GUYANA SHORE BASE INCORPORATED

REQUEST FOR PROPOSALS

DESIGN-BUILD SERVICES FOR EXTENSION OF SBM OPERATIONS WAREHOUSE

GUYANA SHORE BASE INC
Plantation A, Houston District,
Greater Georgetown, Guyana
www.gysbi.gy

LETTER OF INVITATION

GUYANA SHORE BASE INCORPORATED – DESIGN AND BUILD SERVICES FOR THE EXTENSION OF SBM OPERATIONS WAREHOUSE, MAIN BASE

February 18, 2025

Dear Sir / Madam,

Re: Request for Proposals for Design and Build Services for the Extension of SBM Operations Warehouse, Main Base.

1. Guyana Shore Base Incorporated is embarking on a project to increase warehouse storage to one of its facilities on the Main Base.

2. A design and build contract is being launched for the Extension of SBM Operations Warehouse at Guyana Shore Base Inc.

3. Given the, Guyana Shore Base Inc. now invites proposals to provide the following services: **Design and Build of Extension of SBM Operations Warehouse.** More details on the services are provided in Annex A - Employer's Requirements.

4. This Request for Proposal (RFP) is being advertised on the Centre of Local Business Development Portal.

5. A firm will be selected under Quality and Cost Based Selection and procedures described in this simplified RFP.

6. The RFP includes the following documents:

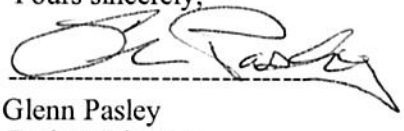
   Section 1 - Letter of Invitation

   Section 2 – Modified Standard Contract and Instructions to Contractor:

   a. ANNEX A – Employer's Requirements
   b. ANNEX B – Bid Data Sheet/ Evaluation Criteria/ Particular Conditions of Contract
   c. ANNEX C – Technical & Financial Proposal - Standard Forms
   d. ANNEX D – FIDIC GCC (Yellow Book)
   e. ANNEX E - Drawings
   f. ANNEX F – QHSSE Policy Package

7. Please inform us at the email address: **tenders@gysbi.com**

Yours sincerely,



Glenn Pasley
Project Director
Guyana Shore Base Incorporated

SECTION 2

MODIFIED CONTRACT FOR CONSULTING SERVICES & CONSTRUCTION LUMP-SUM PAYMENTS CONTRACT

THIS CONTRACT ("Contract") is entered into this (date) **……** by and between **GUYANA SHORE BASE INC** ("the Employer") a Company incorporated under the Laws of Guyana and whose registered office is situate at **Houston, East Bank Demerara, Guyana,** and **……...……** *("the Consultant/Contractor")*, located at**,** **……**

WHEREAS, the Employer wishes to have a Consultant/Contractor perform the services hereinafter
referred to; Design and Build Services for the Extension of the SBM Operations Warehouse, Main Base.

WHEREAS, the Consultant/Contractor is willing to perform these services;

NOW THEREFORE THE PARTIES hereby agree as follows:

1. Services

The Contractor shall perform the services specified in Annex A, "Employer's Requirements," which is made an integral part of this Contract ("the Services").

The Contractor shall provide the personnel listed in Annex A, "Key Personnel Requirements," to perform the Services.

The Contractor shall submit to the Employer the reports in the form and within the time periods specified in the Annex A – Project Timetable.

2. Term

The Contractor shall perform the services commencing April 16, 2025, to December 20, 2025, or any other period as may be subsequently agreed by the parties in writing. This contract shall represent a period of two hundred and forty-nine (249) days, with the possibility of extending the contract.

3. Payment

For services rendered pursuant to Annex A - TOR, the Employer shall pay the Contractor agreed sum for the design and build works. This sum is based on the cost breakdown indicated in the TOR and is VAT exclusive.

This amount has been established based on the understanding that it includes all the Contractor costs and profits as well as all tax obligations, except VAT, that maybe imposed on the Company.

A. Schedule of Payments

Design

Payments to the Company shall be made in according to that laid out in project timetable of Annex A:

a. 2.5% Preliminary Assessment Report
b. 5% Draft Design Report
c. 2.5% Final Design Report

Construction

Payments to the Consultant/Contractor shall be made in according to that laid out in project timetable of Annex A:

a. 65% Construction Phase
b. 10% at the end of the Defects Liability Period.

The remaining 15% shall be made on the Mobilization Advance.

B. Payment Conditions

Payment shall be made in Guyana dollars and be subject to the following conditions:

a. Payments for design and build services shall be made in tranches based on deliverables outlined in the project timetable.
b. Payments shall be made within thirty (30) days of receipt and approval of invoices by the Employer.

4. Project Administration

a. Coordinator

The Employer will hold the main responsibility for the administration of this contract. The Employer will be responsible for the coordination of activities, for acceptance and approval of the designs and build works as well as other deliverables and for receiving and approving invoices for payment.

b. Reports.

The reports listed herein shall be submitted within the course of the project as outlined in the relevant section(s) of Annex A.

5. Retention

The Employer shall retain from each payment a portion of the funds in the sum of 10% of the contract sum pending completion of the assignment and on acceptance of the final report (if required).

6. Liquidated Damages

Any delay on the part of the Consultant/Contractor in completing the assignment/service within the stipulated period will render him liable to pay liquidated damages as follows:

a. 1% of the Contract Sum per day or 4% of the Contract Sum per week

b. A maximum of 15 % of contract price

Thereafter, the Employer has the right to cancel the contract and demand all forms of damages.

7. Mobilization Advance

The Employer shall make advance payment to the Consultant/Contractor in the amount of 15% upon the submission of a Mobilization Bond.

8. Performance Bond

The Performance Bond shall be 10 % of the Bid Sum and shall be submitted within 7 days of the issue of Contract signing to the Employer.

9. Defects Liability

The Employer will hold the Consultant/Contractor liable for their design for a period of no less than 365 days after completion. The form of compensation to be based on the extent of defects.

10. Performance Standards

The Contractor undertakes to perform the Services with the highest standards of professional and ethical competence and integrity. The Contractor shall promptly replace any employees assigned under this Contract that the Employer considers unsatisfactory.

11. Confidentiality

The Contractor shall not, during the term of this Contract and within two years after its expiration, disclose any proprietary or confidential information relating to the Services, this Contract or the Employer's business or operations without the prior written consent of the Employer.

12. Ownership of Material

Any studies, reports, or other material, graphic, software or otherwise, prepared by the Consultant/Contractor for the Employer under the Contract shall belong to and remain the property of the Employer. The Consultant/Contractor may retain a copy of such documents and software.

13. Contractor Not to be Engaged in Certain Activities

The Contractor agrees that, during the term of this Contract and after its termination, the Contractor and any entity affiliated with the Contractor, shall be disqualified from providing goods, works or services (other than the Services and any continuation thereof) for any project resulting from or closely related to the Services.

14. Insurance

The Consultant/Contractor will be responsible for taking out any appropriate insurance coverage for his staff, the public and equipment. At a minimum, the following insurances:

a. Contractor's All Risk – Coverage to the value of the Contract Sum

b. Employer's Liability – Coverage $ 11,000,000

c. Third Party - Coverage $ 11,000,000

15. Assignment

The Contractor shall not assign this Contract or subcontract any portion of it without the Employer's prior written approval.

16. Law Governing Contract and Language

The Contract shall be governed by the laws of Guyana and the language of the Contract shall be English.

17. Termination of Contract

The Employer or Contractor shall terminate the contract without prejudice with a minimum notice of 7 days prior to the date of termination.

18. Dispute Resolution

An amicable resolution shall be sought for any dispute arising out of or in connection with the Contract. In case where an amicable solution cannot be met, then the conflicting parties shall have an independent arbitrator from the Guyana Association of Professional Engineers (GAPE) to arbitrate on the matter. The arbitrator's pronouncement shall be binding upon the conflicting parties.

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be signed in their respective names as of the day and year first above written.

FOR THE EMPLOYER	**FOR THE CONSULTANT/CONTRACTOR**
Signed by: ……	Signed by: ……
Title: ……..	Title: ……

In witness thereof:

(1) ……

(2) ……

ANNEX A – EMPLOYER'S REQUIREMENTS

Design and Build of the Extension of SBM Operations Warehouse.

1. Introduction

This document invites Proposals according to the requirements set forth in this RFP, including the format and content guidelines in Annex B – Data Sheet and Selection Criteria document. The Proposals will be reviewed and evaluated using the selection process described in Annex B.

As Guyana Shore Base Incorporated (GYSBI) operations continue to increase in the fast-growing oil and gas industry, so does the need for warehousing storage facilities. The existing warehouse is inadequate for the existing warehousing operation demands prompting GYSBI to increase enclosed operational area.

This expansion project focuses on covering and enclosing an approximate area of 14,410 square feet (Figure 1) at the southwestern end of the existing SBM Operations Warehouse located at the Main Base, GYSBI.

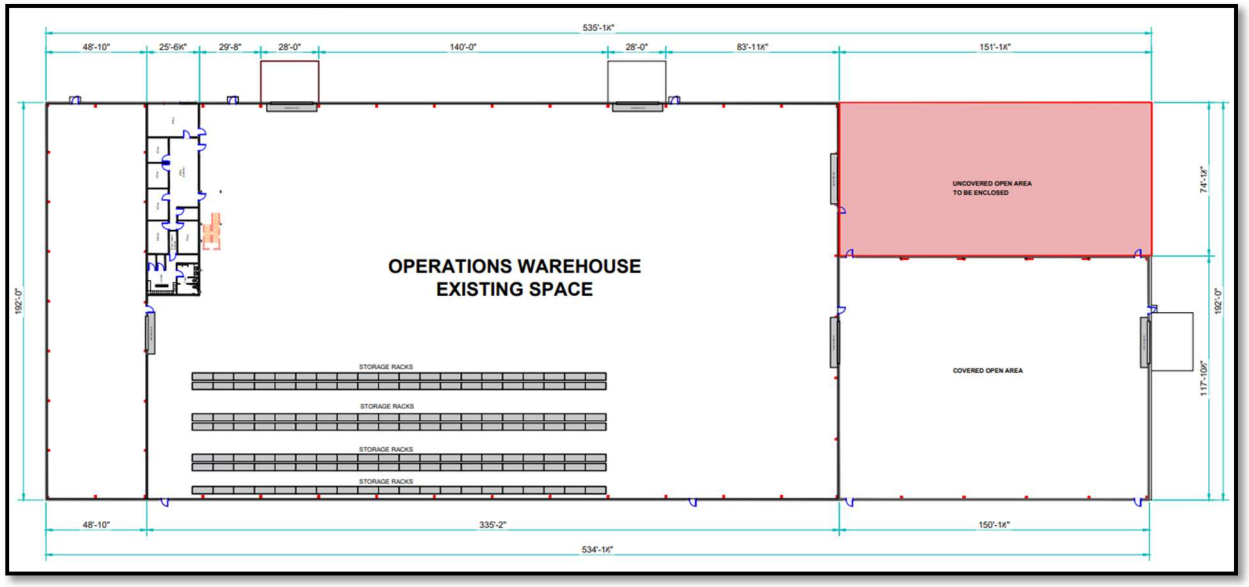


Figure 1: Proposed Warehouse Extension (in red).

Figure 2: External concept of the warehouse extension.

Figure 3: Internal concept of the warehouse extension

This project is to be designed and built by the Contractor using the Fixed Price Design and Build delivery method. The project scope includes engineering and design services, permitting, procurement, supply, installation, construction, operations, and maintenance (O&M) manual preparation, and start-up and commissioning services for the extended new facility. The project scope and design standards are described herein and further in the Employer's Requirements.

Proposals shall contain all information required in this RFP and will be evaluated by a selection committee chosen by GYSBI. At the completion of the evaluation process, GYSBI will select the Consultant/Contractor to enter into negotiations for award of a Firm Fixed Price, Design and Build

Contract. Criteria for evaluations are contained in Annex B of this RFP. All Proposals will be held in confidence until award. At the discretion of GYSBI, interviews may be requested.

GYSBI reserves the right to reject any or all Proposals, to waive irregularities and informalities and to contact Consultant/Contractor as needed.

