

PHILIPPINE BIDDING DOCUMENTS

Construction of Chemical and Fertilizer Storage for LGAREC Station

ABC = Php5,000,000.00

2024-COB-16

for

Sugar Regulatory Administration

September 10, 2024

Preface

These Philippine Bidding Documents (PBDs) for the procurement of Infrastructure Projects (hereinafter referred to also as the “Works”) through Competitive Bidding have been prepared by the Government of the Philippines for use by all branches, agencies, departments, bureaus, offices, or instrumentalities of the government, including government-owned and/or -controlled corporations, government financial institutions, state universities and colleges, local government units, and autonomous regional government. The procedures and practices presented in this document have been developed through broad experience, and are for mandatory use in projects that are financed in whole or in part by the Government of the Philippines or any foreign government/foreign or international financing institution in accordance with the provisions of the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

The PBDs are intended as a model for admeasurements (unit prices or unit rates in a bill of quantities) types of contract, which are the most common in Works contracting.

The Bidding Documents shall clearly and adequately define, among others: (i) the objectives, scope, and expected outputs and/or results of the proposed contract; (ii) the eligibility requirements of Bidders; (iii) the expected contract duration; and (iv) the obligations, duties, and/or functions of the winning Bidder.

Care should be taken to check the relevance of the provisions of the PBDs against the requirements of the specific Works to be procured. If duplication of a subject is inevitable in other sections of the document prepared by the Procuring Entity, care must be exercised to avoid contradictions between clauses dealing with the same matter.

Moreover, each section is prepared with notes intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They shall not be included in the final documents. The following general directions should be observed when using the documents:

- a. All the documents listed in the Table of Contents are normally required for the procurement of Infrastructure Projects. However, they should be adapted as necessary to the circumstances of the particular Project.
- b. Specific details, such as the “*name of the Procuring Entity*” and “*address for bid submission*,” should be furnished in the Instructions to Bidders, Bid Data Sheet, and Special Conditions of Contract. The final documents should contain neither blank spaces nor options.
- c. This Preface and the footnotes or notes in italics included in the Invitation to Bid, BDS, General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings, and Bill of Quantities are not part of the text of the final document, although they contain instructions that the Procuring Entity should strictly follow.
- d. The cover should be modified as required to identify the Bidding Documents as to the names of the Project, Contract, and Procuring Entity, in addition to date of issue.
- e. Modifications for specific Procurement Project details should be provided in the Special Conditions of Contract as amendments to the Conditions of Contract.

For easy completion, whenever reference has to be made to specific clauses in the Bid Data Sheet or Special Conditions of Contract, these terms shall be printed in bold typeface on Sections I (Instructions to Bidders) and III (General Conditions of Contract), respectively.

- f. For guidelines on the use of Bidding Forms and the procurement of Foreign-Assisted Projects, these will be covered by a separate issuance of the Government Procurement Policy Board.

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Glossary of Terms, Abbreviations, and Acronyms

ABC – Approved Budget for the Contract.

ARCC – Allowable Range of Contract Cost.

BAC – Bids and Awards Committee.

Bid – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender*. (2016 revised IRR, Section 5[c])

Bidder – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

Bidding Documents – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

CDA – Cooperative Development Authority.

Consulting Services – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

Contract – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

Contractor – is a natural or juridical entity whose proposal was accepted by the Procuring Entity and to whom the Contract to execute the Work was awarded. Contractor as used in these Bidding Documents may likewise refer to a supplier, distributor, manufacturer, or consultant.

CPI – Consumer Price Index.

DOLE – Department of Labor and Employment.

DTI – Department of Trade and Industry.

Foreign-funded Procurement or Foreign-Assisted Project – Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

GFI – Government Financial Institution.

GOCC – Government-owned and/or –controlled corporation.

Goods – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term “related” or “analogous services” shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

GOP – Government of the Philippines.

Infrastructure Projects – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PCAB – Philippine Contractors Accreditation Board.

PhilGEPS - Philippine Government Electronic Procurement System.

Procurement Project – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

UN – United Nations.

Section I. Invitation to Bid

Notes on the Invitation to Bid

The Invitation to Bid (IB) provides information that enables potential Bidders to decide whether to participate in the procurement at hand. The IB shall be posted in accordance with Section 21.2 of the 2016 revised IRR of RA No. 9184.

Apart from the essential items listed in the Bidding Documents, the IB should also indicate the following:

- a. The date of availability of the Bidding Documents, which shall be from the time the IB is first advertised/posted until the deadline for the submission and receipt of bids;
- b. The place where the Bidding Documents may be acquired or the website where it may be downloaded;
- c. The deadline for the submission and receipt of bids; and
- d. Any important bid evaluation criteria.

The IB should be incorporated into the Bidding Documents. The information contained in the IB must conform to the Bidding Documents and in particular to the relevant information in the Bid Data Sheet.



Republic of the Philippines
Department of Agriculture

SUGAR REGULATORY ADMINISTRATION

Sugar Center Bldg., North Avenue, Diliman, Quezon City, Philippines 1101

TIN 000-784-336

Website: <http://www.sra.gov.ph>

Email Address: srahead@sra.gov.ph

Tel No. (632) 8929-3633, (632) 3455-2135, (632) 3455-3376

INVITATION TO BID FOR CONSTRUCTION OF CHEMICAL AND FERTILIZER STORAGE FOR LGAREC STATION (2024-COB-16)

1. The SUGAR REGULATORY ADMINISTRATION, through the Corporate Operating Budget 2024 intends to apply the sum of **Five Million Pesos (₱5,000,000.00)** being the ABC for payments under the contract for the **Construction of Chemical and Fertilizer Storage for LGAREC Station / 2024-COB-16**. Bids received in excess of the ABC shall be automatically rejected at bid opening.
2. The SUGAR REGULATORY ADMINISTRATION now invites bids for the above Procurement Project. Completion of the Works is required within ninety (90) calendar days upon receipt of the Notice to Proceed. Bidders should have completed a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).
3. Bidding will be conducted through open competitive bidding procedures using non-discretionary “*pass/fail*” criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.
4. Interested bidders may obtain further information from SUGAR REGULATORY ADMINISTRATION and inspect the Bidding Documents at the address given below from 8:00 A.M. to 5:00 P.M.
5. A complete set of Bidding Documents may be acquired by interested Bidders on September 11, 2024 to October 7, 2024 from the given address and website(s) below upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB in the amount of ₱5,000.00. The Procuring Entity shall allow the bidder to present its proof of payment for the fees in person or through electronic means.
6. The SUGAR REGULATORY ADMINISTRATION will hold a Pre-Bid Conference on 23 September 2024 at 10:30 A.M at the Conference Room, SRA, Araneta St., Singang, Bacolod City. This shall be open to prospective bidders who shall have the option to attend either physically or through video conferencing via Zoom or Google Meet platforms. A Link will be given to those interested in bidding for the Procurement Project.



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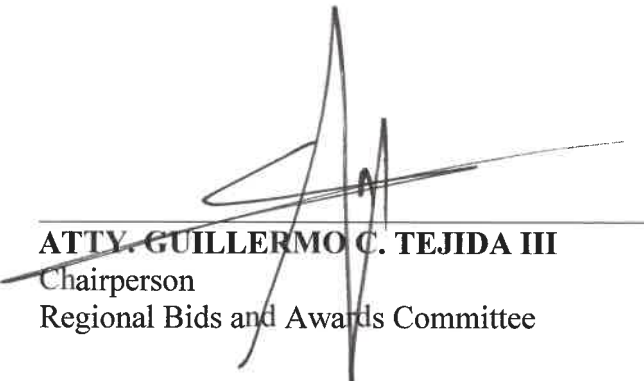
7. Bids must be duly received by the BAC Secretariat through manual submission at the office address indicated below, on or before 07 October 2024 at 8:30 A.M. Late bids shall not be accepted.
8. All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 16.
9. Bid opening shall be on 07 October 2024 at 10:30 A.M. at the given address below and will be made available via Zoom or Google Meet platform for those who choose to attend virtually. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.
10. The SUGAR REGULATORY ADMINISTRATION reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised Implementing Rules and Regulations (IRR) of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.
11. For further information, please refer to:

NATASHA KIM G. PESQUERA
RBAC Secretariat Head
Sugar Regulatory Administration
Araneta St., Singcang, Bacolod City, Negros Occidental 6100
sra.rbac@sra.gov.ph
Tel. (034) 460-8530
Mobile No. 0998-8453123
www.sra.gov.ph

12. You may visit the following websites for downloading of Bidding Documents:

www.sra.gov.ph
www.philgeps.gov.ph

September 10, 2024



ATTY. GUILLERMO C. TEJIDA III
Chairperson
Regional Bids and Awards Committee

Section II. Instructions to Bidders

Notes on the Instructions to Bidders

This Section on the Instruction to Bidders (ITB) provides the information necessary for bidders to prepare responsive bids, in accordance with the requirements of the Procuring Entity. It also provides information on bid submission, eligibility check, opening and evaluation of bids, post-qualification, and on the award of contract.

1. Scope of Bid

The Procuring Entity, SUGAR REGULATORY ADMINISTRATION invites Bids for the **Construction of Chemical and Fertilizer Storage for LGAREC Station** with Project Identification Number 2024-COB-16.

The Procurement Project (referred to herein as “Project”) is for the construction of Works, as described in Section VI (Specifications).

2. Funding Information

2.1. The GOP through the source of funding as indicated below for 2024 in the amount of Five Million Pesos (₱5,000,000.00).

2.2. The source of funding is: Corporate Operating Budget.

3. Bidding Requirements

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manual and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or invitation to bid by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have inspected the site, determined the general characteristics of the contracted Works and the conditions for this Project, such as the location and the nature of the work; (b) climatic conditions; (c) transportation facilities; (c) nature and condition of the terrain, geological conditions at the site communication facilities, requirements, location and availability of construction aggregates and other materials, labor, water, electric power and access roads; and (d) other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

4. Corrupt, Fraudulent, Collusive, Coercive, and Obstructive Practices

The Procuring Entity, as well as the Bidders and Contractors, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex “I” of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

- 5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.
- 5.2. The Bidder must have an experience of having completed a Single Largest Completed Contract (SLCC) that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC adjusted, if necessary, by the Bidder to current prices using the PSA's CPI, except under conditions provided for in Section 23.4.2.4 of the 2016 revised IRR of RA No. 9184.

A contract is considered to be "similar" to the contract to be bid if it has the major categories of work stated in the **BDS**.

- 5.3. For Foreign-funded Procurement, the Procuring Entity and the foreign government/foreign or international financing institution may agree on another track record requirement, as specified in the Bidding Document prepared for this purpose.
- 5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.2 of the 2016 IRR of RA No. 9184.

6. Origin of Associated Goods

There is no restriction on the origin of Goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN.

7. Subcontracts

- 7.1. The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than fifty percent (50%) of the Project.

The Procuring Entity has prescribed that:

Subcontracting is not allowed.

- 7.2. Subcontracting of any portion of the Project does not relieve the Contractor of any liability or obligation under the Contract. The Supplier will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants, or workmen as fully as if these were the Contractor's own acts, defaults, or negligence, or those of its agents, servants, or workmen.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address Conference Room, SRA, Araneta St., Singcang, Bacolod City and/or through videoconferencing/webcasting as indicated in paragraph 6 of the **IB**.

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10. Documents Comprising the Bid: Eligibility and Technical Components

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.
- 10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.
- 10.3. A valid special PCAB License in case of Joint Ventures, and registration for the type and cost of the contract for this Project. Any additional type of Contractor license or permit shall be indicated in the **BDS**.
- 10.4. A List of Contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen) assigned to the contract to be bid, with their complete qualification and experience data shall be provided. These key personnel must meet the required minimum years of experience set in the **BDS**.
- 10.5. A List of Contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership, certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be, must meet the minimum requirements for the contract set in the **BDS**.

