantee, and we waive any notice of modification, addition, or amendment. This guarantee shall be valid until full completion by the Contractor of the Contract Conditions. Also, we confirm that the license issued to the Bank shall provide for activity on issuance of a bank guarantee, and the person signing the guarantee is entitled to act on behalf of the Bank, and if the approval of Board of Directors or of General Stockholders Meeting is required, then it is already received, and there is no other approval required.

This guarantee shall expire no later than twenty-eight days from the date of issuance of the Taking-Over Certificate, which shall be provided to us, or on the *[insert number day of [insert month], [insert year]*, whichever occurs first. Consequently, any demand for payment under this guarantee must be received by us at this office before that date.

(Full name of Bank's representative)

(Title)

(Signature and seal)

Dated on _____ day of _____ 200__.

Address of the Bank issued the guarantee: _____

Form

Bank Guarantee for Advance Payment

TO _____
[Name Employer]
[Name of Contract] _____

We, _____ [name of Bank] in accordance with the conditions of Contract which provide for advance payment (*name and address of the Contractor*), and whereas the Contractor has undertaken to provide you a Bank guarantee for advance payment to the Employer.

THEREFORE WE hereby affirm that we are the Guarantors, and are responsible to you on behalf of the Contractor to a total sum _____ GYD (*amount of guarantee in figures and words*), and we undertake to pay you on you first request and without objection on our part, and without the preliminary address to the Contractor, any sum or sums within the above limits.

We also agree that no alteration or addition in the terms of Contract which is subject to implementation, or any other contract documents which may be made by the Purchaser and the Contractor shall release us from obligations under the guarantee, and we hereby waive any notice of such alteration, or addition. We confirm that the license issued to the Bank shall provide for activity on issuance of a bank guarantee, and the person signing the guarantee is entitled to act on behalf of the Bank, and if the approval of Board of Directors or of General Stockholders Meeting is required, then it is already received, and there is no other approval required.

This guarantee shall be valid and remain in force from the date of advance payment received by the Contractor under the Contract, and until the date when the Employer receives a full compensation of the relevant amount of Advance Payment.

The Advance Payment referred to above must be received by the Contractor in its account number _____ [insert account number] at _____ [insert name and address of 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 _____ [insert date], whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

(Full name of Bank's representative)

(Title)

(Signature and seal)

Dated on _____ day of _____ 201__.

Address of the Bank issued the guarantee: _____

Form

Letter of Acceptance

(letterhead paper of Employer)

_____ (date)

To: _____
(Name of Contractor)

(Address of Contractor)

This is to notify you that your bid dated the _____ day of _____ 201__, for the execution of _____ (description of works) to the total sum of

(Amount in Figures and Words)

as amended and modified in accordance with the Instructions to Bidders is hereby accepted by our organization.

At the same time, we are sending you the Form of Contract and requesting you, in accordance with Clause 32.2 of the Instruction to Bidders, during 7 (seven) days to sign and date the Form of Contract, and return it at our address. Along with the signed Contract, we request you to furnish us, pursuant to ITB Clause 33, with the Performance Security.

You hereby instructed to start the Works pursuant to the Contract conditions.

Name of organization _____

Full name and Title _____

Signature of Authorized Representative _____

Annex: the Contract

**Form
Power of attorney**

TO: *[name of Employer]*

WHEREAS _____ *[name of Contractor]*, who is the Contractor for the execution of Works *[description of works]*.

do hereby authorize _____ *[name and address of Contractor's Representative]* to submit the Bid, and subsequently negotiate with you, and sign the Contract based on the *Invitation for Bids* which we hereby extend our full guarantees for the execution of Works based the *Invitation for Bids*.

[Full name, title, signature for and on behalf of Contractor]

Dated on _____ day of _____ 200____.

(date)

(seal)

Note: The power of attorney must be drafted on a letterhead paper of the Contractor, and signed by a competent person authorized by the Contractor. The Bidder shall include the power of attorney in its Bid.