Consultant/Contractor are prohibited from lobbying, individually or collectively, any GYSBI employee, and any GYSBI contracted consultant or technical advisor regarding this solicitation. Any Consultant/Contractor who violates this requirement shall be immediately disqualified and their proposal removed from the evaluation process.

GYSBI is an equal employment opportunity employer. GYSBI endeavors to do business with firms sharing GYSBI commitment to equal opportunity and will not do business with any firm that discriminates based on race, religion, color, ancestry, age, gender, sexual orientation, disability, medical condition, or place of birth.

GYSBI's Project Director is Mr. Glenn Pasley. The Project Director will be part of the selection committee in managing the RFP process including evaluating Proposals, and in negotiating the Agreement between GYSBI and Contractor. Any questions concerning this RFP shall be directed to Glenn Pasley, Project Director, Email: **tenders@gysbi.com**. All questions must be submitted by the close of business (5:00 p.m. Local Time). GYSBI will acknowledge receipt of all questions but reserves the right to not respond at its sole discretion. Questions deemed appropriate for response will be distributed along with their respective responses to all Interested Contractors and the questioning Interested Contractor will not be identified. Questions from Interested Contractors shall not be directed to parties other than those listed herein.

Any oral interpretation, instruction, or information concerning this RFP given by any employee or representatives of GYSBI shall not be binding to the Employer. Interested Contractors who submit a Proposal in reliance on any such oral information risks having their response to this RFP deemed non-compliant by the Employer. The Proposed Contractor may only rely on written response by addendum to this RFP.

Copies of this RFP will be issued by GYSBI Procurement Department at no fees. All RFP documents will be available via electronic media. This RFP is subject to revision after the date of issuance via written electronic addenda. Any such addenda will be issued to all Proposed Contractors. It is each Interested Contractor's responsibility to obtain all RFP addenda prior to submitting a Proposal and to acknowledge receipt of the addenda in their Cost Proposal. Under no circumstances will the Employer be liable for any costs incurred by any Interested Contractor or any other party in developing, preparing, or submitting a Proposal in response to this RFP.

Proposals shall be valid for a minimum of 90 consecutive calendar days.

If any ambiguity, conflict, discrepancy or errors in content or statements are discovered between the RFP sections and attachments, it is the responsibility of the Interested Contractor to bring these to the attention of the Project Director via email a minimum of seven (7) days prior to the deadline for submission of questions.

2. Project Description

- The name of this project shall be **"Design-Building Services for the Extension of the SBM Operations Warehouse."**
- It is located within the Main Base, GYSBI, Plantation A Houston, East Bank Demerara.
- The project entails the enclosure of the open area, approximately 14,410 sqf., at the southwestern end to allow for a completely rectangular shaped building as opposed to the existing L-shaped building.

3. Objectives

3.1. Specific Objectives

- The general objective of the project is to establish consistent and satisfactory Design-Building Services for the Extension of the SBM Operations Warehouse that complies with IBC 2015.
- Provide roof coverage and enclosure to the southwestern section of the existing warehouse that meets the requirements in this RFP.

4. Scope of Works

4.1. General Scope of Works

Design

1. The scope of the Design and Build Contractor's work shall include the preparation of building plan schemes, design drawings and construction work for the Design-Building Services for the Extension of the SBM Operations Warehouse.
2. The extension shall be guided by the existing building drawings (attached).
3. The design shall consider the reuse of materials as far as possible.
4. Materials, fixtures, devices etc. shall conform with existing unless specified otherwise.
5. The Contractor shall be responsible for all surveying works relating to design and construction of the project.
6. Design and build all associated civil / structural, architectural, MEPF, and stormwater systems.

7. All other design and build work and services necessary or as defined in the contract needed to obtain a fully functional warehouse extension.
8. Develop and implement QHSSE plans in accordance with the Employer's requirements.

In general, the Design component shall include, but not limited to, completed:

1. Architectural Plans
2. Civil/Structural Design and Drawings
3. Stormwater Design and Drawings
4. Mechanical, Electrical, Plumbing and Fire Design and Drawings
5. Project Scope of Works
6. Technical Specifications; which shall incorporate the Specifications outlined in the Employer's Requirements.
7. Bill of Quantities
8. Detailed Pricing
9. Project Implementation Schedule (level 4).

4.2. Specific Scope of Work

1) Site Works

- The area shall be graded such that the finished floor level will be 8 inches above the highest exterior grade at the building line.

2) Structural Frame

- All primary framings are to be structural steel with protective coatings and all secondary framing; purlins, braces and girts are to be galvanized.
- The main building columns are to be adequately protected (where required) from impact damage from motorized vehicles such as forklifts or trucks.
- The primary frame and associated secondary members shall consider solar panel loading of 7psf.

3) Foundation

- The foundation shall be designed to safely accommodate the relevant anticipated loads while minimizing settlement noting that the existing structure would have already undergone majority if not all its settlement.

- A shallow foundation, similar to that of the existing building shall be considered unless it is absolutely necessary to vary.
- Requisite ground investigation and testing shall be conducted to obtain engineering parameters for foundation design.

4) Floor

- It is expected that sections of the existing floor will be removed to facilitate the construction of the foundation. The surface of the reinstated floor slab shall contain a floor hardener and dustless top dressing dyed gray with two coats of a concrete densifier shall be applied. A final sacrificial layer of sealer shall be applied to minimize dust and protect from stains.
- The finish elevation of the floor shall coincide with that of the existing warehouse floor.
- At locations where floor drains are to be infilled, the finished level shall be that of the floor with similar finish and strength properties.
- Where needed, concrete joints shall be of pre-molded vinyl or asphalt strips, 12mm (1/2 in.) thick are to be provided between abutting surfaces of slab edges.
- Upon relocation of the western wall in "Walls and Roof" section, the floor area beneath the wall shall be made level with the floor.

5) Wall Cladding and Roof

- The enclosing walls and roof are to be made of metal sheets, galvalume, pre-painted. The thickness of the walls and roof shall be such that deflection remains within tolerable limits when subjected to design loading.
- The roof and walls shall incorporate a thermal insulating barrier.
- The wall cladding shall match the existing in profile, and colour with samples and specifications to be submitted to the Engineer for prior approval.
- Flashing/ end treatments shall be provided to prevent stormwater intrusion.
- The existing western wall shall be relocated from its current position to the western limit of the extended building. The wall relocation shall also consider the section of the western wall under the covered area.

6) Windows

- The building will have 3' x 6' windows positioned in the center of each building frame, near to the eave, allowing natural daylight to enter the warehouse building. Windowpanes are to be tinted or alternatively, a clear UV protective film shall be applied.

7) Doors

- No additional doors are expected.
- For the relocation of the western wall above, the existing doors are to be reused. An inspection shall be conducted to verify suitability for reuse else, 2 no. pedestrian doors; 36" x 80", and 2 no. main roller cargo doors; 20 feet wide x 20 feet high, of similar or equal dimensions, specifications and quality.

8) Stormwater Treatment

- Gutters are to be adequately sized along with downpipes to collect and discharge large volumes of stormwater from the roof area to stormwater drains.
- Stormwater drains are to be adequately sized for stormwater collection and discharged to a suitable location.
- The contractor shall determine if the existing stormwater drains can safely accommodate the run-off from the roof, if not, a suitable system shall be designed.
- Drains on the existing floor slab shall be relocated and infilled where necessary.

9) Plumbing

- Existing sanitation and plumbing facilities on the adjacent to the western wall shall be relocated to a suitable location so as to not affect warehouse operations when the extension is completed.

10) Fire Alarm System

- The existing fire alarm system be assessed to determine if additional devices can be accommodated, if not, a new system shall be designed.
- A fire alarm control panel supplied with dedicated AC power, voltage stabilizer, back-up 12V, 7-amp batteries with connected alarm zones, notification circuit connection to be installed along with addressable smoke detectors, addressable heat detectors, flashing strobe/ sirens, addressable dual action pull stations and wiring and circuits.
- Materials, fixtures, devices etc. shall be UL listed and shall conform with existing.

11) Electrical

- Designs shall conform to the most recent version of the NEC.
- Materials, fixtures, devices etc. shall be UL listed and shall conform with existing.

- All circuits and equipment shall be tested and grounded in accordance with the appropriate articles of the NEC.
- Final electrical design to be submitted to the Employer for approval.

12) Power

- The existing main and distribution panels are to be provided and shall be connected to the main power supply and back-up/ emergency power supply. The panels shall be located in proximity to the existing unless otherwise directed by the Employer.

13) Lighting

- Uniform lighting shall be provided within the warehouse in accordance with OSHA requirements.
- The lighting type shall be LED.
- Emergency exit lights are to be situated above each pedestrian door.
- External lighting shall be provided for pedestrian and cargo door entrances to illuminate approach ways.
- All external light fixtures shall have weatherproof enclosures and be equipped with photocells for automatic shut off when daylight is available.

14) Outlets

- Industrial rated 2-gang, surface mounted power sockets shall be fitted to every other frame within the extended section of the building.

15) Fans

- Six (6) no. 24 feet diameter 460v industrial cooling fans are to be suspended from the structural frame. Exact location to be determined based on OEM calculations, accounting for lighting and racks (if applicable).
- Materials, fixtures, devices etc. shall conform with existing.

16) Quality Assurance/ Quality Control

- The Contractor shall specify all standards to which the designs conform.
- Materials and testing shall be in accordance with ASTM.
- Tolerances shall be stated in the relevant drawings.

17) Health, Safety, Security and Environmental

- The Contractor must adhere to the highest industry standards in health, safety, and environment practices, particularly those relevant to the oil and gas sector. The construction activities shall comply with all applicable OSH regulations and standards, including those specific to the project location and operational zones.
- The Contractor must have a HSE policy, as well as any additional policies/procedures related to high-risk activities such as heavy lifting, working at heights, electrical, and hot works. These documents must be provided at the start of the project and must be incorporated into all work activities.
- The Contractor must conduct a comprehensive HSE risk assessment specific to the details mentioned in the project description and scope of work.
- The risk assessment shall focus on construction hazards such as lifting and rigging operations, electrical works, hot works, handling hazardous materials (if any), mechanical works, manual handling, use of powered & nonpowered handheld tools, tethering of tools, operation of heavy-duty equipment and machinery, demolition, working at height, and working within proximity of other site operations. All equipment and personnel present on site should have valid certifications needed to perform the intended job.
- Adequate control measures must be implemented to manage risks such as fire, explosion, noise, vibrations, dust generation, electrical shocks, slips, trips, & falls, caught between, struck by, caught on, spills, manual material handling, thermal, and potential environmental impacts related to construction.
- A site-specific HSE Plan must be submitted prior to mobilization. The plan should address emergency response protocols, control of major hazards, permit to work, personal protective equipment (PPE), & overall safe construction of the warehouse extension.
- All incidents and near misses, especially those involving hazardous materials or significant operational risks, must be reported immediately to GYSBI.
- Any accidents or high-risk events (e.g., spills to the environment, worker injury/ill health, etc.) must be thoroughly investigated, and a root cause analysis (RCA) completed within 72 hours. The findings must be communicated, and corrective actions implemented.
- All personnel involved in construction must undergo GYSBI QHSSE construction training specific to the site risks. Site supervisor/performing authority must complete the GOARC PTW training to be able to open and manage PTW for the duration of the project. All personnel must register on the GYSBI visitor management system (VMS) to gain access to the base and complete the induction. Additionally, to access the project site, all personnel shall submit themselves to a second level of screening and security requirements at the Operations SBM Warehouse Security Checkpoint.

- The Contractor must ensure that employees working on high-risk activities (e.g., rigging, banking, lifting, working at height, electrical, heavy machinery/equipment operation, welding, etc.,.) are certified and competent to perform their tasks.
- Routine HSE inspections must be conducted on-site, focusing on critical construction activities, including safe lifting, electrical installations, working at height, hot works, heavy equipment/machinery operation, and environmental protection.
- HSE performance will be monitored through regular walkthrough inspections & second party audits, and any non-conformance may lead to work stoppages or contract termination.
- The Contractor must implement environmental controls to prevent any contamination to soil, water, or air.
- Proper procedures for handling and disposing of construction waste (including hazardous materials, if any) must be in line with local environmental regulations and company policy.
- Measures to minimize dust, noise, and water runoff during construction must be clearly outlined and followed.
- The Contractor must have in place emergency response capabilities, including procedures for responding to fires, explosions, rescue from height, worker injury/ill health, or hazardous material spills that may occur during the construction process. Documentation must be reviewed in collaboration with GYSBI and other involved stakeholders.
- The Contractor must regularly review HSE performance during project execution and seek continuous improvement in processes and behaviors.
- Participate in lessons learned and review workshops post-project to contribute to the overall improvement of HSE management in future projects.