11. Documents Comprising the Bid: Financial Component

- 11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.
- 11.2. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.

- 11.3. For Foreign-funded procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Alternative Bids

Bidders shall submit offers that comply with the requirements of the Bidding Documents, including the basic technical design as indicated in the drawings and specifications. Unless there is a value engineering clause in the **BDS**, alternative Bids shall not be accepted.

13. Bid Prices

All bid prices for the given scope of work in the Project as awarded shall be considered as fixed prices, and therefore not subject to price escalation during contract implementation, except under extraordinary circumstances as determined by the NEDA and approved by the GPPB pursuant to the revised Guidelines for Contract Price Escalation guidelines.

14. Bid and Payment Currencies

- 14.1. Bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

- 14.2. Payment of the contract price shall be made in Philippine Pesos.

15. Bid Security

- 15.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.
- 15.2. The Bid and bid security shall be valid until February 4, 2025. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

16. Sealing and Marking of Bids

Each Bidder shall submit one copy of the first and second components of its Bid.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

If the Procuring Entity allows the submission of bids through online submission to the given website or any other electronic means, the Bidder shall submit an electronic copy

of its Bid, which must be digitally signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

17. Deadline for Submission of Bids

The Bidders shall submit on the specified date and time and either at its physical address or through online submission as indicated in paragraph 7 of the **IB**.

18. Opening and Preliminary Examination of Bids

18.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

18.2. The preliminary examination of Bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*" using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of 2016 revised IRR of RA No. 9184.

19.2. If the Project allows partial bids, all Bids and combinations of Bids as indicated in the **BDS** shall be received by the same deadline and opened and evaluated simultaneously so as to determine the Bid or combination of Bids offering the lowest calculated cost to the Procuring Entity. Bid Security as required by **ITB** Clause 15 shall be submitted for each contract (lot) separately.

19.3. In all cases, the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184 must be sufficient for the total of the ABCs for all the lots participated in by the prospective Bidder.

20. Post Qualification

Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS), and other appropriate licenses and permits required by law and stated in the **BDS**.

21. Signing of the Contract

The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

Section III. Bid Data Sheet

Notes on the Bid Data Sheet (BDS)

The Bid Data Sheet (BDS) consists of provisions that supplement, amend, or specify in detail, information, or requirements included in the ITB found in Section II, which are specific to each procurement.

This Section is intended to assist the Procuring Entity in providing the specific information in relation to corresponding clauses in the ITB and has to be prepared for each specific procurement.

The Procuring Entity should specify in the BDS information and requirements specific to the circumstances of the Procuring Entity, the processing of the procurement, and the bid evaluation criteria that will apply to the Bids. In preparing the BDS, the following aspects should be checked:

- a. Information that specifies and complements provisions of the ITB must be incorporated.
- b. Amendments and/or supplements, if any, to provisions of the ITB as necessitated by the circumstances of the specific procurement, must also be incorporated.

Bid Data Sheet

ITB Clause																															
5.2	For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be: Vertical Infrastructure Projects, such as <i>Construction/ Repair/ Renovation/ Rehabilitation of a building</i> .																														
10.3	<i>None.</i>																														
10.4	<p>The key personnel must meet the required minimum years of experience set below:</p> <table><tr><th>Key Personnel</th><th>General Experience</th><th>Relevant Experience</th></tr><tr><td>Project Construction Engineer (Civil Engineer)</td><td>10 years</td><td>5 years</td></tr><tr><td>Project Engineer (Licensed Civil Engineer)</td><td>10 years</td><td>5 years</td></tr><tr><td>Licensed Electrical Engineer</td><td>10 years</td><td>3 years</td></tr><tr><td>Safety Engineer/ Construction Safety and Health Officer (EE/ME/CE)</td><td>5 years</td><td>2 years with COSH/BOSH Certificate of Training</td></tr><tr><td>Electrician (RME)</td><td>10 years</td><td>5 years</td></tr><tr><td>General Foreman</td><td>10 years</td><td>5 years</td></tr><tr><td>Heavy Equipment Operators</td><td>5 years</td><td>5 years</td></tr><tr><td>Skilled Workers</td><td>5 years</td><td>3 years</td></tr><tr><td>Laborers</td><td>5 years</td><td>2 years</td></tr></table>	Key Personnel	General Experience	Relevant Experience	Project Construction Engineer (Civil Engineer)	10 years	5 years	Project Engineer (Licensed Civil Engineer)	10 years	5 years	Licensed Electrical Engineer	10 years	3 years	Safety Engineer/ Construction Safety and Health Officer (EE/ME/CE)	5 years	2 years with COSH/BOSH Certificate of Training	Electrician (RME)	10 years	5 years	General Foreman	10 years	5 years	Heavy Equipment Operators	5 years	5 years	Skilled Workers	5 years	3 years	Laborers	5 years	2 years
Key Personnel	General Experience	Relevant Experience																													
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Heavy Equipment Operators	5 years	5 years																													
Skilled Workers	5 years	3 years																													
Laborers	5 years	2 years																													
10.5	<p>The minimum major equipment requirements are the following:</p> <table><tr><th>Equipment</th><th>Capacity</th><th>Number of Unit</th></tr><tr><td>Welding Machine</td><td>300A</td><td>1 unit</td></tr><tr><td>Cutter/Grinder</td><td>100MM 700W</td><td>2 units</td></tr><tr><td>Bagger Mixer</td><td>One (1)</td><td>1 unit</td></tr><tr><td>Plate Compactor</td><td>6.5HP</td><td>1 unit</td></tr><tr><td>Electric Drill</td><td>½ in O</td><td>1 unit</td></tr><tr><td>Stick Vibrator</td><td></td><td>1 unit</td></tr></table>	Equipment	Capacity	Number of Unit	Welding Machine	300A	1 unit	Cutter/Grinder	100MM 700W	2 units	Bagger Mixer	One (1)	1 unit	Plate Compactor	6.5HP	1 unit	Electric Drill	½ in O	1 unit	Stick Vibrator		1 unit									
Equipment	Capacity	Number of Unit																													
Welding Machine	300A	1 unit																													
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Stick Vibrator		1 unit																													
12	<i>None.</i>																														
15.1	<p>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:</p> <p>a. The amount of not less ₱100,000.00, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; or</p> <p>b. The amount of not less than ₱250,000.00, if bid security is in Surety Bond.</p>																														
20	Philippine Contractors Accreditation Board (PCAB) license																														

21	Additional contract documents relevant to the Project that may be required by existing laws and/or the Procuring Entity, such as construction schedule and S-curve, manpower schedule, construction methods, equipment utilization schedule, construction safety and health program approved by the DOLE, and Programme Evaluation Review Technique / Critical Path Method (PERT/CPM) or other acceptable tools of project scheduling.
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Section IV. General Conditions of Contract

Notes on the General Conditions of Contract

The General Conditions of Contract (GCC) in this Section, read in conjunction with the Special Conditions of Contract in Section V and other documents listed therein, should be a complete document expressing all the rights and obligations of the parties.

Matters governing performance of the Contractor, payments under the contract, or matters affecting the risks, rights, and obligations of the parties under the contract are included in the GCC and Special Conditions of Contract.

Any complementary information, which may be needed, shall be introduced only through the Special Conditions of Contract.

1. Scope of Contract

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

2. Sectional Completion of Works

If sectional completion is specified in the **Special Conditions of Contract (SCC)**, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date shall apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

3. Possession of Site

3.1 The Procuring Entity shall give possession of all or parts of the Site to the Contractor based on the schedule of delivery indicated in the **SCC**, which corresponds to the execution of the Works. If the Contractor suffers delay or incurs cost from failure on the part of the Procuring Entity to give possession in accordance with the terms of this clause, the Procuring Entity's Representative shall give the Contractor a Contract Time Extension and certify such sum as fair to cover the cost incurred, which sum shall be paid by Procuring Entity.

3.2 If possession of a portion is not given by the above date, the Procuring Entity will be deemed to have delayed the start of the relevant activities. The resulting adjustments in contract time to address such delay may be addressed through contract extension provided under Annex "E" of the 2016 revised IRR of RA No. 9184.

4. The Contractor's Obligations

The Contractor shall employ the key personnel named in the Schedule of Key Personnel indicating their designation, in accordance with **ITB** Clause 10.3 and specified in the **BDS**, to carry out the supervision of the Works.

The Procuring Entity will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are equal to or better than those of the personnel listed in the Schedule.

5. Performance Security

- 5.1. Within ten (10) calendar days from receipt of the Notice of Award from the Procuring Entity but in no case later than the signing of the contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR.
- 5.2. The Contractor, by entering into the Contract with the Procuring Entity, acknowledges the right of the Procuring Entity to institute action pursuant to RA No. 3688 against any subcontractor be they an individual, firm, partnership, corporation, or association supplying the Contractor with labor, materials and/or equipment for the performance of this Contract.

6. Site Investigation Reports

The Contractor, in preparing the Bid, shall rely on any Site Investigation Reports referred to in the SCC supplemented by any information obtained by the Contractor.

7. Warranty

- 7.1. In case the Contractor fails to undertake the repair works under Section 62.2.2 of the 2016 revised IRR, the Procuring Entity shall forfeit its performance security, subject its property(ies) to attachment or garnishment proceedings, and perpetually disqualify it from participating in any public bidding. All payables of the GOP in his favor shall be offset to recover the costs.
- 7.2. The warranty against Structural Defects/Failures, except that occasioned-on force majeure, shall cover the period from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity. Specific duration of the warranty is found in the SCC.

8. Liability of the Contractor

Subject to additional provisions, if any, set forth in the SCC, the Contractor's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Contractor is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

9. Termination for Other Causes

Contract termination shall be initiated in case it is determined *prima facie* by the Procuring Entity that the Contractor has engaged, before, or during the implementation of the contract, in unlawful deeds and behaviors relative to contract acquisition and implementation, such as, but not limited to corrupt, fraudulent, collusive, coercive, and obstructive practices as stated in ITB Clause 4.

10. Dayworks

Subject to the guidelines on Variation Order in Annex “E” of the 2016 revised IRR of RA No. 9184, and if applicable as indicated in the SCC, the Dayworks rates in the Contractor’s Bid shall be used for small additional amounts of work only when the Procuring Entity’s Representative has given written instructions in advance for additional work to be paid for in that way.

11. Program of Work

11.1. The Contractor shall submit to the Procuring Entity’s Representative for approval the said Program of Work showing the general methods, arrangements, order, and timing for all the activities in the Works. The submissions of the Program of Work are indicated in the SCC.

11.2. The Contractor shall submit to the Procuring Entity’s Representative for approval an updated Program of Work at intervals no longer than the period stated in the SCC. If the Contractor does not submit an updated Program of Work within this period, the Procuring Entity’s Representative may withhold the amount stated in the SCC from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program of Work has been submitted.

12. Instructions, Inspections and Audits

The Contractor shall permit the GOP or the Procuring Entity to inspect the Contractor’s accounts and records relating to the performance of the Contractor and to have them audited by auditors of the GOP or the Procuring Entity, as may be required.

13. Advance Payment

The Procuring Entity shall, upon a written request of the Contractor which shall be submitted as a Contract document, make an advance payment to the Contractor in an amount not exceeding fifteen percent (15%) of the total contract price, to be made in lump sum, or at the most two installments according to a schedule specified in the SCC, subject to the requirements in Annex “E” of the 2016 revised IRR of RA No. 9184.