EVALUATION CRITERIA FOR WORKS

No.	DESCRIPTION
1.	Submission of a valid business registration or certificate of incorporation that is clearly legible . For incorporated companies the names of the directors must be submitted .
2.	Submission of a valid NIS compliance certificate in the name of the business as per business registration or certificate of incorporation. Document must be clearly legible .
3.	Submission of a valid GRA compliance certificate in the name of the business as per business registration. Document must be clearly legible .
4.	Completed and signed contractors bid form (40).
5.	Completed priced bill of quantities. BOQ must be stamped and signed on the summary page (32-37).
6.	Completed and Signed bid securing declaration form (45)
7.	Demonstrate general construction experience for the past 5 years by providing a list of verifiable completed projects to a total minimum value of (GYD \$80,000,000). The value of the project, year completed, and clients' names and contact numbers must be provided .
8.	Demonstrate specific construction experience by providing copies of contracts with previous clients that show the bidder has completed 3 job(s) of similar nature, size and complexity of a minimum value of (GYD 20,000,000,00) within the past (3 years) .
9.	(a) Evidence of financial capacity representing (<i>insert percentage</i>) of the bid price. Bidder must provide a bank statement or letter of credit from a bank . The document must be dated within one month of the bid opening date and be clearly legible . When a photocopy is presented, it must be certified a 'true copy of original' by the issuing company. OR (b) bidder must provide a letter of credit form a reputable supplier relative to the project. The Letter must be an ORIGINAL COPY and must state an amount to the required value or above. The document must be dated within one month of the bid opening date and be clearly legible .
10.	Written confirmation of authorizing signatory must be provided. For the incorporated company this must be in the form of a Power of Attorney endorsed by a Commissioner of Oaths or Justice of Peace .

	<p>For a registered business that has appointed an employee to sign the bid, a letter of authorizing signatory must be provided.</p> <p>Whereas registered business has more than one (1) principal all principals must sign the document of written confirmation of authorizing signatory.</p>									
11.	<p>The Bidder shall provide accurate information on the related bidding form as provided about any litigation or arbitration resulting from contracts completed or on-going under its execution over the last five years.</p> <p><u>Pending Litigation</u>: All pending litigation shall in total not represent more 5 % of the Bidder's net worth and shall be treated as resolved against the bidder</p> <p><u>Litigation History</u>: Non-performance of a contract did not occur as result of suppliers default since 1st January,2021.</p>									
12.	<p>Bidder must provide a letter stating all ongoing projects. The letter must be dated within one month of the bid opening date and include the name of the contract, year of commencement, name of client, value of project, and completion percentage.</p>									
13.	<p>Where a bidder has ongoing projects, the bidder must demonstrate that he has the financial, human resource and equipment capability to undertake the current project in addition to ongoing engagements. <i>(see table attached)</i></p>									
14.	<p>Bidder must provide a letter stating any or no terminated or abandonment of projects. The letter must be dated within one month of the bid opening date.</p>									
15.	<p>Ownership of key equipment - the bidder must provide evidence to show that the following key equipment are available for the project:</p> <table border="1" data-bbox="365 1318 1356 1491"> <thead> <tr> <th>Item No.</th> <th>Description of Key Equipment Required</th> <th>Number of Key Equipment Required</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>22 RB Dragline</td> <td>1</td> </tr> <tr> <td>2.</td> <td>Pile Driving Equipment</td> <td>1</td> </tr> </tbody> </table> <p>Ownership can be demonstrated by providing the licenses, purchase documents, registrations, agreement to lease or rent, and/or affidavit of ownership.</p> <p>An agreement to lease or rent must be dated within one month of the bid opening.</p> <p>Affidavit of ownership must be duly signed by a commissioner of oaths or justice of peace and the list of equipment must be endorsed by same if is it supplied as an attachment to the affidavit.</p>	Item No.	Description of Key Equipment Required	Number of Key Equipment Required	1.	22 RB Dragline	1	2.	Pile Driving Equipment	1
Item No.	Description of Key Equipment Required	Number of Key Equipment Required								
1.	22 RB Dragline	1								
2.	Pile Driving Equipment	1								

Note: Key equipment cannot include 'assorted tools'. Key equipment must be the major equipment that are vital to the execution of the project.