Construction

Works to be included in the construction of the Operations Warehouse Extension shall provide fully functional facility which shall include the following at a minimum:

- Grading of site as needed.
- Temporary works as required.
- Dismantling, storage and reinstallation of materials/ equipment/ devices to be reused.
- Foundation for all works including piled foundations where necessary.
- Concrete works as required for building elements.
- Supply and install building elements, inclusive of but not limited to structural frames, roof, walls, braces, ties, stormwater management facilities, finishes, MEPF facilities, lighting, doors and windows.

1) Quality Assurance/ Quality Control

During project construction, at a minimum, the following shall be provided by the Contractor:

- An Inspection Test Plan (ITP) must be submitted and agreed upon before proceeding with the corresponding scope of work.
- Test certificates, Certificate of Conformity (COC) and quality certificates to be submitted in advance of execution of works or use of materials. Use of any product on site will be allowed as per the manufacturer's instructions. A Technical Data Sheet (TDS) should be submitted. Any changes to a procedure or application/use of material will require written approval before execution.
- Non-destructive testing (MPI) for welds to be done on all steel members. Frequency of testing will be agreed upon with the Engineer.
- Surveying conducted and survey reports submitted for erected steel columns and wall panels to confirm alignment is acceptable as per tolerances established in design drawings.
- Upon completion of electrical scope, these works should be independently certified by an inspector (Government Electrical Inspectorate) to verify installation is as per NEC code.
- Below are hold points which will require verification by the Engineer's QA/QC team before the Contractor can proceed:
    - Pre-concrete inspections to verify build is as per design drawings/ specifications.
    - Post-concrete inspections to verify finish is as per design drawings/ specifications.
    - Visual inspections at contractor's workshop for fabricated steel members before coating (to verify steel members are free of rust) and after coating (to verify coating material is applied as per manufacturer's instructions).

2) Health, Safety, Security and Environmental

- Compliance with requirements as outlined in the Health, Safety, Security and Environmental section above shall apply during construction.

5. Design and Build Technical Documents Submission and Review Process

The successful design and build contractor shall submit, as a minimum requirement, the following documents during the course of design and construction. These documents shall be during the design development phase.

Design Phase:

a. Health and Safety Plan
b. Architectural Plans
c. Civil/Structural Design and Drawings
d. Stormwater Design and Drawings
e. Mechanical, Electrical, Plumbing and Fire Design and Drawings
f. Project Scope of Works
g. Technical Specifications
h. Detailed Pricing
i. Project Implementation Schedule (level 4)

Construction Phase:

a. Method Statement
b. Provide Detailed Procurement Plan and schedule (level 4)
c. Provide Detailed Bill of Materials guided by the Technical Specifications
d. Environmental Management Plan
e. Quality Plan
f. Testing and Commissioning Plan
g. Technical Schedule and data sheet for equipment, instrumentation, etc.
h. Complete set of As-Built Drawings

The Contractor shall submit one (1) soft copy; in both editable and non-editable versions, of drawings and documents, for the approval by the Engineer.

Editable soft copies shall utilize AutoCAD software for the preparation and submission of all drawing submittals, MS Word format for the reports, MS Projects for scheduling and MS Excel for Bills of Quantities.

All these Design and Build Technical Documents for the Project shall be reviewed by the Engineer. The Engineer and the Contractor shall agree on which set of documents can be submitted simultaneously. The Engineer shall provide input and review both emailed, written comments on drawings, calculations and documents to the Contractor, and it shall be deemed acceptable to both parties.

6. Testing and Commissioning

The Engineer and the Contractor shall make up the Extension of SBM Operations Warehouse Commissioning Team to plan the commissioning and handover of the extended

section of the warehouse. The Contractor shall develop the commissioning procedures necessary for its testing and handover.

The Contractor shall join and advise the Engineer on the tests necessary to establish and demonstrate that the extended warehouse and all its components are reliable, functional and the performance criteria are satisfied.

Where the abovementioned criteria are not satisfied, the Engineer and the Contractor shall agree on an appropriate period to allow for compliance and a subsequent demonstration.

7. Proposed Estimates for the Design and Build Contract:

The proposed estimates for the contract of the Design and Build of the Extension of the SBM Operations Warehouse shall include all applicable government taxes and charges, professional fees, and other incidental and administrative costs.

The Design and Build Contract shall be a fixed price contract.

7.1. Detailed Estimates

1. The Contractor shall prepare and submit a Detailed Cost Estimate for the Extension of the SBM Operations Warehouse within the scope and specifications mentioned in Objectives, Project Description, Scope of Services of the Design and Build Contract.
2. A unit price analysis shall be provided for all pay items in the contract.
3. Estimates and cost computations must include all applicable taxes, transportation, communication, and administrative costs the Design and Build Contractor will incur during the project.

8. Project Timetable

The period of completion for the Design and Build of the Extension of the SBM Operations Warehouse is expected to be within two hundred and forty-nine (249) days from Contracting signing to the completion of testing and commissioning.

Another 365 days as defect liability period. As a general guide, the following is the schedule of submissions and output requirements of the entire project:

Stage	Submission Schedule	Review and Approval	Output	Payment of Contract Sum
Preliminary Assessment Report	Within 14 Calendar Days after issuance of	7 working days after receipt of Inception Report	Preliminary Assessment Report to include:	2.5%

	the Notice to Proceed		● Methodology of Work / Project ● Project Timetable and Schedule ● Site Analysis ● Survey and soil testing ●Initial Recommendations	
Draft Design Report	Within 21 calendar days after receipt of approved Preliminary Assessment Report.	10 working days after receipt DDR.	Plans and Designs for the Extension of SBM Operations Warehouse.	5%
Final Design Report	Within 14 calendar days after receipt of approved Draft Design Report.	7 working days from receipt of Draft Design Report.	Modifications to the DDR as required.	2.5%
Construction Phase	Within 166 calendar days from the approval of the Extension of SBM Operations Warehouse Design.	7 working days or as agreed by Engineer and Contractor.	Testing and Commissioning Report.	65% upon completion or pro rata value of work.
Defects Liability Period		365 days after Acceptance of the Extension of SBM Operations Warehouse Construction project completion.		10%

Presentation meetings of the contractor to the concerned Engineer shall be scheduled with the Engineer at least 1-2 days after the submission of the report / output or as deemed necessary.

9. Key Personnel Requirements

The Contractor shall engage the following key personnel but not limited to and whose CV and experience shall be evaluated, apart from any other support staff to fulfill the Employer's Requirements:

Design Phase:

- Team Leader/Project Manager
  a. Must have a bachelor's degree in architecture or civil engineering from a reputable University with at least 3 projects of similar nature and 5 or more years of experience on construction projects or;
  b. Must have a bachelor's degree in business management/ business administration from a reputable University with at least 5 projects of similar nature and 10 or more years of experience on construction projects
  c. Must be fluent in spoken and written English.

- Architect
  a. Must have a bachelor's degree in Architecture from a reputable University
  b. Must have at least 3 years' experience in building design works
  c. Must be fluent in spoken and written English

- Structural/ Civil Engineer
  a. Must have at least bachelor's degree in relevant field.
  b. Must have at least 5 years of experience in Building works.
  c. Must be fluent in spoken & written English.

- Electrical Engineer
  a. Must have at least a bachelor's degree in electrical engineering.
  b. Must have at least 5 years of experience in electrical building works.
  c. Must be fluent in spoken & written English.

- Mechanical Engineer
  a. Must have at least a bachelor's degree in mechanical engineering.
  b. Must have at least 5 years of experience in Building HVAC Works.
  c. Must be fluent in spoken & written English.

- Sworn Lands Surveyor
  a. Must have at least Diploma in Land Surveying
  b. Must have a professional local surveying license, SLS.
  c. Must have at least 5 years of experience in Engineering and Cadastral Surveying.

d. Must be fluent in spoken & written English

- QHSSE Manager/ Supervisor
  a. Must have at least a bachelor's degree in occupational safety & health (OHS), Health Science, Environmental Science/Studies, Engineering, or related field or certification in NEBOSH, IOSH, BSC, NVQ Level 3, IRCA, or equivalent. Membership in an international OSH body (IIRSM, BCSP, IOSH, etc.) is also accepted.
  b. Must have at least 5 years of experience in a related role.
  c. Must be fluent in spoken & written English.

Construction Phase

- Team Leader/Project Manager
  a. Must have a bachelor's degree in architecture or civil engineering from a reputable University with at least 3 projects of similar nature and 5 or more years of experience on construction projects or;
  b. Must have a bachelor's degree in business management/ business administration from a reputable University with at least 5 projects of similar nature and 10 or more years of experience on construction projects
  c. Must be fluent in spoken and written English.

- Site Engineer (full-time presence)
  a. Must have at least a Bachelor's in Civil Engineering.
  b. Must have at least 5 years working in Construction.
  c. Must be fluent in spoken & written English.

- QA/QC Supervisor (full-time presence)
  a. Must have at least a Bachelor's in Civil Engineering or relevant qualification.
  b. Must have at least 5 years working in Construction.
  c. Must be fluent in spoken & written English.

- Foreman/Supervisor (full-time presence)
  a. Must have at least a Diploma in Civil Engineering with a minimum of 5 years experience in civil works.
  b. Must have at least a certificate in MEP with a minimum of 10 years' experience in Civil or MEP Works.
  c. Must be fluent in spoken & written English.

- QHSSE Manager/ Supervisor (full-time presence)

a. Must have at least a bachelor's degree in occupational safety & health (OHS), Health Science, Environmental Science/Studies, Engineering, or related field or certification in NEBOSH, IOSH, BSC, NVQ Level 3, IRCA, or equivalent. Membership in an international OSH body (IIRSM, BCSP, IOSH, etc.) is also accepted.
b. Must have at least 5 years of experience in a related role.
c. Must be fluent in spoken & written English.

- Tradesmen
  a. Must be appropriately certified with valid certifications
  b. Must have valid working at height certifications, where applicable
  c. Must be fluent in spoken & written English.

10. Specifications

10.1. General

10.1.1. Defective Work

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

10.1.2. 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.

10.1.3. Proprietary Products

All proprietary products shall be used strictly in accordance with the manufacturer's instructions unless otherwise described or instructed in writing by the Engineer.

10.1.4. Materials and Workmanship

Description of materials and workmanship together with relevant preambles and pricing notes given elsewhere in these documents shall be read as applying equally to the Works described.

All work shall be executed with as little noise and disturbance as possible.

The Contractor shall coordinate and seek approval from the Engineer’s before switching off, shutting off, or disconnecting any live services at the facility and shall include for all incidental expenses and temporary reconnection of the services to the public facility during the construction period. HSE requirements shall be strictly complied with.

Works shall include for providing and erecting all necessary temporary casings and protection for works likely to be damaged during the alterations and all necessary tarpaulins, dust screens, temporary coverings, fans, temporary gutters, down pipes, chutes, etc. required for the protection of the general public, staff, etc., to the entire satisfaction of the Engineer and Local Authority.

Works shall include for the making good and reinstatement of damage or disturbance caused by their execution and the clearing away of all rubbish arising. The Contractor at his own cost reinstate to match the existing any part or parts of the existing building which may suffer

damage due to his building operations. The whole of the Works shall be done at such times during the progress of the Works as may be convenient and expedient and the Contractor must take responsibility for damage due to premature removal of brickwork, cladding, timber, etc.

10.1.5. Requirements of Specification and Standards

The Contractor shall fulfill all requirements and obligations under all Clauses of the Specification. Neither the following clauses of this Specification nor the detailed description therein nor the quantities shall limit the obligation of the Contractor under the Conditions of Contract.

Where items are not included in the Bill of Quantities for any such requirements or obligations, the cost of such requirements or obligations shall be deemed to be spread over all the items of the Bills of Quantities.