14. Progress Payments

The Contractor may submit a request for payment for Work accomplished. Such requests for payment shall be verified and certified by the Procuring Entity’s Representative/Project Engineer. Except as otherwise stipulated in the SCC, materials and equipment delivered on the site but not completely put in place shall not be included for payment.

15. Operating and Maintenance Manuals

15.1. If required, the Contractor will provide “as built” Drawings and/or operating and maintenance manuals as specified in the SCC.

- 15.2. If the Contractor does not provide the Drawings and/or manuals by the dates stated above, or they do not receive the Procuring Entity's Representative's approval, the Procuring Entity's Representative may withhold the amount stated in the SCC from payments due to the Contractor.

Section V. Special Conditions of Contract

Notes on the Special Conditions of Contract

Similar to the BDS, the clauses in this Section are intended to assist the Procuring Entity in providing contract-specific information in relation to corresponding clauses in the GCC found in Section IV.

The Special Conditions of Contract (SCC) complement the GCC, specifying contractual requirements linked to the special circumstances of the Procuring Entity, the Procuring Entity's country, the sector, and the Works procured. In preparing this Section, the following aspects should be checked:

- a. Information that complements provisions of the GCC must be incorporated.
- b. Amendments and/or supplements to provisions of the GCC as necessitated by the circumstances of the specific purchase, must also be incorporated.

However, no special condition which defeats or negates the general intent and purpose of the provisions of the GCC should be incorporated herein.

Special Conditions of Contract

GCC Clause	
2	<i>Not applicable.</i>
4.1	Upon receipt of the Notice to Proceed
6	The site investigation reports are: The Civil Works Pre-Inspection Report and the Ocular Site Inspection conducted by the prospective Contractor
7.2	Fifteen (15) years.
10	Dayworks are applicable at the rate shown in the Contractor's original Bid.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative within seven (7) days of delivery of the Notice of Award.
11.2	The amount to be withheld for late submission of an updated Program of Work is 1% of the ABC or ₱50,000.00.
13	The amount of the advance payment shall not exceed 15% of the total contract price.
14	<i>Not allowed</i>
15.1	<p>The date by which operating, and maintenance manuals are required is upon issuance of the Certificate of Acceptance.</p> <p>The date by which "as built" drawings are required is upon issuance of the Certificate of Acceptance.</p>
15.2	The amount to be withheld for failing to produce "as built" drawings and/or operating and maintenance manuals by the date required, the Procuring Entity's Representative shall withhold the amount equivalent to one-tenth (1/10) of ten percent (10%) from payments due to the Contractor.

Section VI. Specifications

Notes on Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Procuring Entity without qualifying or conditioning their Bids. In the context of international competitive bidding, the specifications must be drafted to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of economy, efficiency, and fairness in procurement be realized, responsiveness of Bids be ensured, and the subsequent task of bid evaluation facilitated. The specifications should require that all goods and materials to be incorporated in the Works be new, unused, of the most recent or current models, and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.

Samples of specifications from previous similar projects are useful in this respect. The use of metric units is mandatory. Most specifications are normally written specially by the Procuring Entity or its representative to suit the Works at hand. There is no standard set of Specifications for universal application in all sectors in all regions, but there are established principles and practices, which are reflected in these PBDs.

There are considerable advantages in standardizing General Specifications for repetitive Works in recognized public sectors, such as highways, ports, railways, urban housing, irrigation, and water supply, in the same country or region where similar conditions prevail. The General Specifications should cover all classes of workmanship, materials, and equipment commonly involved in construction, although not necessarily to be used in a particular Works Contract. Deletions or addenda should then adapt the General Specifications to the particular Works.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for goods, materials, and workmanship, recognized international standards should be used as much as possible. Where other particular standards are used, whether national standards or other standards, the specifications should state that goods, materials, and workmanship that meet other authoritative standards, and which ensure substantially equal or higher quality than the standards mentioned, will also be acceptable. The following clause may be inserted in the SCC.

Sample Clause: Equivalency of Standards and Codes

Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a particular country or region, other authoritative standards that ensure a substantially equal or higher quality than the standards and codes specified will be accepted subject to the Procuring Entity's Representative's prior review and written consent.

Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the Contractor and submitted to the Procuring Entity's Representative at least twenty-eight (28) days prior to the date when the Contractor desires the Procuring Entity's Representative's consent. In the event the Procuring Entity's Representative determines that such proposed deviations do not ensure substantially equal or higher quality, the Contractor shall comply with the standards specified in the documents.

These notes are intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They should not be included in the final Bidding Documents.

PROJECT : CONSTRUCTION OF CHEMICAL AND FERTILIZER STORAGE FOR LGAREC STATION

LOCATION : BRGY. LA GRANJA, LA CARLOTA CITY, NEGROS OCCIDENTAL

OWNER : SUGAR REGULATORY ADMINISTRATION

SUBJECT : TECHNICAL SPECIFICATION

ABC : PHP 5,000,000.00

DURATION : 90 CALENDAR DAYS

TECHNICAL SPECIFICATIONS AND GENERAL REQUIREMENTS

GENERAL CONDITIONS

This project pertains to CHEMICAL AND FERTILIZER STORAGE FOR LGAREC STATION. Should there be a conflict between the plans and the specifications, the latter shall prevail. Where some items of work are not clearly indicated on the plans and in the specifications, standard engineering practice shall be guided for the execution of the unspecified item of works.

Scope of Work

This section shall include the mobilization and demobilization of Contractor's plant, equipment, materials and employee to the site; compliance with the contract requirements; this section shall include the furnishing of labor, materials, transportation, tools, supplies, plant, equipment and appurtenances to complete satisfactorily the construction of the proposed subproject.

Mobilization and Demobilization

The Contractor upon receipt of the Notice to Proceed shall immediately mobilize and transport his plant, equipment, materials and employees to the site and demobilize or remove the same at the completion of subproject.

Compliance with Contract Requirements

Control of on Site Construction. Prior to the start of any definable feature of the work, the Contractor must perform the necessary inspection to include as follows:

(1) Review of Contract Documents to make sure that material, equipment and products have been tested, submitted and approved.

(3) As soon as the work has been started the Contractor shall conduct initial inspection to check and review the workmanship in compliance with the contract requirements for a particular item of work.

(4) The Contractor shall perform these inspections on a regular basis to assure continuing compliance with the contract requirements until completion of a particular type of work

Preconstruction Meetings

Prior to the start of construction, Contractor's material men or vendors whose presence is required, must attend preconstruction meetings as directed for the purpose of discussing the execution of work.

Progress Meetings

Progress meetings shall be called upon by the following for the purpose of discussing the implementation of the work.

- (1) When called upon by the Engineer or the Procuring Entity or his representative for the purpose of discussing the execution of work. Contractor's material men or vendors whose presence is necessary or requested must attend progress meetings. Each of such meeting shall be held at the time and place designated by the Engineer or his representative.
- (2) Decisions and instructions agreed on these meetings shall be binding and conclusive on the contract. Minutes of this meeting shall be recorded and reasonable number of copies shall be furnished to the Contractor for distribution to various materials men and vendors involved.
- (3) The Contractor may also call for a progress meeting for the purpose of coordinating, expediting and scheduling the work. In such meeting Contractor's material men or vendors, whose presence is necessary or requested are required to attend.
- (4) Progress Reports and Construction Logbook. Contractor shall prepare and submit progress reports to the Engineer weekly and every 30 days for each month from the start of the sub-project's mobilization up to its completion, showing the work completed, work remaining to be done, the status of construction equipment, labor, and materials at the site and deliveries.
- (5) Construction logbook shall be available showing actual works in daily basis including other information such as weather conditions, truck delivery, visitors, etc.

Construction Photographs

The Contractor shall take photographs during the progress of the work once a month, all taken where directed by the Engineer. At the completion of one project final photographs shall be taken by the Contractor as directed by the Engineer. Two prints of each photograph shall be sent to the Procuring Entity and one print to the Engineer. The photographs shall be neatly labelled, dated, and identified in a little

box in the lower right hand corner, showing the date of exposure, project name, location and direction of view. All negatives and/or electronic copies shall be retained by the Contractor until completion of the work at which time they shall become the property of the Procuring Entity.

Cleaning-up

The Contractor shall at all times keep the construction area including storage area used by him free from accumulations of waste material or rubbish. Upon completion of construction, the Contractor Technical Specifications shall leave the work and premises in clean, neat and workmanlike conditions satisfactory to the Procuring Entity.

Documents to be submitted

The following documents shall be submitted by the Contractor to the Engineer and Procuring Entity prior to final payment and before issuance of final certificate of payment in accordance with the provisions of the Conditions of Contract.

(1) The guarantee required by the Conditions of Contract and any other extended guarantees stated in the technical sections of the specifications.

(2) A set of As-Built drawings shall be submitted showing accurate record of changes or deviations from the contract documents and the shop drawings indicating the work as actually installed. Records shall be arranged in order, in accordance with the various sections of the specifications and properly indexed with certifications of endorsement thereof, that each of the revised print of the drawings and specifications are complete and accurate. Prior to the application for final payment, and as a condition to its approval by the Engineer and the Procuring Entity, the Contractor shall deliver the records, drawings, and specifications.

CONCRETE WORKS

1. Portland Cement shall conform to the requirements of ASTM C-150 Type for normal Portland Cement; Type III for high Early Strength Portland Cement. Cement shall be any standard commercial brand in 50 kilograms per bag.
2. Fine Aggregates sand shall be clean, hard, coarse river sand or crushed sand free from injurious amount of clay loam and vegetable matter and shall conform to ASTM C-33 or C-330.
3. Coarse Aggregates shall be river run gravel or broken stones the maximum size shall be 1/5 of the nearest dimension between sides of forms of the concrete, or ¾ of the minimum clear spacing between reinforced bars, between rebars and form whichever is smaller.
4. Mixing water used in mixing concrete shall be clean and free from injurious amount of oils, acids, alkali, organic materials or deleterious substances.
5. All air-entraining admixtures if used shall conform to ASTM C-260. Water reducing admixtures, retarding admixtures, and water reducing and accelerating admixtures, if used, shall conform to the requirements of ASTM C-494.

All concrete works for this project shall be undertaken in accordance with the standard specifications for plain and reinforced concrete as approved by the Government.

The following proportions of concrete shall be used for various parts of the building:

- | | |
|--|-----------------------|
| 1. Footings and Columns | ...Class A (1 :2: 4) |
| 2. Girders, Beams and Slabs | ...Class A (1 :2: 4) |
| 3. Septic Vault Cover | ...Class A (1 :2: 4) |
| 4. Concrete Hollow Block Footings., B.A. | ...Class B (1:2 ½: 5) |
| 5. Concrete Slab on fill | ...Class B (1:2 ½: 5) |

Class A concrete shall be a mixture of 1 part cement, 2 parts fine aggregates and 4 parts coarse aggregates by volume, plus enough water to make the mixture into a pliable paste.

Class B concrete shall be a mixture of 1 part cement, 2 1/2 parts fine aggregates and 5 parts coarse aggregates by volume, plus enough water to make the mixture into a pliable paste.

Class C concrete shall be a mixture of 1 part cement, 3 parts fine aggregates and 6 parts coarse aggregates by volume, plus enough water to make the mixture into a pliable paste.

The fine aggregates for concrete shall consists of natural sand or of inert materials with similar characteristics, having hard, clean and durable grains, free from organic matters or loam.

The coarse aggregates for concrete shall be of crushed rock or durable qualities, or clean and hard gravel. Size of the coarse aggregates to be used shall vary from 200mm (3/4") to 400mm (1 ½").

Concrete slabs on fill shall be poured on a layer of hard gravel fill spread over well-compacted and thoroughly tampered earth fill. Each concrete slab course to be poured shall not be more than one-meter wide, and each course shall be poured alternatively to the indicated floor finishes.