16. Provision of qualification and experience of key personnel - the **bidder must appoint an individual to fill the positions and provide detailed curriculum vitae** for the following key personnel:

Position of Key Personnel	Required qualification and experience
Engineer	At least 5 years' experience
Foreman	At least 5 years' experience

All appointed individuals **must sign a letter consenting** to the use of his/her CV by the bidder. Letters must be **dated within one month** of bid opening.

Note: The type of qualification and years of experience should be equated where possible, for example: Master's Degree plus two years post qualification experience OR Bachelor's Degree plus 5 years post qualification experience. If a key personnel position requires certified licenses or training this must also be stated.

17. Bidder must submit a **detailed work programme and/or method of statement** that is in **keeping with the scope of works** detailed in the bill of quantities. Evaluation of work programmes/method statements will take into consideration whether, inter alia, the following are included:

1. Title Page - "Work Programme", "Work Method Statement"
2. Company details: name, logo, address.
3. Brief description of works, tasks, processes.
4. Sequence of work- step by step safe work sequence of the work.
5. Supervisory arrangements.
6. References to Occupational Health and Safety Standards.
7. Schedule of Plant - list of plant and tools.
8. Schedule of personal protective equipment- list should state all PPE required.
9. Schedule of arrangements for demarcation e.g. barrier fencing, trench protection etc.

	<p>10. Controls for the safety of third parties - the public, signage, security.</p> <p>11. Are the high risks or safety critical phases identified with controls specified. A risk assessment should be provided for all works.</p> <p>12. Emergency procedures- system to be implemented with responsible agencies, contact with emergency services, and would often include general site emergency procedures for fire, accident etc.</p>
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Note:

Bids which do not comply with the mandatory requirements will NOT be considered for detailed Evaluation.

Bid that passes the mandatory requirements will be evaluated in detailed with points awarded as follows. The Bid that attracts the most points will be recommended.

Phase 2 of Evaluation – Detailed Evaluation Criteria

Category	Criteria	Max Points	Evaluation Formula
Cost	The Bid that offers the lowest cost shall be considered as the best option.	100	Lowest Bid Price / Bid Price*100
Total	Accumulated	100	

NOTES ON EVALUATION

- (a) The Contract would be awarded to the Bidder whose bid is determined to be substantially responsive to the Bid Document and who has offered the lowest evaluated Bid Price.

A penalty of immediate rejection of a bid or termination of contract will be applied upon discovery of misrepresentation of information

A penalty of 0.5% of the value for every completed calendar day that the work exceeds the promised delivery time, to a maximum of 5% of the value of the contract.

Law of Guyana: Procurement Act 2003

Section 39 – Subsection 6 (b)

- (a) The procuring entity may grant a margin of preference not exceeding ten percent to tenders submitted by domestic contractors or for the benefit of tenders for domestically produced goods, provided that such preference is specified in the tender documents. If the lowest evaluated tender was submitted by a foreign tenderer, the evaluating committee will apply the margin of preference, the lowest evaluated tender was submitted by a domestic tenderer, such tenderer shall be awarded the contract. Otherwise, the foreign tenderer who has submitted the lowest evaluated tender shall be awarded the contract.



Risk Assessment Form

Subject/Area:.....
 Type of Work/Location

Date of Risk Assessment.....
 YY/MM/DD

	What are the hazards?	What are you already doing?	What further action is necessary?	Action by who?	Action by when?	Done

.....
GPL Personnel

.....
Contractor