All American, British or other Standards, including Codes of Practice, mentioned herein shall be deemed to form part of this Specification. All reference to such standards shall be to the latest edition or revision thereof unless otherwise stated. Where a specific standard is referred to in this Specification, another standard will be acceptable provided that it ensures an equal or higher quality of material and workmanship as compared with the standard referred to. If the Contractor intends to use such alternative standard, he shall notify the Engineer thereof, submitting with his notice 1 original copy, in English, of the proposed standard, and shall not order any material or perform any work unless and until he has obtained the Engineer's approval of such standard.

Brand names where used in the Specification or in the Drawings are only intended to define a standard of quality and performance and the Contractor may use alternative products of at least equal quality and capacity. When alternatives are offered, the Contractor shall submit to the Engineer for approval a statement detailing the alternatives, and shall include full technical descriptions, drawings, and specifications, and shall provide such full information as is required to enable the Contractor to demonstrate to the Engineer that the alternative is equivalent to the item specified. Any further information that the Engineer may require shall be produced by the Contractor when called for.

10.1.6. Mobilization and Demobilization

Mobilization shall consist of initiating the Contract and includes the following: transporting to site and setting up the Contractor's plant - required on and off the site - offices, storage areas, etc. providing access to the project site, obtaining necessary permits and licenses, and payments of fees, protecting existing utilities, lighting work areas, contractor’s facilities, providing working drawings, sampling and testing materials, providing required insurance, bonds, etc., as may be additional to that specified in the Condition of the Contract.

Demobilization shall consist of all clearing up, dismantling operations, removal off site of all plant and equipment and reinstatement of existing areas.

Such materials as are required, that are not to be a part of the completed contract, shall be determined by the Contractor.

All work done in providing the facilities and services under this item shall be done in a safe and workmanlike manner.

10.1.7. Construction Facilities

Scaffolding

Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, and temporary stairs. Devices/ equipment and operating personnel shall be certified.

Hoisting

Provide, operate and maintain hoists [cranes] required for moving workers, materials and equipment. Make financial arrangements with Subcontractors for use thereof. Devices/ equipment shall be certified.

Hoists [cranes] shall be operated by a qualified operator.

Site Storage/Loading

Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

Do not load or permit to load any part of Work with a weight or force that will endanger the Work.

Construction Parking

Parking will be permitted on site for equipment that will aid in the Work provided it does not disrupt the performance of base operations or work.

Parking will not be permitted for personal vehicles at the site.

Provide and maintain adequate access to Project Site

If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractors' use of roads.

Reinstate runways and taxi areas where used by Contractor's equipment.

Security

Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

Contractor's Facilities

The contractor shall provide offices and supporting facilities as necessary. Provide a clearly marked and fully stocked first aid kit in a readily available location. All incidents shall be reported to QHSSE.

Subcontractors may provide their own offices as necessary.

Equipment, Tool and Materials Storage

Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities.

Sanitary Facilities

Provide sanitary facilities for the workforce in accordance with governing regulations and the Employer's Policies.

Post notices and take such precautions as required by local health authorities. Keep the area and premises in sanitary condition.

10.1.8. Survey and Setting Out

The Contractor shall establish reference base lines, reference benchmarks and monuments for the Work covered in this Contract based on the survey information provided by the Engineer. Using this reference control, the Contractor shall take the necessary topography, locate all earthwork and structures, and establish all grades necessary for the accomplishment of the Work. The Contractor shall carefully preserve all marks, reference points and stakes established, and in the case of negligent or careless removal, damage or destruction, such points, marks or stakes shall be replaced by the Contractor at its expense. The Contractor shall also be responsible for any mistakes caused by their loss or disturbance.

Any monuments not referenced by the Engineer that are disturbed by construction operations shall be reset by the Contractor in accordance with recognized engineering and surveying practice. Property corners, fences, or any other indications of property lines shall be referenced by the Contractor prior to construction and reset after completion of construction in accordance with recognized engineering and surveying practice.

All working control established by the Contractor may be checked by the Engineer. Prior to establishing the working control, the Contractor shall provide, at the Engineer's request, sufficient copies of an illustration of the working control relative to pertinent construction. When the Contractor has established the working control, the Engineer shall be notified for a survey check 24 hours before any Work is started. The Engineer will check all forms prior to placing concrete. All checks by the Engineer will be independent. The responsibility for correctness and adequacy of control shall be borne by the Contractor.

The contractor shall set out sections of the work at such times as may be necessary to enable the Employer to carry out temporary or permanent alterations to their services and approaches.

10.1.9. Project Schedule

Construction Schedule

The construction schedule (level 4) shall be kept up to date and the current updated schedule shall be submitted to the Engineer as specified in the condition of contract with each request for payment or as requested by the Engineer.

The construction schedule shall in general determine the order in which the Work is to proceed. The Engineer, however, may order and authorize minor changes to this schedule whenever such changes are of definite advantage to the Employer or necessary for the operations of the Employer.

The Contractor shall furnish sufficient forces, construction equipment and plant as may be necessary to ensure the expedited completion of the Work in accordance with the submitted schedule. If the Contractor in the opinion of the Engineer lags in any activity listed in the construction schedule, then the Contractor shall the obligated to implement additional resources as approved by the Engineer in order to compensate for lost time and achieve the completion of works in a timely manner.

Failure of the Contractor to comply with the requirements of the Engineer may be grounds for determination by the Engineer that the Contractor is not proceeding at such rates that will ensure completion within the specified time and may result in the termination of the right of the Contractor to continue the Work.

10.1.10. Method of Construction

When so specified or directed by the Engineer, the Contractor shall submit the proposed method of construction for specific portions of the Work for review. This submittal shall include detailed description of all phases of the construction operation to fully explain to the Engineer the proposed method of construction. If required by the Specifications, submit working drawings to supplement description. Review and approval by the Engineer will be in accordance with the approval process herein and shall not relieve the Contractor from his

responsibility regarding fulfillment of the terms of the Contract. All risks associated with the proposed method remain the Contractor's responsibility and the Engineer shall have no responsibility, therefore. After reviewing, if in the opinion of the Contractor, modifications are necessary, submit such modifications in detail including reasons for the modifications. Modifications shall not be implemented without review by the Engineer.

10.1.11. Records

The Contractor is required for the following:

- The Contractor shall keep one record, a copy of all Contract Documents, reference documents, and all Required Submittals at the Work Site in good order and annotated to show all revisions made during the construction process. Such annotations shall be kept current and will be inspected monthly by the Engineer. Failure to maintain current record drawings will be cause for delay interim payments. Record drawings shall be available to the Engineer at all times during the performance of the Contract and the Contract Time.
- All of the following documents and Contractor's Required Submittals shall be made a part of the record drawings.
- Contract Drawings. Contractor shall annotate or redraft, as required, to show all revisions, substitutions, variations, omissions and discrepancies made or discovered during construction concerning location and depth of utilities, piping, duct banks, conduits, manholes, pumps, valves, vaults and other equipment. Revisions shall be made and shown on, all drawing views with actual dimensions established to permanent points.
- Contractor's Drawings. Same as above. Include, for example, actual layouts of piping and valves with references to landmarks. Sections and details shall be added as required, for clarity. Drawings shall be revised to show actual installations. Prior to preliminary inspection, furnish a reproducible of the record drawings. At the completion of the Contract and before Final Payment is made, furnish to the Owner and Engineer with one hard copy and one soft copy (editable and non-editable formats) of the final approved record drawings reflecting all revisions herein described. If drawings are available in digital format, also include one complete set on memory stick in AutoCAD format.
- The Contractor shall keep a complete up-to-date record of the actual construction of all Work called for under the Contract Drawings and Specifications of this Contract and as ordered by the Engineer. The Engineer will make available to the Contractor one set of full-size prints of the original Contract Drawings and one set of digital files, when available, on which the Contractor shall make the necessary edits to indicate the major changes.

10.1.12. Operation and Maintenance Manuals

The Contractor shall furnish the Operation and Maintenance catalog information and Operation and Maintenance Manuals for all equipment and devices where applicable. Unless otherwise indicated, a separate manual shall be furnished for each piece of equipment and/or system. The manual shall include complete information necessary to operate, maintain and repair the equipment. Specifically, the manual shall include detailed assembly drawings with parts list and numbers, and recommended spare parts list with recommended quantity, manufacturer's price, supplier's address and telephone number.

10.1.13. Spares

The Contractor shall provide a statement of availability of spare parts for a period of 3 years after the end of the Defects Liability Period.

10.1.14. Traffic Safety and Control

The Contractor shall provide, erect and maintain such traffic signs, lamps, barriers and traffic control and such other measures as may become necessary because of the construction of the Works. Compliance with this Clause shall not relieve the Contractor of any of his obligations and liabilities under the relevant sections of this Contract.

The Contractor after consultation with statutory and other authorities concerned shall submit to the Owner and Engineer for approval a Program based on such consultation that shows the scheme of traffic control he proposes for carrying out the construction of the Works and before commencing any work that affects the use of public or private roadways and thereafter he shall furnish any additional details and information as may become necessary as the construction of the Works progress or as may be required by the Engineer.

The Contractor shall not commence any work that will affect the Employer's operations until all the necessary traffic safety measures required are fully operational and has the Employer's approval. The Contractor shall keep clean and legible at all times all traffic signs, lamps, barriers, and traffic control signals and he shall position, reposition, cover or remove them as may be required by the progress of the Works.

10.1.15. Testing Laboratory Services

The Contractor shall arrange and pay for independent testing as specified in these Specifications or any other part of the Contract Documents.

Contractor shall ensure that, and shall require the laboratory to:

- Perform specified tests and services.
- Comply with specified standards, other recognized authorities, and as specified.

- Ascertain compliance of items tested with requirements of Contract Documents and so note in writing on all reports.
- Promptly notify Engineer via the Contractor of irregularities or deficiencies of work observed during performance of laboratory services.
- Promptly submit one hard copy and one soft copy of reports of inspections and tests to Engineer.
- Include in the reports, date, project title and number, name and signature of inspector, date of inspection or sample, record of temperature and weather, date of test, identification of product and Specification Section, location in project, type of test, and observations regarding compliance with requirements.

The contractor shall, and shall require all of its subcontractors and suppliers to:

- Cooperate with laboratory personnel.
- Provide laboratory with samples of materials to be tested in required quantities.
- Furnish the Engineer with one hard copy and one soft copy of all test results.
- Provide facilities for storage and curing of test samples.
- Notify Engineer sufficiently in advance of time and place of tests to be made at point of manufacture, assembly, or fabrication to permit Engineer to witness tests if it so desired.

Frequency of Testing			
Material	**Test Method**	**Target**	**Frequency of Testing**
White Sand and Fill	ASTM D1557	-	Initial material source and ever subsequent change in material source.
	ASTM D6938	95%	Every 30 sq.m or individual location(s) where applicable (spot bases).
Crushed Aggregates	ASTM D1557	-	Initial material source and ever subsequent change in material source.
	ASTM D6938	98%	Every 30 sq.m or individual location(s) where applicable (spot bases).

10.1.16. Submittal Procedures

Administrative

Submit to the Engineer submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.

Work affected by submittal shall not proceed until review is complete.

Review submittals prior to submission to the Engineer. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.

Notify the Engineer, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

Verify field measurements and affected adjacent Work are coordinated.

The contractor's responsibility for errors and omissions in submission is not relieved by the Engineer's review of submittals.

Contractor's responsibility for deviations in submission from requirements of Contract Documents in not relieved by Owner/Owner's Representative review, unless provided written acceptance of specific deviations.

Keep one reviewed copy of each submission on site.

Designs and Design Drawings

This should include manufacturer and supplier details, model numbers and specifications.

Shop Drawings and Product Data

The term shop drawings means "drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work."

Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

Allow 3 working days for the review of each submission.

Adjustments made on shop drawings by the Engineer are not intended to change Contract Price. If adjustments affect the value of Work, state such in writing to Owner/Owner's Representative prior to proceeding with Work.

Make changes in shop drawings as required, consistent with Contract Documents. When resubmitting, notify Owner/Owner's Representative in writing of any revisions other than those requested.