STEEL REINFORCING BARS

Steel reinforcing bars to be used for this project shall consists of standard deformed structural bars meeting ASTM A-305 specifications.

The steel reinforcements for concrete shall be formed accurately according to sizes of the columns, beams, girders, footings, slab, etc., where they are to be used. They shall be tied together each bar intersection with gauge no. 16 G.I. tie wire or by welding and it shall conform with ASTM A-82.

No steel bars shall be installed unless it is free from rust, scale or other coating which would destroy or reduce the bond with concrete. The reinforcement bars must be positioned such that there is space between the steel at the sides and bottom of the forms.

FORMS

Forms shall conform to the shape, lines and dimensions shown on the drawings. They shall be substantial and designed to resist the pressure and weight of the concrete.

Forms shall be properly tied and braced and shored so as to maintain their position and shape.

Forms shall be sufficiently tight and strong to prevent leakage.

Removal of forms or shoring is subject to approval by the Engineer and under no circumstances shall bottom form and shoring be removed until after the members have acquired sufficient strength to support their weight and the load thereon. Forms shall remain in place for a minimum time as follows:

Foundation	...1 days
Walls	...2 days
Beams and suspended slabs	...14 days

MASONRY

The work covered by this item shall include the following:

1. Furnishing of all necessary materials, tools and equipment, and labor necessary to complete the execution of the concrete masonry work as shown on the drawings and herein specified.
2. All preparation for masonry work necessary to receive and adjoin other work, including provision for inserts and attachments as noted in the plans and specifications which shall be installed under the terms of this work.
3. Furnishing of all reinforcing steel for concrete masonry work and their placement including those not provided for under their section but necessary for prosecution of the work.
4. Arranging for the necessary storage space and protection for materials at the job site.
5. Providing assistance and facilities for all inspections by the Owner or his authorized representative as required in the course of execution of the work.
6. Arranging for furnishing test specimens and samples of materials as may be required.

Material Requirements

following materials to be used under this section of the specifications shall conform to the masonry standards as indicated:

1. Cement to conform with ASTM C-150
2. Sand or fine aggregates shall be clear, sharp and well graded and free from injurious amount of dust, lumps, shale, alkali, surface coatings and organic matter.
3. Lime: Hydrated lime shall conform with ASTM C-207.
4. Quick lime shall conform with ASTM C-5 specifications. Quicklime shall be slaked and then screened through a 16 mesh sieve.

MORTAR AND GROUT

All cells of concrete hollow blocks to be laid shall be filled with cement mortar mixture of 1-part cement and 3 parts sand, by volume. The horizontal joints between units shall be provided with 1:3 cement mortar mix at least 10mm thick.

REINFORCING STEEL

1. Minimum requirements for deformed steel bars shall conform to ASTM A-305.
2. Wire reinforcement shall also conform with ASTM A-82.
3. Reinforcement shall be clean and free from loose, rust, scales and any coating that will reduce bond

Schedule of CHB reinforcement shall be as follows:

Thickness	100mm
Horizontal Reinforcement	10mm dia. @ 600mm o.c.
Vertical Reinforcement	10mm dia. @ 600mm o.c.

PLASTERING

The Contractor shall furnish all cement plaster materials, labor and tools and equipment required in undertaking cement plaster finish as shown on the plans and in accordance with this specification.

Cement plaster finish shall be true to details and plumbed. Finish surface have no visible junction marks where one day's work adjoins the other.

Cement plaster finish shall not be applied directly to the concrete or masonry surface that been coated with bituminous compound and surface that had been painted or previously plastered.

ROOF FRAMING WORKS

1. All structural steel work shall be in accordance with AISC specifications for the design, fabrication and erection of structural buildings.
2. Materials and parts necessary to complete each item through such work which is not shown or specified shall be included, such as miscellaneous bolts, anchor and support, braces and connection.
3. Shop drawings giving complete information necessary for the fabrication of the component parts and submitted by the Contractor to the owner or by the representative for approval before any fabrication is made.
4. All structural steel shapes and plates shall conform to ASTM A-36.
5. Anchor bolts shall conform to ASTM A-141.
6. Cross bracing with turn buckles shall conform to AST A-307.

7. Welding electrodes shall conform to AWS A-5.1 or A-5.5: E 60 electrodes.

ROOFING WORKS

Use polycarbonate roofing materials with green color. Pre-painted bended accessories shall be fabricated from cold rolled galvanized iron sheets specially tempered steel for extra strength and durability. It shall conform to the material requirements defined in PNS 67: 1985.

FABRICATION

1. Field fabrication shall be kept to a minimum and fabrication shall be employed to the greatest extent possible with member's shop fabricated as practicable with a minimum requirement for field connection.
2. Welding, shearing, gas cutting, chipping and all other works involved fabrication of structural steel shall be done with accuracy and of the highest quality of workmanship, within the allowable tolerance prescribed in the AISC specification.
3. Surface to be welded shall be free from loose scale, rust, grease, paint and other foreign materials that will impair the soundness of the weld.

ERECTION

1. The steel structures shall be erected plumb and true to line and grade. Bracings and support shall be introduced whenever necessary to take care of all loads to which the structure may be subjected. Such bracing shall be left in place as long as may require for safety.
2. Base plates and bearing plates shall be supported on steel wedges until the supported members shall have been aligned and plumb, following which the entire bearing area shall be grouted solid with non-shrink cement grout.
3. All steel work after complete erection, shall be field painted with the type and color specified in the section of painting of this specification. Painting shall not be done on any steel surface that is thoroughly clean and dry.

PAINTING AND COATINGS

1. This item shall consist of furnishing all paints, enamels, latex, wood stain, acrylic and other products to be used including tools, labor and equipment and performing all operations for all ceiling treatment requirement as shown on the plans and in accordance with this specification.
2. All paint materials shall meet the requirements of the Standard Specifications of the Standardization Committee on supplies.
3. All paint materials shall be delivered on the job-site in their original containers with labels and seals unbroken.

4. Manufacture or brand of painting materials to be used shall either be Davlax, Boyseal, Asian Coatings or any equivalent approved by the Designing Engineer or Project In-charge.
5. Provide labor, materials equipment and related items required to complete the exterior and interior items and surfaces throughout the project including filling, sealing, priming, and finishing.
6. Electrical work to be painted include the following (but not limited to): Exposed piping and/or pipe insulation inside and outside building. Exposed conduit, boxes, panel fronts. Ensure surface temperature and the surrounding air temperature is above 50 degrees F. before applying paint materials.
7. Provide adequate continuous ventilation and sufficient heating facilities to maintain temperatures above 45 degrees F. for 24 hours before, during and 48 hours after application of paint and materials.
8. Perform preparation, filling, sealing, sanding, and cleaning of surfaces scheduled to be painted in accordance with paint manufacturer's instruction.
9. Do not paint over dirt, dust, stains, rust, scale, oil grease, moisture, scuffed surfaces, or other contamination or conditions detrimental to formation of a durable paint film.
10. Apply paint in accordance with paint manufacturer's instructions and as herein specified. Apply each coat of paint at no less than spreading rate indicated in the manufacturer's instructions.

TILING WORKS

Interior tiles shall be 0.60M x 0.60m glazed ceramic or porcelain tiles preferably gray nature in color. This item shall consist of furnishing all Ceramic Tiles and cementitious materials, tools and equipment including labor required in undertaking the proper installation of walls and floor tiles as shown on the plans and accordance with this specification.

MATERIALS

1. Ceramic tiles shall be made of clay, or a mixture of clay and other materials which is called the body of tiles classified by ASTM C-142 as to their degree of water absorption.
2. Ceramic tiles is manufactured either by dust pressed process or by plastic process in which the clays are made plastic by mixing with water, shaped by extrusion or in molds and then fired.
3. Glazed tiles still have an impervious face of ceramic materials fused on the body of the tiles and trims.
4. The glazed surface may be bright (glossy) semi-matte (less-glossy) matte(dull) or crystalline (mottled and textured), good resistance to absorption.
5. Standard glaze may be clear white or colored depending on the color scheme approved by the Owner.
6. Glazed tiles shall be used for walls. Crystalline tiles may be used for the floors.

7. Unglazed tiles shall be hard dense tiles homogenous composition. Its color and characteristics are determined by the materials used in the body, the method of manufacture and the thermal treatment. Unless otherwise specified, used unglazed tiles for all floors as indicated on the plan.

8. Trims are manufactured to match the wall tile floor, texture and to coordinate with its dimension. These are shaped in various ceramic trim units such as caps, bases, covers bull-nose, corners, angles, etc., that are necessary for edging or making transition between intersecting surface.

CEILING WORKS

Interior ceiling shall be of 4.5mm thick Hardiflex board rest on a t-runner frame with 25mm X 50mm X 0.40mm thick metal furring rest on 1" X 1" G.I. wall angle at the perimeter of the wall. Provide a hanger at every joint of the joist for sagging. on center for horizontal and vertical.

ELECTRICAL WORKS

Electrical installation shall conform to the provisions of the rules and regulations of the Philippine Electrical Code, the requirements of the City General Services Department and those of the Power Company. All materials for use shall be of approved brand. All wiring shall run through flexible non-metal conduits. All the necessary outlets, switches and convenience outlets as indicated in the wiring plans and in the specifications shall be installed properly. Electrical installations shall be done under the supervision of a duly licensed Professional Electrical Engineer. Application shall be done in an approved procedures and practices.

Codes, Regulations and Standards;

1. The installation and equipment shall conform to good engineering practices and in particular comply with the requirements laid down in the following documents or its equivalent which are mandatory and modified only by specific agreement.

Philippine		
Electrical CodePEC	Underwriters' Laboratory,
IncUL	National Electrical
Manufacturers Association	..NEMA	Local Utility
Power CompanyLUPC	

2. In addition to the requirements of these Codes and the Utility Power Company requirements, local government regulations and supplier's specification if any shall be followed.

Lay-out of Work

1. Electrical system lay-out indicated on the drawings are generally diagrammatic and the location of outlets, devices, apparatus and equipment are only approximate.

2. The exact routing of the conduits, location of outlets, devices and equipment shall be governed by structural and architectural conditions and limitations.

3. For the exact location, consult the supervising Engineer. This does not mean to permit redesigning of systems. All outlets are to be interconnected as indicated in the drawings.

4. the Owner reserves the right to make any reasonable changes in location of outlets and equipment prior to roughing in, without additional expense.

5. The Contractor shall be responsible and pay charges for cutting and patching for piping lines where sleeves or slots were not installed or where incorrectly located.

Materials Requirement

1. All panel board to be used shall be flush mounted when located in areas that are visible to the general public and may be surfaced mounted when located in machine room.

2. All panel boards shall be set plumb symmetrical with the surrounding objects.

3. Standard PVC conduit pipe system is required for this project.

4. Conduit runs shall be concealed in drop ceiling and or embedded in concrete structure where concealment is not possible.

5. All conduit and conduit fittings shall be PVC and shall conform with the U.S. Underwriters Laboratories Standard and Codes.

6. When not shown on the Plans, conduit sizes shall correspond to the conduit size as prescribed in the Philippine Electrical Code table for "Size of Conduit Pipes."

7. All boxes and outlets and switches shall be PVC or galvanized iron approved products of reputable manufacturers.

8. All ceiling outlet boxes intended for lighting outlets shall be of the 10 cm octagonal box.

9. Convenience and wall switch outlet boxes shall be of the 10cm by 5.3cm rectangular deep flush type or 100mm square cm junction box with gang raised cover as required to accommodate the wires therein.

10. All boxes include junction and pull boxes shall be of sufficient size to provide free space for all conductors enclosed in the box, in addition to the fittings such as switch mechanism and receptacles that may be placed therein.