Accompany submissions with transmittal letter containing:

- Date
- Project title and number
- Contractor's name and address
- Identification and quantity of each shop drawings, product data and sample
- Other pertinent data

Submissions shall include:

- Date and revision dates
- Project title and number
- Name and address of:
- Subcontractor
- Supplier
- Manufacturer
- Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.

Details of appropriate portions of Work as applicable:

- Fabrication
- Layout, showing dimensions, including identified field dimensions, and clearances
- Setting or erection details
- Capacities
- Performance characteristics
- Standards
- Operating weight
- Wiring diagrams
- Single line and schematic diagrams
- Relationship to adjacent work
- After the Engineer's review distribute copies to trades as necessary.

Submit one electronic copy in editable and non-editable formats of shop drawings for each requirement requested in the relevant specification sections and as the Engineer may reasonably request. Submit an electronic copy in PDF format of product data sheets or brochures for requirements requested in specification Sections and as requested by the Engineer where shop drawings will not be prepared due to standardized manufacture of product.

If upon review by the Engineer, no errors or omissions are discovered or if only minor corrections are made, electronic copies will be returned, and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

Samples

Submit for review samples as requested in respective specification Sections. Label samples with origin and intended use.

Deliver samples prepaid to the Engineer at the business address.

Notify the Engineer in writing, at time of submission of deviations in samples from requirements of Contract Documents.

Where color, pattern or texture is criterion, submit full range of samples.

Adjustments made on samples by the Engineer are not intended to change Contract Price.

Make changes in samples which the Engineer may require, consistent with Contract Documents.

Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

10.2. Concrete Work

10.2.1. 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;

- "Plain Concrete" shall mean concrete used in members made with a structural grade of concrete, listed, but not containing steel reinforcement.
- "Structural props" shall mean those components of the strutting formwork, which will be retained from concrete faces.
- "Satisfactory" shall mean to the satisfaction of the Engineer or his representative.
- "Approved" shall mean to the satisfaction of the Engineer or his representative.
- "Required" shall mean require by the terms of this Specification or any other Contract documents.
- "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.
- "Current issue" shall mean latest issue at the date of tender invitation.
- "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.

10.2.2. Plain Concrete

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

10.2.3. Material

General

All materials in the Works shall comply in all respects with the best standard available locally, based on the relevant ASTM 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.

Cement

Cement shall be Portland Cement complying with ASTM C150. 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 color of the cement is constant throughout the contract except with permission of the Engineer.

Aggregates

Aggregates shall comply with the recommendations of the relevant ASTM C33. In special circumstances, a deviation from the code 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 by the Engineer.

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.

10.2.4. Reinforcement

Mild steel reinforcement shall comply with the ASTM A615 or approved equivalent. Welded steel fabric shall comply with ASTM A1064 or approved equivalent.

10.2.5. 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.

10.2.6. 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.

10.2.7. Test

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 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.

Cement

The Contractor shall state his source of cement to be used on the Site and verify these are to the ASTM C150.

The manufacturer's certificate of tests including compressive strength tests carried out in accordance with ASTM 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.

Aggregates

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

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

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 (ASTM D422) 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.

10.2.8. 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.

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.

10.2.9. 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 ASTM C39, unless specifically modified in subsequent clauses of the Specification.

The test specimens shall be 150mm cylinder/ cubes, made in steel molds of approved design. The test cylinder/ 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.

10.2.10. 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.

For buried foundations concrete finish shall conform to ACI 347.3R-13: CSC1 finish and for sides and top of slab the finish shall conform to ACI 347.3R-13: CSC3. All other finishes shall conform to ACI 347.3R-13: CSC3 unless otherwise specified.

10.2.11. 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 as 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 days' 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.

10.2.12. 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 truck or 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.

Three (3) 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.

If at any time the strength 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.

10.2.13. Work Test Failure

If any set of 7-days cube test results indicate 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.

10.2.14. 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.

10.2.15. 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, 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.

10.2.16. Tolerances

Formwork: ACI 117, except the elevation tolerance of formed surfaces before removal of shores is +0 mm (+0 inch) and -20 mm (-3/4 inch) or as outlined in engineering specifications.

Reinforcement Fabricating and Placing: As outlined in engineering drawings and Specifications.

Cross-Sectional Dimension: As outlined in engineering drawings and Specifications.

Slab Finishes: As outlined in engineering drawings and Specifications

Test entire slab surface, including those areas within 600 mm (2 feet) of construction joints and vertical elements that project through slab surface.

Maximum elevation changes which may occur within 600 mm (2 feet) of any column or wall element is 3 mm (0.125 inches)

Allow sample measurement lines that are perpendicular to construction joints to extend past joint into previous placement no further than 1500 mm (5feet)

10.2.17. Concreting

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

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.

Placing

Concrete shall not be placed without a pre-pour inspection being conducted by the Engineer a minimum of 24 hours prior to the placement of concrete. Any deviations shall be corrected and a subsequent inspection conducted, and signed approved by the Engineer.

Concrete shall be placed while still sufficiently plastic for adequate companion.

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.

Compacting

Concrete shall be thoroughly compacted by mechanical means; vibrating, 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.

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 surfaces 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.

10.2.18. Concrete in Watertight Construction

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.

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.

10.2.19. Standard of Workmanship

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

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.

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.

At any construction joint, in a continuous concrete face, 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-story height, and not more than 20mm out of plumb in the total height.

Table 1 - Maximum Tolerances

DESCRIPTION	MAXIMUM TOLERANCE
All dimensions of 3.1m and over	6mm
All dimensions less than 3.1m.	3mm
Slab top surfaces levels (all points in the surfaces)	6mm

10.2.19.1. 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.

10.2.19.2. Other matter

Where additional information is necessary, the recommendation in the relevant ASTM guidelines will be deemed to apply.

10.2.19.3. Construction Joints and Expansion Joints

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 4.57m or shall match existing where applicable.

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.

Treatment of Construction Joints

All construction joints shall be formed to match existing 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.

Expansion Joints

All expansion joints shall be filled with an approved compressible material.

10.2.19.4. Reinforcement

General

Reinforcement bending schedules will be provided by the contractor 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:

- That reinforcement schedules are provided for each part of the structure sufficiently in advance of his concreting programme;
- That each schedule includes the correct quantities of reinforcement as detailed on the drawing to which it relates;
- 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.

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.

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.

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.

10.2.19.5. Formwork

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.

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's 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.

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.

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.

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.

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 fair face 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.

Striking of 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 below. 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.

For a multistoried 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.

Table 2 - Minimum Striking Times for Ordinary Portland Cement Concrete (OPC)

LOCATION	**MIN. OPC CONCRETE (DAYS)**
Sides of walls, columns and vertical faces of beam	2
Slab soffit (structural props left in)	4
Beam soffit (structural props left in)	7
Slab structural props	14
Beam Structural props; span up to 6m (20 ft.)	14
Beam Structural props; span over 6m (20 ft.)	21

10.3. Structural Steel Framing

10.3.1. Part 1 – General

Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.

Relevant Standards and Codes:

ASTM International:

- ASTM A27 / A27M - Standard Specification for Steel Castings, Carbon, for General Application
- ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished
- ASTM A123 / A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- ASTM A153 / A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
- ASTM A490 - Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength
- ASTM A525-79 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
- ASTM A36 / A36M - Standard Specification for Carbon Structural Steel
- ASTM A780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
- ASTM A992 / A992M - Standard Specification for Structural Steel Shapes
- ASTM D2092-95 - Standard Guide for Preparation of Zinc-Coated Steel Surfaces for Painting
- ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength

American Welding Society

- AWS D1.1:2020 - Structural Welding Code
- AWS D1.8 -Structural Welding Code -Seismic Supplement

American Institute of Steel Construction (AISC)

- AISC 303-22 – Code of Standard Practice for Steel Buildings and Bridges
- ANSI/AISC 341-16 - Seismic Provisions for Structural Steel Buildings
- AISC 360-20 – Specification for Structural Steel Buildings
- AISC -Steel Construction Manual

10.3.1.1. Submittals

Shop drawings for structural steel fabrications shall be submitted for review prior to fabrication. Examples include, but are not limited to:

- Complete fabrication and erection plans and procedures giving full information on aspects of the erection which will effect alignment, plumb and dimensional accuracy of the structure.
- Connections including size and spacing of bolts and welds.
- Indicate profiles, sizes, spacing, and locations of structural members, openings, camber and attachments. Indicate welded connections with AWS welding symbols. Indicate net weld lengths. Details of welding materials, equipment, sequence and technique to be used. Shop and erection details incorporating seismic critical welds shall include explicit references to corresponding weld procedure specifications.
- The Contractor shall survey, review and confirm as-built conditions prior to developing shop drawings. Field modifications to suit as-built conditions shall be at the Contractor's expense.

Welding Procedure Specifications: Contractor shall submit welding procedure specifications (WPS) for each shop and field welding joint type and process to the Engineer and the Testing Agency for review.

Manufacturer's Certificate: Submit certification that manufactured products (including bolts, nuts and washers) meet or exceed specified requirements. Manufactured products are to be delivered in unopened containers. Certification numbers must appear on product containers for bolts, nuts and washers and the numbers shall correspond to the identification numbers on the Manufacturer's Certificate. The Manufacturer's symbol and grade markings must appear on bolts, nuts and washers. Submit manufacturer's certification that structural shapes contain specified percentage recycled material.

Product data: Submit certification that manufactured products meet or exceed specified requirements. Weld filler material including filler metal Charpy V-Notch test values, electrodes, fluxes and shield gases.

Mill Test Reports: Submit mill test reports indicating structural strength, destructive and nondestructive test analysis and chemical analyses from each heat of steel used in the work.

10.3.1.2. Quality Assurance

Fabricate structural steel members in accordance with AISC specifications.

Welders shall be qualified for each process, position and joint configuration.

Maintain one copy of each referenced document on site.

Survey anchor bolts for location and elevation prior to casting concrete.

Fabricator Qualifications: The Company shall submit written documentation of experience in performing the work of this Section prior to award of the Subcontract.

Erector Qualifications: Company with a documented experience in performing the work of this Section.

The design of connections not detailed on the Drawings shall be under the direct supervision of a Structural Engineer experienced in design of this work.

10.3.1.3. Tests and Inspections

Notification:

- The Contractor shall notify the Engineer of work to be tested and inspected. Notification shall be sufficiently in advance to allow scheduling of tests and inspections, but not less than 24 hours.
- The Contractor shall immediately notify the Engineer if the Testing Agency indicates that quality assurance tests and inspection requirements have not been met.

Quality Assurance Tests and Inspections:

- Quality assurance tests and inspections shall be the responsibility of the Contractor. The Contractor shall retain a testing agency at no additional cost, referred to herein as the Testing Agency, who shall perform the required tests and inspections, prepare written summary reports of tests and inspections, and review submittals.
- The Testing Agency shall submit written procedures, qualifications and reports.

Welding Tests and Inspections:

- Personnel performing welding inspections and nondestructive testing shall be certified accordingly.
- Perform nondestructive tests (NDT) of shop and field welds in accordance with relevant American standard.
- Provide NDT equipment as required to perform specified tests.
- Magnetic Particle (MP) testing shall conform to AWS D1.8, Section 7.9.

- The rate of magnetic particle testing on complete joint penetration (CJP) groove welds may be reduced to 50 percent for an individual welder or welding operator after sufficient project experience is demonstrated per Appendix Q, subsection Q5.2h. However, no reduction in testing frequency shall be permitted for demand critical welds.

High-Strength Bolting Tests and Inspections:

- Inspect the installation of high strength bolts to confirm number, diameter, torque requirements etc. Inspections shall be conducted with the Engineer.
- Welded and bolted connections that fail to meet the acceptance criteria specified shall be re-inspected and/or re-tested after corrections have been made by the Contractor.
- Welded Studs: Inspect size, number, placement and welding of welded studs in accordance with Section 9 of AWS D1.1:2020.
- Deformed Bar Anchors: Inspect size, number, placement and welding of deformed bar anchors.