11. Wall switches intended to control lights on the 230-volt system shall be rated 15 amp. 250 volts.

12. Convenience outlets shall be flushed duplex type rated amperes 230 volts 60 Hz., AC.

13. All lighting fixtures shall be furnished and installation by the Contractor. They shall be shown on the drawings or specified on the schedule of lighting fixtures. For other details as to type and model, consult the Engineer.

ALTERATIONS

No alterations shall be done during the progress of work without the written approval by the supervising Project Engineer, unless otherwise agreed by and between the Owner and the Contractor. All works shall be done in accordance with the approved plans.

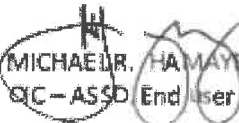
Prepared and submitted by:


JESSICA C. BRITANICO
Engineer II-COS, PPBTM SECTION

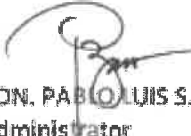

Recommending Approval:


HELEN B. LOBATON / ATTY. IGNACIO S. SANTILLANA
RDE – Manager III / Deputy Administrator II

Noted by:


MICHAEL R. HAMAYRAY
QC – ASSO End User

Approved by:


HON. PABLO LUIS S. AZCONA
Administrator



PROJECT	:	CONSTRUCTION OF CHEMICAL AND FERTILIZER STORAGE FOR LGAREC STATION
LOCATION	:	BRGY. LA GRANJA, LA CARLOTA CITY, NEGROS OCCIDENTAL
OWNER	:	SUGAR REGULATORY ADMINISTRATION
DURATION	:	90 CALENDAR DAYS

SCOPE OF WORK

- I. Mobilization and Demobilization.
- II. Conduct inspection and verify actual measurements on project site.
- III. Processing of applicable legal and other requirements.
- IV. Clearing and grubbing.
- V. Excavation and backfilling works.
- VI. Installation of drainage system.
- VII. Fabrication and installation of forms and rebars.
- VIII. Concreting of footing, beam, column and slab.
- IX. Supply and installation of pipes with fittings.
- X. Laying of concrete hollow blocks (CHB).
- XI. Supply and installation of trusses, rafters, purlins and sag rods with complete accessories.
- XII. Supply and installation of roof.
- XIII. Proper installation of tiles.
- XIV. Supply and installation of louver windows, gate and doors.
- XV. Supply and installation of ceiling panels and framing.
- XVI. Supply and installation of fixtures, wirings, switches, boxes, and pipes with fittings.
- XVII. Supply and installation of panel board with complete accessories.
- XVIII. Supply and installation of smoke detector and exhaust fan.
- XIX. Application of paint to ceiling and walls.
- XX. Supply and installation of water closet, urinal and lavatory with complete accessories.

- XXI. Installation of roof with complete accessories and hardware.
- XXII. Painting/ Retouching of roof and other structure after installation.
- XXIII. Cleaning the area after work completion.


Prepared and submitted by:


 JESSIKA C. BRITANICO
 Engineer II-COS, PPBTM SECTION

Recommending Approval:


 HELEN B. LOBATON / ATTY. IGNACIO S. SANTILLANA
 RDE – Manager III / Deputy Administrator II

Noted by:


 MICHAEL R. HAMARBY
 OIC – ASSO. Engineer

Approved by:


 HON. PABLO LUIS S. AZCONA
 Administrator

STRUCTURAL ANALYSIS COMPUTATION AND DESIGN REPORT

I. PROJECT DETAILS

Project Name : Construction of Chemical Warehouse
Location : Brgy. La Granja City Negros Occidental
Occupancy Category : Commercial Facility
Prepared by : Engr. Jesskha C. Britanico

II. REFERENCE CODE AND STANDARDS

- National Structural Code of the Philippines
- National Building Code of the Philippines

III. MATERIAL SPECIFICATIONS

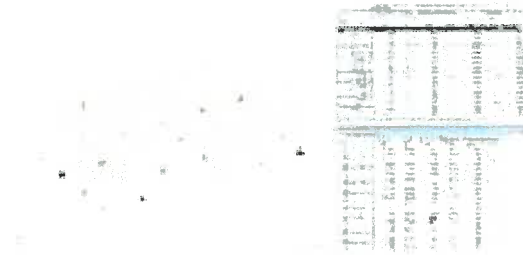
Concrete – reinforced concrete design shall be in accordance with NSCP 2015. The specified minimum compressive strength of the concrete by cylinder test at 28days age shall be as follows:

Foundation ----- 20.7MPa (3000PSI)
Beams ----- 20.7MPa (3000PSI)
Columns ----- 20.7MPa (3000PSI)
Suspended Slab ----- 20.7MPa (3000PSI)
Slab on Grade ----- 20.7MPa (3000PSI)

Reinforcing Steel – minimum yield strength of reinforcing bar shall be as follows:

16mm \varnothing and smaller reinforcing bar ----- 276MPa (Grade 4D)
20mm \varnothing and bigger reinforcing bar ----- 414MPa (Grade 60)

IV. GEOMETRY



3D STRUCTURAL RENDERED VIEW / STAAD REPORT

STRUCTURAL ANALYSIS COMPUTATION AND DESIGN REPORT

V. DESIGN OF COLUMNS

Design Parameters:

$f_c = 300$ mm	$d' = 40$ mm
$b = 300$ mm	Main ties = 16 mm ϕ
$f_c' = 21$ Mpa	$M_{u2} = 0$ KNm
$f_y = 275$ Mpa	$P_u = 82.59$ KN
$E_c = 28,000$ GPa	$E_{scon} = 600$ Mpa

Defining Conditions:

$\phi = 0.65$	$E_c \leq E_{ty}$ if $f_y \geq f_y$, use f_y
$\phi = 0.90$	$E_c \leq E_{ty}$ if $E_c \leq 0.005$
$\phi = 0.90$	$E_c \geq 0.005$
$\phi = 0.90$	Use 0.65 in transition Region

MAXIMUM AXIAL CAPACITY $A_g = 50000$ $MSC-422.4.2.2$
 $P_{cn} = 0.8 [0.85 f_c' (A_g - A_s) + f_y A_s] = 1533.37$ kN
 $\phi = 0.65$ $P_{cu} = \phi P_{cn} = 996.69$ kN

BALANCE CONDITION CAPACITY, $\phi = 0.65$

$\epsilon_y = f_y / E_s = 0.00138$
$C_b = E_c d / E_s + \epsilon_y = 176.29$ mm
$a_b = \phi C_b = 151.54$ mm

from strain diagram

$f_{s1} = 600(d-C)/C =$	275.00	$T1 =$	165.88	KN, Tension
$f_{s2} = 600(C-2Z)/C =$	0.00	$C2 =$	0.00	KN,
$f_{s3} = 600(C-2Z)/C =$	0.00	$C3 =$	0.00	KN,
$f_{s4} = 600(C-2Z)/C =$	0.00	$C4 =$	0.00	KN,
$f_{s5} = 600(C-2Z)/C =$	465.38	$C5 =$	165.88	KN, Compression
$C_c = .85 f_c' a_b =$	811.512	KN		

$$[\sum F_v = 0] \quad P_{bn} = C2 + C3 + C4 + C5 + C_c - T = 811.51 \text{ KN}$$

$$[\sum M = 0] \quad \text{Find } e = a - z, \quad z = 110.00 \text{ mm}$$

$$P_{bnX} = C2X2 + C3X3 + C4X4 + C5X5 + C_cXc$$

$$M_b = 119.20 \text{ kNm} \quad \phi M_b = 527.5 \text{ kNm}$$

$$M_u = 96.73 \text{ kNm} \quad \phi M_u = 62.87 \text{ kNm}$$

ECENTRICALLY LOADED SECTION CAPACITY, $\phi = .65$

due to applied load, $e_x = 0.00$

$$[\sum F_v = 0] \quad P_{bn} = C2 + C3 + C4 + C5 + C_c - T$$

$$[\sum M = 0] \quad P_{bnX} = C2X2 + C3X3 + C4X4 + C5X5 + C_cXc$$

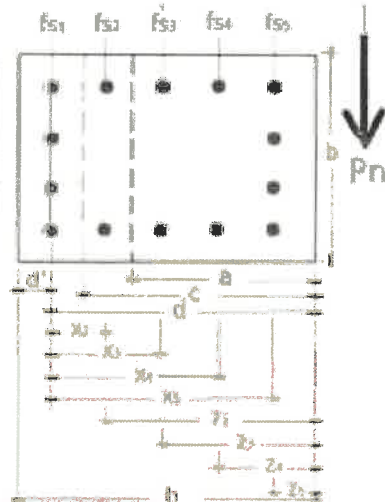
$C_c = 390.00$ mm	$a = 255.00$ mm
$f_{s1} = 600(d-C)/C = 80.00$	$T1 = 48.25$ KN, Tension
$f_{s2} = 600(C-2Z)/C = 0.00$	$C2 = 0.00$ KN,
$f_{s3} = 600(C-2Z)/C = 0.00$	$C3 = 0.00$ KN,
$f_{s4} = 600(C-2Z)/C = 0.00$	$C4 = 0.00$ KN,
$f_{s5} = 600(C-2Z)/C = 570.00$	$C5 = 165.88$ KN, Compression
$C_c = .85 f_c' a_b = 1365.52$	

$P_{bn} = 1579.06$	$\phi P_{bn} = 1026.78$ KN	$>$	82.59	Pass!
$M_{bn} = 0.00$	$\phi M_{bn} = 0.00$ KNm	$<$	0.00	Pass!

Main Bars	Loc-Z	A_{st}
$f_{s1} = 3$	- 260.00	603.19
$f_{s2} = 0$	- 260.00	0
$f_{s3} = 0$	- 260.00	0
$f_{s4} = 0$	- 260.00	0
$f_{s5} = 3$	- 40.00	603.19

Shear Parameters

$N_{uh} =$	2	, lateral ties leg
$N_{vl} =$	2	, lateral ties leg
$f_{yt} =$	230	Mpa, Internal ties
$T_d =$	10	mm ϕ



COMPRESSION CONTROLLED CAPACITY, $\phi = .65$

$\epsilon_t = 0.002$
$C_c = .85 \phi \epsilon_t d / (E_{scon} - E_s \epsilon_t) = 156.00$ mm
$a_t = \phi C_c = 132.60$ mm

from strain diagram

$f_{s1} = 600(d-C)/C =$	400.00	$T1 =$	165.88	KN, T
$f_{s2} = 600(C-2Z)/C =$	0.00	$C2 =$	0.00	KN,
$f_{s3} = 600(C-2Z)/C =$	0.00	$C3 =$	0.00	KN,
$f_{s4} = 600(C-2Z)/C =$	0.00	$C4 =$	0.00	KN,
$f_{s5} = 600(C-2Z)/C =$	446.15	$C5 =$	165.88	KN, C
$C_c =$.85 $f_c' a_b$		710.073	KN

$$[\sum F_v = 0] \quad P_{bn} = C2 + C3 + C4 + C5 + C_c - T = 710.1 \text{ KN}$$

$$[\sum M = 0] \quad \text{Find } e = a - z, \quad z = 110 \text{ mm}$$

$$P_{bnX} = C2X2 + C3X3 + C4X4 + C5X5 + C_cXc$$

$$R_s = 83.70 \text{ mm} \quad \phi P_s = 461.55 \text{ KN}$$

$$M_u = 38.63 \text{ kNm} \quad \phi M_u = 25.11 \text{ kNm}$$

CHECK SHEAR, $\phi_v = 0.75$

$$V_t = 0.17 [1 + (P_u / 14 A_g)] \sqrt{f_c'} b d = 64.75 \text{ kN}$$

$$A_v = \pi T_d^2 N_v / 4 = 157.1 \text{ mm}^2$$

5 max, min (16d, 48d ties and least col dimension)

$$16 d_b = 256 \text{ mm}$$

$$48 d_{ties} = 480 \text{ mm}$$

$$\text{Least Column dimension} = 300 \text{ mm}$$



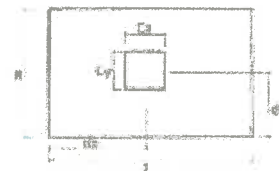
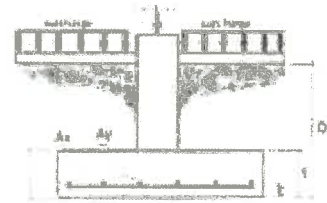
Therefore use, 300x300mm 6-16mm ϕ longitudinal bars (GRADE 40) with 10mm ϕ lateral ties space at, 5@50mm, 5@10mm 5@15mm, and Rest 200mm O.C, BOTH ENDS.