10.3.2. Part 2 - Products

Materials:

- Structural Steel Members: ASTM A992 (or equivalent International Standard) for rolled wide flange shapes and, for other rolled shapes and plate.
- ASTM A1011 SS, Grade 55, Class 1 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
- ASTM A1011 HSLAS, Grade 55, Class 1 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
- ASTM A 529, Grade 55 - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality
- ASTM A572, Grade 55 - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural SteelPlate, bars and channels: ASTM A36 (or equivalent International Standard) unless otherwise noted on the drawings. Plates 2 inch thick and greater shall have Charpy V-Notch toughness of 20 ft-lb at 70 degrees F tested at any location permitted by ASTM A673.
- Structural Tubing: ASTM A500, Grade B (or equivalent International Standard). Structural tubing shall be new and contain a minimum of 75 percent recycled post-consumer steel.

- Pipe: ASTM A53, Type E or S, Grade B (or equivalent International Standard). Pipe shall be new and contain a minimum of 75 percent recycled post-consumer steel and not more than 0.05 percent sulphur.
- Shear Stud Connectors: ASTM A108, Grades 1010 through 1020 inclusive (or equivalent International Standard). Connectors shall be free of defects, cracks or bursts deeper than half the thickness from the periphery of the head to the shaft. After welding, studs will be the length shown on the drawings.
- Threaded Stud Connectors: Threaded studs in structural steel connections shall be reduced base studs conforming to ASTM A108, Grades 1010 through 1020 inclusive. After welding, studs will be the length shown on the drawings.
- Bolts and Nuts: Bolts in structural steel connections shall be ASTM A325 unless designated as A490 on the drawings. Nuts shall be ASTM A563 Grade C or DH. Patented, high strength steel connectors conforming to ASTM F1852 must be submitted for approval by the Contractor and will not be permitted at slip critical bolted connections. Where galvanized connectors are called for on the drawings, they shall be galvanized in accordance with ASTM A153. Bolts conforming ASTM A307 and nuts conforming to ASTM A563 may be used in stair, handrail, and miscellaneous steel and timber connections.
- Washers shall be flat and either circular, square or rectangular conforming to ASTM F436 Type 1 (or equivalent International Standard). The finish of washers is to match the nut. A325 bolts shall have washers under the head and A490 bolts shall have hardened washers under the head and the nut.
- Anchor Bolts: ASTM F1554 [36] [55] [105]-ksi yield strength, zinc, hot dip or mechanically deposited, unless otherwise designated on the drawings.
- Welding Materials: Filler metals shall conform to Table 4.1 of AWS D1.1:2020. Electrodes and equipment settings shall be as recommended by the filler metal manufacturer for the position, thickness and conditions of use. Electrodes and filler metal shall be low hydrogen types. FCAW wire diameter shall not exceed the values in Section 6 of AWS D1.1:2020. In addition, filler metal for Seismic Critical Welds shall be capable of producing welds with Charpy V-Notch test values conforming to the AISC 341.
- Sliding Bearing Plates: Teflon coated.
- Grout: [As specified in Division 03 Section "Grouting".][Non-shrink metallic grout shall be Master Builders Embeco 636, Burke Company Metallic Spec Grout or equal].
- Shop and Touch-Up Primer: [Tnemic Series V10, Maclac 42 Series or an approved equal free of chromate and lead with volatile organic compounds less than 340 grams per liter.] [Division 09 Section "Painting"]

- Touch-up Primer for Galvanized Surfaces: Zinc rich type.

Connections

Unless otherwise noted on the drawings, shop connections shall be welded and field connections, except moment connections, shall be bolted. Weld only in accordance with approved welding procedures.

Unless otherwise noted on the drawings, bolted connections shall be 19mm (3/4-inch) diameter A325-N (or equivalent International Standard); connections shall have a minimum of two bolts. Shoulder bolts with hex nut and lock washers shall be used in slotted connections with the washer covering the slot in positions.

Unless connections are detailed on the drawings, the Contractor is responsible for the design of connections.

10.3.2.1. Fabrication

Fabricate structural steel in accordance with the applicable provisions of the AISC Specifications for Structural Steel Buildings. Where practical, fabricate and assemble in the shop.

Obtain field measurements necessary for steel fabrication.

Perform high strength shop bolting in accordance with the appropriate ASTM specification. Complete high strength shop bolting before welding.

Dimensional tolerances, unless otherwise specified:

- Overall length of members with both ends milled may vary by 1/32-inch (0.79 mm).
- Overall length of members without milled ends may vary by 1/16-inch (1.59 mm) for lengths less than 30 feet (9 m) and 1/8-inch (1.18 mm) for lengths 30 feet (9 m) and over.

Where structural joints are welded, the detail of the joints, welding technique, weld quality and appearance, and methods for correcting defective welds shall conform to the AISC Standard Practice and AWS D1.1:2020. Welding procedure and sequence shall conform to AWS B2.1. Surfaces to be welded shall be clean and free of rust, paint, or galvanizing. Burned or flame cut edges shall be chipped clean and wire brushed.

Where milling is indicated on the drawings, the contact surfaces shall be machined true to obtain full and complete contact.

Structural members are selected from generally available rolled sections; however, if the specified sections are not available, the Contractor shall provide sections with equivalent physical properties after approval by and at no additional cost to the Employer.

Column splices shall be located every two stories and not more than thirty feet apart. Column splices for perimeter columns shall be located at least four feet above the floor level and shall have a hole to permit installation of fall protection cable at three foot six inches above the floor level.

Shear studs shall not be installed in the shop.

10.3.2.2. Finish

Unless members are supplied with a protective coating, the following shall apply.

Shop prime structural steel members. Apply two coats of different colored primer to areas which will be inaccessible after erection or assembly. Do not prime surfaces that will be fireproofed, in contact with concrete, within 3 inches of field welds, or on the faying surface of high strength bolted friction connections.

Galvanize structural steel members indicated on the Drawings as galvanized in accordance with ASTM A123 and A385 after fabrication. Prepare galvanized surfaces to be painted in accordance with ASTM D2092 and shop coat with a compatible primer. Repair damaged galvanizing in accordance with ASTM A780.

10.3.2.3. Source Quality Control

Shop inspection will be performed by the Engineer.

Magnetic Particle Test all exposed weld surfaces where backing bars and weld tabs are removed.

Fillet Welds: Magnetic Particle test 50 percent of joints, partial length. Test in accordance with relevant standards.

Test column web for cracking above and below continuity plates after welding. Use dye-penetrant or magnetic particle test.

Faulty and Defective Welding: Any welding performed without inspection, or not in compliance with the approved WPS, or displaying cracks, slag inclusion, lack of fusion, undercut or other defects defined by the AWS, ascertained by visual or nondestructive means, shall be removed and properly replaced by the subcontractor and re-inspected by the Testing Agency all at the Contractor's expense.

Periodically, inspect and test stud welding as required, periodically inspect welding and perform verification inspection and testing.

10.3.3. Part 3 - Execution

Preparation:

- Provide anchor bolts and other items embedded in concrete.
- Furnish and install temporary supports and internal braces necessary to support structural steel during erection. Temporary supports and braces shall be adequate for anticipated wind, seismic, equipment and erection loads. Remove temporary shoring after the steel erection is complete.
- After completion of welds, remove weld tabs. After completion of full penetration groove welds, remove backing bars, inspect the weld and reinforce the groove weld with a fillet weld. Peening of thick welds shall be performed in accordance with relevant American standard.

Examination

Verify that field conditions are acceptable and are ready to receive work.

Erection

Erect structural steel in accordance with the AISC Specifications (or equivalent International Standard) for Structural Steel Buildings, except as modified herein. Where members cannot be properly assembled due to mis-fabrication or deformation due to handling or transportation, the condition shall be reported to the Engineer with a proposed method of correction for approval. Erect steel to the lines and grades indicated on the drawings and in accordance with the Erection Drawings.

During erection beams and vertical bracing are to be secured with at least two bolts prior to releasing the hoisting cable.

Perform high strength bolting in accordance with the appropriate ASTM specification. Complete high strength bolting before field welding.

Do not field cut or alter structural members without approval of the Engineer.

After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

Where necessary, grout base plates with non-shrink grout. Clean concrete bearing surfaces from bond-reducing materials, and roughen if necessary to improve bond to surfaces. Clean the bottom surface of base plate. Set base plate on wedges or other adjustable devices. After the base plate has been positioned and plumbed, tighten the anchor bolts. Pack grout solidly between the bearing surfaces to ensure that no voids remain.

Where field welding to existing structural members is required, the Contractor shall confirm the weldability of the existing steel by cutting or drilling samples and having them tested by the Contractor's Independent Testing Laboratory. The testing laboratory

shall recommend the location for taking samples, provide a report on weldability, recommend the type of electrode and weld and inspect the final welds. The Contractor will be responsible for preparing the existing steel for welding and touch of the surfaces.

Erection Tolerances

Unless stated in the drawings or otherwise, tolerances shall be in accordance with the AISC Code of Standard Practice or as stated on the Drawings.

Inspection and Testing

The Contractor shall be responsible for in-house visual inspection and implementing a quality control program which shall be approved and witnessed by the Engineer.

Notify the Engineer of the fabrication and erection schedules in writing. The schedules shall include time for the Engineer to observe shop assembly, make visual inspections, nondestructive tests of welds, observe erection and perform field testing. Prior to welding, provide the Engineer with two weeks written notification, including quantity, type, duration, shift(s) and location, of welding activities to be performed. Fabrications performed without reviewed shop drawings, reviewed weld procedures, material certifications or the specified notification of welding activities shall be considered defective work and subject to rejection. Defective work rejected by the Engineer shall be corrected by the Contractor at no additional cost to the Employer.

10.4. Wall Cladding and Roof

10.4.1. Submittals

Submittals shall be in accordance with Submittal Procedures above.

10.4.2. Installation

Installation is to be done in accordance with the manufacturer's specifications and/ or construction best practices.

10.4.3. Delivery, Storage, and Handling

The contractor to comply with the manufacturer's ordering instructions and lead-time requirements to avoid construction delays. Delivery of materials to be in manufacturer's original, unopened, undamaged containers with identification labels intact. Store materials protected from exposure to harmful weather conditions. Protect material against damage from elements, construction activities, and other hazards before, during and after installation.

ANNEX B – BID DATA SHEET AND EVALUATION CRITERIA

Instructions to Contractors
BID DATA SHEET

Paragraph Reference	
	Name of the Employer: **GUYANA SHORE BASE INC. (GYSBI)** Method of Selection: **Quality and Cost Based Selection (QCBS)**
	Price Proposal to be submitted together with Technical Proposal: **YES** Name of the assignment is: **Design and Build of the Extension of SBM Operations Warehouse, Main Base.**
	A pre-proposal conference will be held: **Yes** The Employer's representative is **Glenn Pasley, Project Director, GYSBI** Address: **Plantation "A", Houston District, East Bank Demerara, Georgetown, Guyana** E-mail: glenn.pasley@gysbi.com
	The Employer will provide the following inputs and facilities: i. available relevant reports, documents, and data n. ii. The Bidding Document and Contract Document for associated Works will be presented at an appropriate time.
	The Employer envisages the need for continuity for downstream work: **NO**
	Proposals must remain valid 90 **days** after the submission date.

Paragraph Reference	
	Clarifications may be requested NOT later than 5 days before the submission date. The address for requesting clarifications is: **Ms. Glenn Pasley, Project Director** **Ms. Savita Liliah-Somrah - Procurement Manager** Email: **tenders@gysbi.com**
	Proposals shall be submitted in the following language: **English**
	Shortlisted Companies may associate with other shortlisted Companies: **NO**
	The format of the Technical Proposal to be submitted is: **Full Technical Proposal (FTP)**
	Training is a specific component of this assignment: **NO**
	Amounts payable by the Employer to the Contractor under the contract to be subject to local taxation: **YES**
	Contractor to state local cost in the Employer's country currency: **YES**
	The Contractor must submit the **original** and **One (1)** copy of the Technical Proposal, and Priced Proposal.

Paragraph Reference	
	The Proposal submission address is: **The Procurement Manager, GYSBI, Plantation "A", Houston District, East Bank Demerara, Georgetown, Guyana.** **Or** **tenders@gysbi.com** Proposals must be submitted no later than the following date and time: **17:00 hrs on March 18th, 2025**
	The single currency for price conversion is: **Guyana Dollars**
	The formula for determining the price scores is the following: Pp = 100 x Pm / F, in which Pp is the price score, Pm is the lowest price and F the price of the proposal under consideration. The weights given to the Technical and Price Proposals are: T = **0.7** and P = **0.3**
	Expected date and address for contract negotiations: March 27th, 2025, in Guyana.
	Expected date for commencement of design and build services: April 16th, 2025.