STRUCTURAL ANALYSIS COMPUTATION AND DESIGN REPORT

VI. DESIGN OF FOUNDATION

Check Soil Bearing Capacity

Applied Load,	$P_d + P_l =$	82.59	
Surcharge,	$q_s (LB) =$	0.00	
Weight Footing,	$(23.5 - w_s) tBL =$	11.91	
	$P_n =$	94.50	kN
$M_x = 0$	KNm	$M_y = 0$	KNm
$e_x = 0.000$	m	$L/6 = 0.217$	m
$e_y = 0.000$	m	$B/6 = 0.2167$	m
$q_{nx(max)} = \frac{P}{BL} + \frac{6M}{L^2 B}$		$= 55.92$	< 190.00 Pass!
$q_{ny(max)} = \frac{P}{BL} + \frac{6M}{B^2 L}$		$= 55.92$	< 190.00 Pass!



Check Thickness ; Two-way Shear

Applied Load,	$1.2P_d + 1.6P_l =$	99.11
Surcharge,	$1.2 q_s (LB) =$	0.00
Weight Footing,	$1.2(23.5 - w_s) tBL =$	14.30
	$P_u =$	113.41
$M_x = 0$	$M_y = 0$	
$e_x = 0$	$e_y = 0.00$	
$L/6 = 0.22$	$L/6 = 0.217$	
$q_{u max} = 67.1038$	$q_{u max} =$	67.10379 Kpa
$d = 0.234$	m	
$V_{ux} = q_u (BL - (C_x + d)(C_y + d))$	$=$	97.85 KN
$V_{uy} = q_u (BL - (C_x + d)(C_y + d))$	$=$	97.85 KN
$b_o = 2(D_1 + d) 2(W_1 + d)$	$=$	1.936 m
$\phi V_{c1} = \phi 0.33 \sqrt{f'_c} b_o d$	$=$	501.4313 KN
$\beta_c = \text{long/short side of column} =$	1.5	
$\phi V_{c2} = \phi \left(1 + \frac{2}{\beta_c} \right) 1.17 \sqrt{f'_c} b_o d$	$=$	602.7 KN
$\alpha_c =$	40	
$\phi V_{c3} = \phi \left(2 + \frac{\alpha_c d}{\beta_c} \right) 0.083 \sqrt{f'_c} b_o d$	$=$	1039.21

Check One-way Shear;

must, $V_c > V_u$

$V_{ux} = q_u B[(B - C)/2 - d]$	$=$	27.57	KN
$V_{uy} = q_u L[(L - C)/2 - d]$	$=$	23.20	KN
$\phi V_{cx} = \phi 0.17 \sqrt{f'_c} B d$	$=$	173.45	KN Pass!
$\phi V_{cy} = \phi 0.17 \sqrt{f'_c} L d$	$=$	173.45	KN Pass!

Check Flexural Reinforcement; $A_{smin} = 0.0028b$

$M_{ux} = 13.19$	KNm	$M_{uy} = 10.90$	KNm
$A_{sx} = 1206.37$	mm^2	$A_{sy} = 1206.37$	mm^2
$A_{srx} = 780.00$		$A_{sry} = 780.00$	mm^2
$S_x = 220.8$	$S_y =$	220.8	mm ($S_{max} = 450mm$)
$a_x = \frac{A_{sx} f_y}{0.85 f'_c B}$	$=$	15.011	mm, $a_y = 15.01$ mm
Check Tension Controlled Limit $\phi = 0.9$			
$a_b/d = 0.583$	$>$	a_x/d & a_y/d	
$a_x/d = 0.064$		$a_y/d = 0.064$	

$$\phi M_{ux} = \phi A_{sx} f_y \left(d - \frac{a_x}{2} \right) \quad \phi M_{sy} = \phi A_{sy} f_y \left(d - \frac{a_y}{2} \right)$$

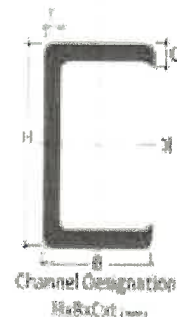
$\phi V_c = \min \quad \phi V_{c1}, \phi V_{c2}, \phi V_{c3}$	$501.4 > 98$	$\phi M_{ux} = 67.63$	KNm,	$\phi M_{sy} = 67.63$	KNm
	Pass!	$> M_u$	Pass!	$> M_u$	Pass!

Therefore use, **1.3x1.3x0.3m thick Footing with 16mm ϕ Tension Bar Grade (40) sp. @ 220.8mm and 220mm along BL respectively O.C.**

STRUCTURAL ANALYSIS COMPUTATION AND DESIGN REPORT

VIII. DESIGN OF PURLINS

Dead load =	300	N/m²	Purlin Section =	LC 100x50x10x4.5
Roof/Live load =	600	N/m²	Properties, F_y =	245 Mpa
Wind Pressure =	1631.4	N/m²	S_x =	24.8 x 10⁴ mm⁴
Roof angle, θ =	25.10		S_y =	2.1 x 10⁴ mm⁴
Purlin spacing =	0.6	m	Self Weight, W =	66.9 N/m
Sag rod =	0	m	E =	200 Gpa
Truss spacing, L =	3	m	I_x =	1241 x 10⁸ mm⁴



FORCE ANALYSIS;

Solve for Weight Normal and Tangential

	Self wt	2DL+0 SL	Wind load	
$W_n = \cos \theta W =$	60.50	356.61	978.84	N/m
$W_t = \sin \theta W =$	28.34	167.98		N/m

Max moment due to load,

	Self wt	2DL+0 SL	Wind load	
$M_x = W_n L^2/8 =$	68.06	403.43	1101.20	Nm
$M_y = W_t L^2/8 =$	31.88	188.98		Nm

STRESS DUE TO LOADS;

* Since load tangential (DL & LL) acted on top, divide S_y by 2

	Self wt	2DL+0 SL	Wind load	
$f_{bx} = M_x/S_x =$	2.74	16.27	44.40	
$f_{by} = M_y/S_y =$	4.49	53.23		
$f_{bx} = M_x/S_x =$	63.41			Mpa
$f_{by} = M_y/S_y =$	57.72			Mpa

ALLOWABLE BENDING STRESS; Considered Compact Section

$$F_{bx} = 0.66 F_y = 163.68 \text{ Mpa}$$

$$F_{by} = 0.75 F_y = 186.00 \text{ Mpa}$$

CHECK ADEQUACY;

$$\frac{f_{bx}}{F_{bx}} = \frac{f_{by}}{F_{by}} \leq 1.0$$

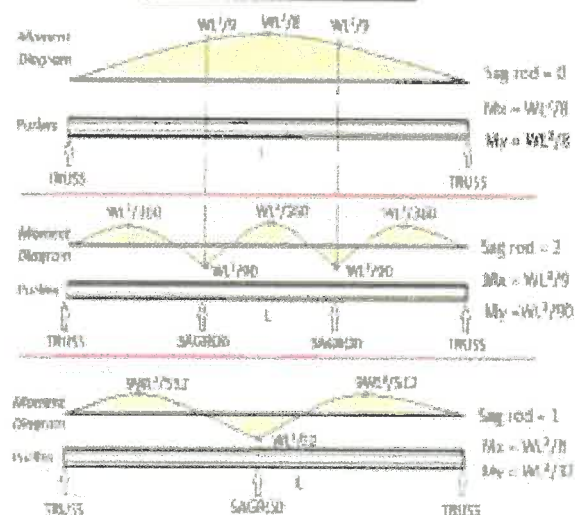
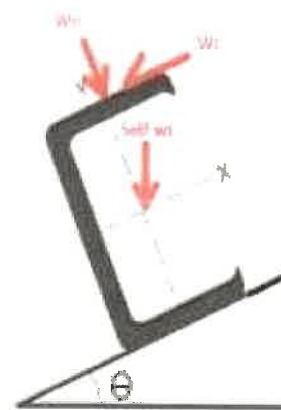
$$0.79 < 1.0 \quad \text{Pass!}$$

CHECK FOR DEFLECTION,

$$\delta_{allow} = L^3 / 240 = 12.50 \text{ mm}$$

$$\delta_{act} = 5 W_n L^4 / 384 EI$$

$$\delta_{act} = 1.52 < 12.50 \quad \text{Pass!}$$



Max Moment Values

Therefore use, 2X4 C- Purlins space @ 0.6m. Provide sag rod @ middle of truss.

STRUCTURAL ANALYSIS COMPUTATION AND DESIGN REPORT

IX. DESIGN OF TRUSS

Radius of gyration, $r_x = 8$

Max Length, $L_n = 0.6$ m

$b/t = 13$, $b = 64$

Effective Length Factor, $K = 1$

CONDITION:

If $KL/r \leq C_c$ use, $F_{cr} = [0.658^{(F_y/E)]} F_y$

If $KL/r > C_c$ use, $F_{cr} = 0.877 F_e$

* Where KL/r shall not be greater than 200

CHECK ALLOWABLE TENSILE FORCE AISC Specs Sec. D

$\phi = 0.90$

$P_u = \phi F_y A_g$

$\phi_u = 104.23 > 32$ Pass

CHECK SECTION COMPACTNESS AISC Specs Table B4.1a

$0.45 \sqrt{E/F_y} = 12.78$

$0.71 \sqrt{E/F_y} = 20.16$

$b/t = 13.3$

$b/t < 0.45 \sqrt{E/F_y}$, Therefore Slender Section

$b/t < 0.71 \sqrt{E/F_y}$, Flexural-Torsional Buckling does not Apply

CHECK CRITICAL SLENDERNESS RATIO AISC Specs Sec. E

$L/r = 22.9$, $L/r \leq 80$; Therefore use $KL/r = 72 + 0.75 L/r$

$C_c = 4.71 \sqrt{E/F_y} = 133.76$

$KL/r = 72 + 0.75 L/r = 126.68$

$126.68 < 133.76$, Therefore use $F_{cr} = [0.658^{(F_y/E)}] F_y$

$F_e = \pi^2 E / (KL/r)^2 = 123.81$

$F_{cr} = [0.658^{(F_y/E)}] F_y = 106.65$

COMPRESSIVE STRENGTH OF SECTION: AISC Specs Sec. E CHECK WELDING CONNECTION:

$P_n = F_y A_g = 49.81$

$\phi P_n = 0.90 F_y A_g = 44.83$

$\phi P_n = 44.83 > 32$ Pass

Where $A_g = A_n = (b \cdot t)$

$b \cdot t = 41.5 \text{ mm}^2$

Filler Welds $F_{exx} = 482 \text{ MPa}$

$a_{nw} = 0.50 F_{exx} [1.0] = 240.2$

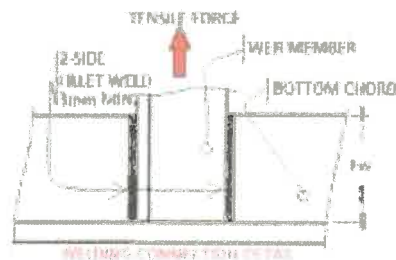
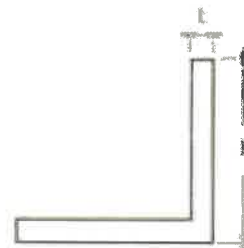
$A_{we} = 0.707 \cdot 2L_w = 452.48$

$L = (L_1 + L_2) / 2 = 64$

$U = 1 - (a/L) = 0.72$

$P_n = \phi F_{nw} A_{we} = 94.78$

$\phi P_n = 71.088 > 32$ Pass









Therefore use, 2X6 C PURLINS WITH 10mm dia WEB MEMBER, with 5 mm thick fillet welds at 64mm length in all Connections.

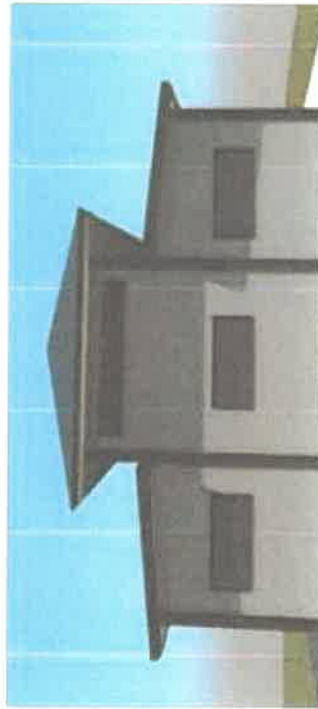
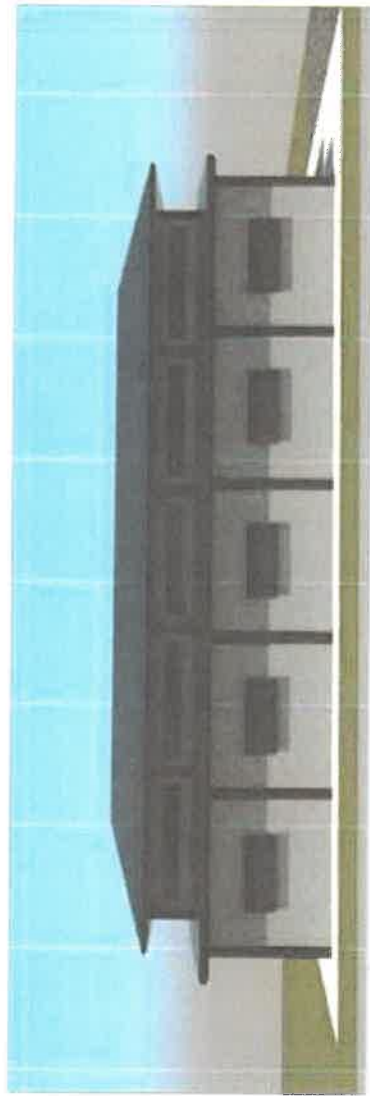
Additional Requirements:

Bidders are required to submit two (2) additional hard copies of the first and second components of their Bid/s.

Bidders are required to put tabs (name of document not number in the checklist) in all documents to be submitted with the same number as indicated in the Checklist of Technical and Financial Document, in order to facilitate efficiency in evaluating all the documents.

Section VII. Drawings

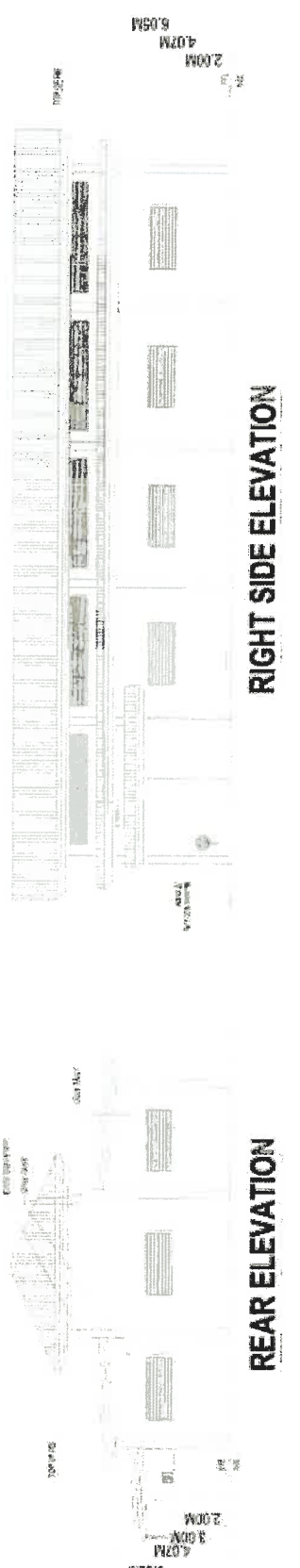
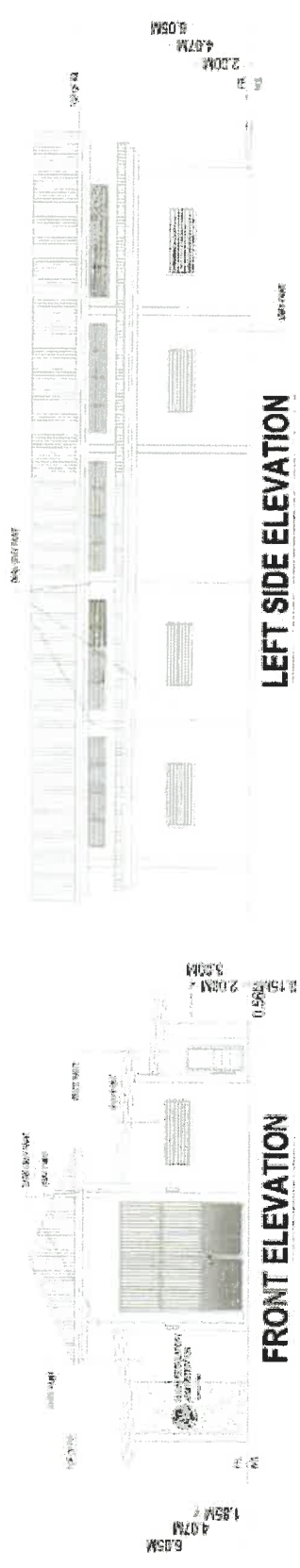
<p>GENERAL NOTES:</p> <ol style="list-style-type: none"> ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED. ALL ELEVATIONS ARE 1.00 METER. CONCRETE PARTS OF THE STRUCTURE UNLESS OTHERWISE SPECIFIED SHALL BE 20 MPa. ON FOR CAVING MAXIMUM OF COMPRESSIVE STRENGTH OF 21 MPa IN 28 DAYS. ASTM A615 OR A615 205 GRADE 60. CASTING CONCRETE SHALL BE DEFORMED BUILT STEEL OF INTERMEDIATE GRADE. THE MAXIMUM SIZE OF AGGREGATES FOR CAST-IN-PLACE CONCRETE SHALL NOT BE LARGER THAN 1/4 OF THE LEAST DIMENSION OF THE MEMBER NOR LARGER THAN 40MM FOR PRECAST CONCRETE SHALL NOT BE LARGER THAN 1/4 OF THE LEAST DIMENSION OF THE MEMBER NOR LARGER THAN 20MM. CONCRETE PROTECTION FOR REINFORCEMENT SHALL NOT BE LESS THAN 20MM. ALL FROM THE GROUND CONTACT SURFACE OF CONCRETE FOOTINGS AND OTHER MEMBERS IN WHICH CONCRETE IS EXPOSED TO WATER FLOW OR BE IN CONTACT WITH THE GROUND AFTER REMOVAL OF FORMS. EL FROM CONCRETE SURFACE EXPOSED TO WATER FLOW OR BE IN CONTACT WITH THE GROUND AFTER REMOVAL OF FORMS. FOR BARS LARGER THAN 10MM Ø, 1/4 IN. FOR BARS 10MM Ø AND SMALLER, 1/2 IN. LAPPING OF BARS SHALL BE 40 BAR Ø FOR DEFORMED BARS AND 40 BAR Ø FOR PLAIN BARS. BARS 12MM Ø SHALL BE STAGGERED. ALL BARS NOT OTHERWISE SPECIFIED SHALL BE 10MM Ø SPACED 300MM O.C. OR 12MM Ø SPACED 400MM ON CENTER. MINIMUM DISTANCE BETWEEN PARALLEL BARS SHALL BE 40MM. REFLECT REINFORCEMENTS AROUND GROUT POCKETS AND RECESSES WHERE REQUIRED. ALL EXPOSED EDGES SHALL BE ROUNDED OR CHAMFERED. ALL BARS WHEN REQUIRED SHALL BE BENT 90°. HOOKS OR BENDS SHOWN IN THE DRAWING SHALL HAVE THE FOLLOWING DIMENSIONS. BAR Ø 9MM NOT LESS THAN 150mm BAR Ø 12MM 	<p>NEGROS ISLAND MAP</p>  <p>SCALE: NTS</p>	<p>THIS SITE</p> 	<p>VICINITY MAP</p> 	<p>PERSPECTIVE VIEW</p> 	<p>SITE DEVELOPMENT PLAN</p>  <p>SCALE: 1:100M</p>	<p>TABLE OF CONTENTS</p> <table border="1"> <tr> <td>A-01</td> <td>GENERAL NOTES</td> </tr> <tr> <td>A-02</td> <td>NEGROS ISLAND MAP</td> </tr> <tr> <td>A-03</td> <td>VICINITY MAP</td> </tr> <tr> <td>A-04</td> <td>SITE DEVELOPMENT PLAN</td> </tr> <tr> <td>A-05</td> <td>PERSPECTIVE VIEW</td> </tr> <tr> <td>A-06</td> <td>FRONT ELEVATION</td> </tr> <tr> <td>A-07</td> <td>REAR ELEVATION</td> </tr> <tr> <td>A-08</td> <td>RIGHT SIDE ELEVATION</td> </tr> <tr> <td>A-09</td> <td>LEFT SIDE ELEVATION</td> </tr> <tr> <td>A-10</td> <td>FLOOR PLAN</td> </tr> <tr> <td>A-11</td> <td>ROOF PLAN</td> </tr> <tr> <td>A-12</td> <td>SCHEDULE OF DOORS & WINDOWS</td> </tr> <tr> <td>S-01</td> <td>FOUNDATION PLAN</td> </tr> <tr> <td>C-01</td> <td>CEILING DETAILS</td> </tr> <tr> <td>B-01</td> <td>BEAM DETAILS</td> </tr> <tr> <td>W-01</td> <td>WALL DETAILS</td> </tr> <tr> <td>S-02</td> <td>SLAB DETAILS</td> </tr> <tr> <td>R-01</td> <td>ROOF FRAMING PLAN</td> </tr> <tr> <td>T-01</td> <td>TRUSS DETAILS</td> </tr> <tr> <td>E-01</td> <td>REFLECTED LIGHTING LAYOUT PLAN</td> </tr> <tr> <td>E-02</td> <td>REFLECTED POWER LAYOUT PLAN</td> </tr> <tr> <td>P-01</td> <td>GENERAL NOTES</td> </tr> <tr> <td>P-02</td> <td>SPECIFICATIONS</td> </tr> <tr> <td>P-03</td> <td>SEPTIC TANK DETAILS</td> </tr> <tr> <td>P-04</td> <td>SEPTIC TANK TOP VIEW</td> </tr> <tr> <td>P-05</td> <td>MANHOLE COVER</td> </tr> </table>	A-01	GENERAL NOTES	A-02	NEGROS ISLAND MAP	A-03	VICINITY MAP	A-04	SITE DEVELOPMENT PLAN	A-05	PERSPECTIVE VIEW	A-06	FRONT ELEVATION	A-07	REAR ELEVATION	A-08	RIGHT SIDE ELEVATION	A-09	LEFT SIDE ELEVATION	A-10	FLOOR PLAN	A-11	ROOF PLAN	A-12	SCHEDULE OF DOORS & WINDOWS	S-01	FOUNDATION PLAN	C-01	CEILING DETAILS	B-01	BEAM DETAILS	W-01	WALL DETAILS	S-02	SLAB DETAILS	R-01	ROOF FRAMING PLAN	T-01	TRUSS DETAILS	E-01	REFLECTED LIGHTING LAYOUT PLAN	E-02	REFLECTED POWER LAYOUT PLAN	P-01	GENERAL NOTES	P-02	SPECIFICATIONS	P-03	SEPTIC TANK DETAILS	P-04	SEPTIC TANK TOP VIEW	P-05	MANHOLE COVER
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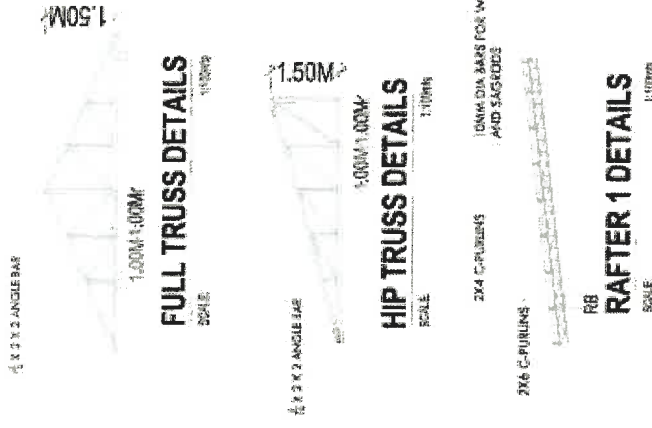
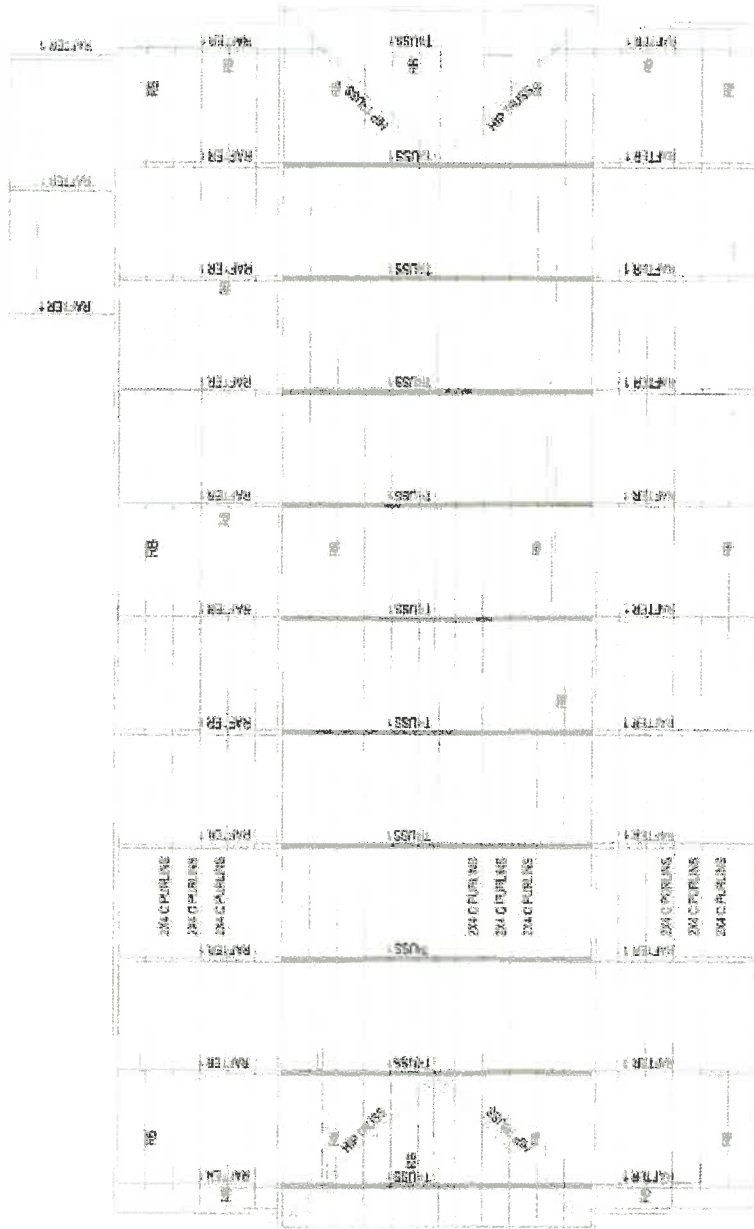
PERSPECTIVE VIEW