ITEM	EVALUATION CRITERIA	SCORE
	LOCAL CONTENT EVALUATION - SECTION 1 (MANDATORY)	10%
	TECHNICAL EVALUATION-SECTION 2	25%
	RESOURCES (PERSONNEL, MANPOWER, EQUIPMENT) - SECTION 3	15%
	PROGRAMME CRITERIA & QUALITY CONTROL- SECTION 4	10%
	HSSE EVALUATION- SECTION 5	10%
	FINACIAL ANALYSIS- SECTION 6	30%
	TOTAL	**100%**
	LOCAL CONTENT EVALUATION - SECTION 1 (MANDATORY)	**WEIGHTING**
1.0	**Tenders must show compliance with Local Content Act and proof as a Guyanese registered business.**	**10%**
1.1	**Business Registration Documents:** The company must provide Business Registration or Company Number (As per the Certificate of Business Registration), Date of Registration or Incorporation, Company Tax Identification Number, Business or Company NIS Number, Owners Details (ID Number, TIN, NIS) Partnering Businesses or Companies Details (Owner, TIN, NIS)	25%
1.2	**UBO**: Company must provide Ultimate Beneficial Ownership Chart. What percent of the business or company is beneficially owned by Guyanese Nationals (Citizens of Guyana) **51% Guyanese beneficial ownership required.**	25%
1.3	**Management**: What percent of Executive and Senior Management positions within the business, or company is held by Guyanese Nationals (Citizens of Guyana) **75% Senior Management (Guyanese National) is required.**	25%
1.4	**Workforce**: What percent of non-Managerial and other positions within the business, or company is held by Guyanese Nationals (Citizens of Guyana) – **90% Guyanese National is required** How many persons are employed full-time with the business or company? How many Guyanese nationals are employed full-time with the business or company? How many persons are employed part-time with the business or company How many Guyanese nationals are employed part-time with the business or company?	25%

Total %		**100%**
	TECHNICAL EVALUATION-SECTION 2	**WEIGHTING**
2.0	**Tenderers understanding of the project and a demonstration that the Tenderer has the knowledge, experience, and expertise to perform the services.**	**25%**
2.1	**Reputation & Compliance to Standard**: Demonstrate a good reputation for reliability and delivery with access to all specialist expertise needed to perform the works. **Please provide any project attracting any litigation.**	25%
2.2	**Experience**: Did the bidder offer evidence of experience with projects of a similar technical level: Provide Details of three (3) projects of similar nature that were completed within the last 3-5 years.	25%
2.3	**SoW Understanding**: Assessment of Tenderers Method Statement demonstrating understanding of the scope of work: - Provide detailed method statement capturing the scope of works	50%
Total %		**100%**
	RESOURCES (PERSONNEL, MANPOWER, EQUIPMENT) - SECTION 3	**WEIGHTING**
3.0	**Tenderers to facilitate analysis of their organization and associated resources available, future workload and total manpower.**	**15%**
3.1	**Organization**: Organizational Chart of its proposed team identifying activities and organizational structures for all phases of the Scope of Work. **Provide detailed Organizational Chart**.	20%
3.2	**Future Workload**: Tenderer is requested to advise confirmed future workload, anticipated future workload and work currently being bid in terms of value and manpower. Provide list and status (%complete) of ongoing works and works tendered for in Public and Private Sector.	20%
3.3	**Manpower: Bidder to state that they have sufficient, suitably experienced resources available – (CVs to be provided with proof of employment or affidavit of support):**	**30%**
	Design Phase:	
3.3.1	a. Project Manager/ Team Leader Must have a bachelor's degree in architecture or civil engineering from a reputable University with at least 3 projects of similar nature and 5 or more years of experience on construction projects or;	3%

	Must have a bachelor's degree in business management/ business administration from a reputable University with at least 5 projects of similar nature and 10 or more years of experience on construction projects.	
3.3.2	b. Architect - Minimum qualifications of a BSc. in Architecture and 3 years' experience.	2%
3.3.3	c. Structural/ Civil Engineer - Minimum qualifications of a BSc. in relevant field and 5 years' experience in Building Works.	2%
3.3.4	d. Electrical Engineer - Minimum qualifications of a BSc. in Electrical Engineering and 5 years' experience.	2%
3.3.5	e. Mechanical Engineer - Minimum qualifications of a BSc. in Mechanical Engineering and 5 years' experience in Building/ HVAC Works.	2%
3.3.6	f. Sworn Land Surveyor- Minimum qualification of a Sworn Land Surveyor and a Diploma in Land Surveying or Civil Engineering and minimum 10 years' experience.	2%
3.3.7	g. QHSSE Manager/ Supervisor (full-time presence) Must have at least a bachelor's degree in occupational safety & health (OHS), Health Science, Environmental Science/Studies, Engineering, or related field or certification in NEBOSH, IOSH, BSC, NVQ Level 3, IRCA, or equivalent. Membership in an international OSH body (IIRSM, BCSP, IOSH, etc.) is also accepted.	2%
	Construction Phase:	
3.3.8	a. Project Manager/ Team Leader Must have a bachelor's degree in architecture or civil engineering from a reputable University with at least 3 projects of similar nature and 5 or more years of experience on construction projects or; Must have a bachelor's degree in business management/ business administration from a reputable University with at least 5 projects of similar nature and 10 or more years of experience on construction projects.	3%
3.3.9	a. Site Engineer - Minimum qualifications of a BSc. in relevant field and 5 years' experience in Building Works. (full-time presence)	2%
3.3.10	b. Sworn Land Surveyor- Minimum qualification of a Sworn Land Surveyor and a Diploma in Land Surveying or Civil Engineering and minimum 10 years' experience.	2%

3.3.11	c. Foreman/ Supervisor - Minimum qualification of a technical Certificate from a recognized institution and minimum 10 years' experience. (full-time presence)	2%
3.3.12	d. Tradesmen - Must be certified in their relevant field. Must have working at height certifications where applicable.	2%
3.3.13	e. QHSSE Manager/Supervisor – Minimum qualifications of a BSc. in relevant field and 3 yrs experience. (full-time presence)	2%
3.3.14	g. QA/QC Supervisor - Must have at least a bachelor's in civil engineering or relevant qualification and at least 5 years working in Construction. (full-time presence)	2%
3.4	**Equipment: Provide evidence of ownership/rental agreement of certified equipment (where applicable) and equipment details to be used for the work same to be stamped by a Commissioner of Oaths. Key equipment:**	**30.0%**
3.4.1	1 nr - 6ton Mini Excavator.	3%
3.4.2	1 nr - 30 ton – Crane (Certified)	3%
3.4.3	2 nr - 60 ft. Reach Manlift (Certified)	3%
3.4.4	1 nr – Skid Steer Loader	3%
3.4.5	1 nr. - Plate Compactor	3%
3.4.6	2 nr - 20 cy Dump Truck	3%
3.4.7	1 nr. -Total Station and miscellaneous surveying accessories.	3%
3.4.8	1 nr. - Scissors Lift (Certified)	3%
3.4.9	1 nr. – Telehandler (Certified)	3%
3.4.10	All lifting accessories must be certified.	3%
Total %		**100.0**
	PROGRAMME CRITERIA & QUALITY CONTROL- SECTION 4	**WEIGHTING**
4.0	**Tenderers to facilitate analysis of Environmental plan, Quality Assurance plan, Work programme and Planning issues**	**10%**

4.1	**Quality Assurance**: Bidder to offer sufficient evidence of experience with completing quality projects within timescales and budgets? **Bidder to provide list of projects completed on time and/or within budget.**	25%
4.2	**Works Programme**: Is the bidder able to complete the work within the required timelines? Does the work programme submitted reflect pragmatism, general knowledge of the required scope and the work environment? **Bidder to submit detailed Work programme** (level 4) covering design and construction phases.	25%
4.3	**Track Record:** Did Bidder provide example of references/past project history / performance track record Provide list of past projects within last 5 years capturing: a. Client and contact information b. Value of Project completed c. Project duration	25%
4.4	**Quality Plan:** Review of a submitted project quality plan, which may be taken from an example of a previous project. Provide a Quality Management plan**.**	25%
Total %		**100%**
	HSSE EVALUATION- SECTION 5	**WEIGHTING**
5.0	**Work programme evaluation in terms of overall organization, experience and specific knowledge of this type of activities and environment.**	**10%**
5.1	HSSE Policy, Procedures, & Plan: Evidence of robust Contractor HSSE policies, procedures and reporting in place, and alignment with GYSBI HSSE requirements. **Provide evidence of HSSE Policy, manual and mechanism**	65%
5.2	**HSSE Approach:** Approach to the management of HSSE issues, including a good track record in HSSE.	**35%**
5.2.1	Safety Records & Incident History	5%
5.2.2	Risk Assessments & Method Statements	7%
5.2.3	Workforce HSE Competence	6%
5.2.4	HSE Equipment & Resources	6%

5.2.5	Environmental Protection Measures	5%
5.2.6	Emergency Response & Contingency Plans	6%
Total %		**100%**
	FINACIAL ANALYSIS- SECTION 6	**WEIGHTING**
6.0	**Analysis of the Commercial aspects of the tender**	**30%**
6.1	**Tender Price** (including all costs)	70%
6.2	**Alternative Proposal Providing an Advantage**: (Not always applicable - if n/a change weighting to zero) (If not applicable all score 5)	5%
6.3	**Tenderers Acceptance of Draft Contract Payment Terms**: (If not applicable all score 5)	5%
6.4	Provide Audited Financial Statement for the last Three (3) years, i.e., 2019, 2020 and 2021 (Applicable for Incorporated Companies. Financial Statements must be audited by a Chartered Accountant/Accounting Firm and include an auditor's note/opinion.)	10%
6.5	Evidence of established financial capacity representing a minimum value of **Twenty Percent (25%)** of Bid Price. Bidder must provide a letter of credit from a bank, or an official bank statement dated no earlier than two months of bid opening. Document must be original, or if a photocopy is presented, it must be a 'Certified True Copy' endorsed by the issuing entity.	10%
Total %		**100%**

Conditions of Contract

The Conditions of Contract comprise the "General Conditions", which form part of the "Conditions of Contract for Plant and Design-Build" Second Edition 2017 published by the Fédération Internationale des Ingénieurs-Conseils (FIDIC), the Contract Data (Particular Conditions – Part A), and the following "Special Provisions" (Particular Conditions – Part B) which include amendments and additions to such General Conditions.

Conditions of Contract Part A

Sub-Clause	Particular Conditions Part A – Contract Data
1.1.27	Defects Notification Period: 365 days
1.1.30	Employer's Name and Address: Guyana Shore Base Inc. Lot 'A' Plantation Houston District Georgetown, Guyana.
1.1.35	Engineer: Glenn Pasley, Project Director. glenn.pasley@gysbi.com QHSSE Manager: Allan Lambert; QHSSE Projects Manager.
	Contractor Representative: [Name] [Designation] [Contractor Company Name]
1.1.87	Time for Completion: 249 days
1.3(d)	Notices: For the Company: Guyana Shore Base Inc. Lot 'A' Plantation Houston District Georgetown, Guyana. Telephone: +592-227-2380 | +592-227-2381 E-mail: [xx]@gysbi.com For the Contractor: [Contractor's Name] [Address Line 1], [Address Line 2],

	Georgetown, Guyana. Tel: +592-000-0000 E-mail: [email address]
1.4	Contract shall be governed by the law of: Guyana
1.4	Ruling language: English
4.2	Performance Security: The Performance Security shall be: 10% of the Contract Sum.
8.8	Liquidated Damages: Liquidated damages will be specified in the applicable Contract. The penalty to be paid by the Contractor for delay of the completion of the whole of the works shall be: 1% of the Contract Sum per day or 4% of the Contract Sum per week (As agreed per Contract depending on length of project). The limit of liquidated damages shall be: 15% of the Contract Sum.
14.2	Advance Payment: Any Advance payment shall be 15% of the Contract Sum.
14.3	Retention: The percentage of payments to be retained to correct possible defects shall be: ten (10) % of the Contract Sum. The limit of payments to be retained to correct possible defects shall be: ten (10) % of the Contract Sum.
14.6.2	Minimum amount of Interim Payment Certificate (IPC): 5
14.7(a)	Period for Advance Payment to the Contractor: 30 days
14.7(b) and 14.7 (c)	Period for Employer to make interim and final payments to the Contractor: 30 days.

14.15	Currency for Payment of Contract Price: Guyana Dollars
19.2.4 and 19.2.6	Insurance: i. Contractors All Risk: Coverage to the value of the Contract Sum ii. Company's Liability: Coverage GY$11,000,000 iii. Public Liability: Coverage GY$11,000,000

Conditions of Contract Part B (Special Provisions)

The provisions to be found in the Special Provisions (Particular Conditions – Part B) take precedence over the equivalent provisions found under the same Sub-Clause number(s) in the General Conditions, and the provisions of the Contract Data (Particular Conditions – Part A) take precedence over the Special Provisions (Particular Conditions – Part B).

Sub-Clause 14.9 Release of Retention Money

The following shall be added to the end of the Sub-Clause:

"When the Retention Money has reached three-fifths (60%) of the limit of Retention Money stated in the Contract Data, after the Employer has received the guarantee referred to below the Engineer shall certify and the Employer shall make payment of half (50%) of the limit of Retention Money to the Contractor.

The Contractor shall obtain (at the Contractor's cost) a guarantee in amounts and currencies equal to half (50%) of the limit of Retention Money stated in the Contract Data and shall submit it to the Employer with a copy to the Engineer. This guarantee shall be issued by an entity and from within a country (or other jurisdiction) to which the Employer gives consent and shall be based on the sample form included in the tender documents or on another form agreed by the Employer (but such consent and/ or agreement shall not relieve the Contractor from any obligation under this Sub-Clause).

The Contractor shall ensure that the guarantee is valid and enforceable until the Contractor has executed the Works, as specified for the Performance Security in Sub-Clause 4.2.1. If the terms of the guarantee specify an expiry date, and the Contractor has not so executed the Works by the date 28 days before the expiry date, the Contractor shall extend the validity of the guarantee.

The release of Retention Money under this Sub-Clause shall be in lieu of the release of the second half of the Retention Money under the second paragraph of Sub-Clause 14.9 [Release of Retention Money]."

ANNEX C - TECHNICAL & FINANCIAL PROPOSAL - STANDARD FORMS

[*Comments in brackets* [ ] *provide guidance to the shortlisted Consultants for the preparation of their Technical Proposals; they should not appear on the Technical Proposals to be submitted.*]

TECH-1	Technical Proposal Submission Form
TECH-2	Consultant's Organization and Experience A Consultant's Organization B Consultant's Experience
TECH-3	Comments or Suggestions on the Employer's Requirements
TECH-4	Description of the Approach, Methodology and Work Plan for Performing the Assignment
TECH-5	Team Composition and Task Assignments
TECH-6	Curriculum Vitae (CV) for Proposed Professional Staff
PR - 1	Price Proposal Form
RMG – 1	Retention Money Guarantee Form

FORM TECH-1 TECHNICAL PROPOSAL SUBMISSION FORM

[*Location, Date*]

To: [*Name and address of Client*]

Dear Sirs:

We, the undersigned, offer to provide the consulting services for [*Insert title of assignment*] in accordance with your Request for Proposal dated [*Insert Date*] and our Proposal. We are hereby submitting our Proposal, which includes this Technical Proposal, and a Price Proposal in a **sealed envelope**.

We hereby declare that all the information and statements made in this Proposal are true and accept that any misinterpretation contained in it may lead to our disqualification.

If negotiations are held during the period of validity of the Proposal, i.e., before the date indicated in the Data Sheet, we undertake to negotiate on the basis of the proposed staff. Our Proposal is binding upon us and subject to the modifications resulting from Contract negotiations.

We undertake, if our Proposal is accepted, to initiate the design and build services related to the assignment not later than the date indicated in the Data Sheet.

We understand you are not bound to accept any Proposal you receive.

We remain,

Yours sincerely,

Authorized Signature [*In full and initials*]:
Name and Title of Signatory:
Name of Firm:
Address:

Form TECH-2 Consultant's Organization and Experience

A - Consultant's/Contractor's Organization

[*Provide here a brief (two pages) description of the background and organization of your firm/entity and each associate for this assignment.*]

B - Consultant's/Contractor's Experience

[*Using the format below, provide information on each assignment for which your firm, and each associate (JVCA) for this assignment, was legally contracted either individually as a corporate entity or as one of the major companies within an association, for carrying out consulting services like the ones requested under this assignment.]*

Assignment name:	Approx. value of the contract (in current US$ or Euro):
Country: Location within country:	Duration of assignment (months):
Name of Client:	Total Nº of staff-months of the assignment:
Address:	Approx. value of the services provided by your firm under the contract (in current G$):
Start date (month/year): Completion date (month/year):	Nº of professional staff-months provided by associated Consultants:
Name of associated Consultants, if any:	Name of senior professional staff of your firm involved and functions performed (indicate most significant profiles such as Project Director/Coordinator, Team Leader):
Narrative description of Project:	
Description of actual services provided by your staff within the assignment:	

Firm's Name: _____

FORM TECH-3 COMMENTS AND SUGGESTIONS ON THE EMPLOYER'S REQUIREMENTS AND ON COUNTERPART STAFF AND FACILITIES TO BE PROVIDED BY THE CLIENT

A - On the Employer's Requirements

[*Present and justify here any modifications or improvement to the Employer's Requirements you are proposing to improve performance in carrying out the assignment (such as deleting some activity you consider unnecessary, or adding another, or proposing a different phasing of the activities). Such suggestions should be concise and to the point and incorporated in your Proposal.*]

FORM TECH-4 DESCRIPTION OF APPROACH, METHODOLOGY AND WORK PLAN FOR PERFORMING THE ASSIGNMENT

(For small or very simple assignments the Client should omit the following text in Italic)

[*Technical approach, methodology and work plan are key components of the Technical Proposal. You are suggested to present your Technical Proposal divided into the following three chapters:*

Technical Approach and Methodology,
Work Plan, and
Organization and Staffing.

a) Technical Approach and Methodology. In this section you should explain your understanding of the objectives of the assignment, approach to the services, methodology for carrying out the activities and obtaining the expected output, and the degree of detail of such output. You should highlight the problems being addressed and their importance and explain the technical approach you would adopt to address them. You should also explain the methodologies you propose to adopt and highlight the compatibility of those methodologies with the proposed approach.

b) Work Plan. In this section you should propose the main activities of the assignment, their content and duration, phasing and interrelations, milestones (including interim approvals by the Client), and delivery dates of the reports. The proposed work plan should be consistent with the technical approach and methodology, showing understanding of the TOR and ability to translate them into a feasible working plan. A list of the final documents, including reports, drawings, and tables to be delivered as final output, should be included here. The work plan should be consistent with the Work Schedule of Form TECH-8.

c) Organization and Staffing. In this section you should propose the structure and composition of your team. You should list the main disciplines of the assignment, the key expert responsible, and proposed technical and support staff.]

FORM TECH-5 TEAM COMPOSITION AND TASK ASSIGNMENTS

Professional Staff				
Name of Staff	Firm	Area of Expertise	Position Assigned	Task Assigned

FORM TECH-6 CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF

1. Proposed Position [*only one candidate shall be nominated for each position*]: _____

2. Name of Firm [*Insert name of firm proposing the staff*]: _____

_____

3. Name of Staff [*Insert full name*]: _____

4. Education [*Indicate college/university and other specialized education of staff member, giving names of institutions, degrees obtained, and dates of obtainment*]: _____

_____

5. Membership of Professional Associations: _____

_____

6. Other Training [*Indicate significant training since degrees under 5 - Education were obtained*]: _____

_____

7. Countries of Work Experience: [*List countries where staff has worked in the last ten years*]:

_____

8. Employment Record [*Starting with present position, list in reverse order every employment held by staff member since graduation, giving for each employment (see format here below): dates of employment, name of employing organization, positions held.*]:

From [*Year*]: _____ To [*Year*]: _____
Employer: _____
Positions held: _____

9. **Detailed Tasks Assigned**	**10. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned**
[*List all tasks to be performed under this assignment*]	[*Among the assignments in which the staff has been involved, indicate the following information for those assignments that best illustrate staff capability to handle the tasks listed under point 9.*] Name of assignment or project: _____ Year: _____ Location: _____ Client: _____ Main project features: _____ Positions held: _____ Activities performed: _____

11. Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

_____ Date: _____

[Signature of staff member or authorized representative of the staff] *Day/Month/Year*

Full name of authorized representative: _____

PRICE - 1. Price Proposal - Standard Forms

[*Comments in brackets* [ ] *provide guidance to the shortlisted Consultants for the preparation of their Price Proposals; they should not appear on the Price Proposals to be submitted.*]

Price Proposal Standard Forms shall be used for the preparation of the Price Proposal. Such Forms are to be used whichever is the selection method indicated in para. 5 of the Letter of Invitation.

PR-1 Price Proposal Submission Form

FORM PR-1 PRICE PROPOSAL SUBMISSION FORM

[*Location, Date*]

To: [*Name and address of Client*]

Dear Sirs:

We, the undersigned, offer to provide the consulting services for [*Insert title of assignment*] in accordance with your Request for Proposal dated [*Insert Date*] and our Technical Proposal. Our attached Price Proposal is for the sum of [*Insert amount(s) in words and figures*[1]]. This amount is exclusive of the local taxes, which shall be identified during negotiations and shall be added to the above amount.

Our Price Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal, i.e., before the date indicated in the Data Sheet.

We understand you are not bound to accept any Proposal you receive.

We remain,

Yours sincerely,

Authorized Signature [*In full and initials*]: _____
Name and Title of Signatory: _____
Name of Firm: _____
Address: _____

RMG-1: FORM OF RETENTION MONEY GUARANTEE

Guarantee No.: _____ [insert guarantee reference number]

The Guarantor: _____
_____ [insert name and address of place of issue, unless indicated in the letterhead]

Name of Contract/Contract No.: _____
_____ [insert reference number or other information identifying the contract between the Applicant and the Beneficiary on which the guarantee is based]

The Beneficiary (the "Employer"): _____
_____ [insert name and address of the Beneficiary]

We have been informed that _____
_____ [insert name of the Contractor and address] (hereinafter called the "Applicant") is your Contractor under such Contract and wishes to receive an early payment of [part of] the retention money, for which the Contract requires him/her to obtain a guarantee.

At the request of the Applicant, we _____ [insert name of Guarantor] hereby irrevocably undertake to pay you, the Beneficiary/Employer, any sum or sums not exceeding in total the amount of _____ [insert in figures and words the maximum amount payable and the currency in which it is payable] (the "Guaranteed Amount") upon receipt by us of your demand in writing and your written statement that the Applicant has failed to carry out his/her obligation(s) to rectify the following defect(s) for which he/she is responsible under the Contract [state the nature of the defect(s)].

At any time, our liability under this guarantee shall not exceed the total amount of retention money released to the Applicant by you, as evidenced by interim payment certificates issued under Sub-Clause 14.6 of the Conditions of Contract with a copy being submitted to us.

Any demand for payment must contain your signature(s) which must be authenticated by your bankers or by a notary public. The authenticated demand and statement must be received by us at the following office [insert address of office] on or before _____ [insert the date 70 days after the expected expiry of the Defects Notification Period for the Works], (the "Expiry Date"), when this guarantee shall expire.

We have been informed that the Beneficiary may require the Applicant to extend this guarantee if the Performance Certificate under the Contract has not been issued by the date 28 days prior to such Expiry Date. We undertake to pay you the Guaranteed Amount upon receipt by us, within such period of 28 days, of your demand in writing and your written statement that the Performance Certificate has not been issued, for reasons attributable to the Applicant, and that this guarantee has not been extended.

The party liable for the payment of any charges: _____[insert the name of the party].

This guarantee shall be governed by the laws of _____ [insert the law governing the guarantee] and shall be subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

Signed by: _____ Signed by[(1)]: _____
((signature) (signature)

_____ _____

(name) (name)

Date: _____

([1]) Whether one or more signatories for the bank are required will depend on the bank and/or applicable law.