FOR SVA USE ONLY

 <p>SUGAR REGULATORY ADMINISTRATION</p>	<p>PROJECT NO. <u>123456</u></p> <p>DESIGNER <u>JESUA C. BRITANICO</u></p> <p>DATE <u>12/12/2023</u></p>	<p>PROJECT TITLE CONSTRUCTION OF CHEMICAL AND FERTILIZER STORAGE FOR LGARRET STATION</p> <p>PROJECT LOCATION LA GRAMIA LA CASHITA, NEREGSE OCCIDENTAL</p>	<p>DATE <u>12/12/2023</u></p> <p>DESIGNER <u>MICHAEL R. HERNANDEZ</u></p>	<p>DESIGNED BY <u>HELEN B. LOBATO LATTY, IGNACIO S. SANTILLANA</u></p> <p>FOR REVIEW & SIGNATURE OF <u>HELEN B. LOBATO LATTY, IGNACIO S. SANTILLANA</u></p>	<p>DATE <u>12/12/2023</u></p> <p>DESIGNED BY <u>HELEN B. LOBATO LATTY, IGNACIO S. SANTILLANA</u></p> <p>FOR REVIEW & SIGNATURE OF <u>HELEN B. LOBATO LATTY, IGNACIO S. SANTILLANA</u></p>
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 SUGAR REGULATORY ADMINISTRATION		PROJECT NO. 15-001 PROJECT NAME: CONSTRUCTION OF CHEMICAL AND FERTILIZER STORAGE FOR LA GRANJA LA CURUCHA, NEGROS OCCIDENTAL		PROJECT MANAGER HENRY B. LOBATO / ATTY. JENACIO S. SANTILLANA PROJECT ENGINEER HON. PABLO LUIS S. AZCONA		PROJECT NO. 15-001 PROJECT NAME: CONSTRUCTION OF CHEMICAL AND FERTILIZER STORAGE FOR LA GRANJA LA CURUCHA, NEGROS OCCIDENTAL	
FOR SHA USE ONLY PROJECT NO. 15-001		PROJECT NO. 15-001 PROJECT NAME: CONSTRUCTION OF CHEMICAL AND FERTILIZER STORAGE FOR LA GRANJA LA CURUCHA, NEGROS OCCIDENTAL		PROJECT MANAGER HENRY B. LOBATO / ATTY. JENACIO S. SANTILLANA PROJECT ENGINEER HON. PABLO LUIS S. AZCONA		PROJECT NO. 15-001 PROJECT NAME: CONSTRUCTION OF CHEMICAL AND FERTILIZER STORAGE FOR LA GRANJA LA CURUCHA, NEGROS OCCIDENTAL	



ROOF FRAMING PLAN

SCALE: 1:100MM

FOR SERIALS ONLY
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DESIGNED BY: JES
CHECKED BY: JES
DATE: 11/11/11

REGISTERED
CONSTRUCTION OF CHEMICAL AND FERTILIZER STORAGE FOR
LEGARES STATION
LA CRAN LA CAROLITA, NEGROS OCCIDENTAL

ENGINEER: JES
DATE: 11/11/11

HELEN E. ORACION, R.A.T.Y. (R.A.T.Y. S. SANTI LANA)
REGISTERED CIVIL ENGINEER

HELEN E. ORACION, R.A.T.Y. (R.A.T.Y. S. SANTI LANA)
REGISTERED CIVIL ENGINEER

DATE: 11/11/11
S-02

SECTION A-A

16'0" x 22'0"

16'0" x 22'0"

16'0" x 8'0"

44'0"

32'0"

MANHOLE

ACCESS POINT

VALVE

CONCRETE OR MASONRY

1-1-79

SCALE: 1" = 4'-0"

NOTES:

- TANKS TO BE CONSTRUCTED OF CONCRETE OR MASONRY.
- SYSTEM TO BE INSTALLED IN ACCORDANCE WITH LOCAL CODES.

INVESTIGATING THE DRAWINGS WITH OTHER RELATED DRAWINGS AND SPECIFICATIONS, THE ARCHITECT/ENGINEER SHALL BE RESPONSIBLE FOR COORDINATING THE DRAWINGS WITH OTHER RELATED DRAWINGS AND SPECIFICATIONS.

PROJECTED SLOPE AND ITS SHAL CLIFFS TO THE ACTUAL LOCATION, DEPTH AND INVERT ELEVATION OF ALL EXISTING PIPES AND STRUCTURES AS VERIFIED BY THE CONVICTION.

THE COMPANY CAN SHOW VARYING CASING VILIBILITIES AT SITE, CORRELATING THE WORKS WITH THE SEWERLINE EFFICIENT OPERATIONAL POINT AND WATER IN THE SERVICE CONNECTING POINT.

ALL OTHER REQUIREMENTS SHOULD BE FOLLOWED. THE REVISION OF THE NATIONAL PLUMBING CODE OF THE INTERNATIONAL ASSOCIATION OF PLUMBERS AND MECHANICAL ENGINEERS IS BEING PUBLISHED BY THE INTERNATIONAL ASSOCIATION OF PLUMBERS AND MECHANICAL ENGINEERS, 1501 K STREET, N.W., WASHINGTON, D.C. 20005.

[illegible]

TO WATER
SUPPLY

MANHOLE COVER DETAILS

[illegible]

[illegible]

7. ALL COUNTRIES FOR CONVENTION SHALL BE RATED IN ACCORDANCE WITH ELECTRICAL INSTALLATION RULES IN UNDER THE SUPERVISION OF A QUALIFIED ELECTRICIAN. THEREAFTER THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE ELECTRICAL SYSTEM.

REFLECTED LIGHTING LAYOUT PLAN

[illegible]

REFLECTED POWER LAYOUT PLAN

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U.S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

BRITANNICA

CONSTRUCTION OF CHEMICAL AND FERTILIZER STORAGE FOR
GABRIEL STATION

11/11/2003 05:00:23 PM VLD PARTS VTI VIMACH 031

NICHOLAS R. JAMNAY
6-100 96-478

HELENE LOBATON, ATTY. GENERAL

MON. PAOLOUS S. AZCONA

2009

Section VIII. Bill of Quantities

Notes on the Bill of Quantities

Objectives

The objectives of the Bill of Quantities are:

- a. to provide sufficient information on the quantities of Works to be performed to enable Bids to be prepared efficiently and accurately; and
- b. when a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.

In order to attain these objectives, Works should be itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bill of Quantities should be as simple and brief as possible.

Daywork Schedule

A Daywork Schedule should be included only if the probability of unforeseen work, outside the items included in the Bill of Quantities, is high. To facilitate checking by the Entity of the realism of rates quoted by the Bidders, the Daywork Schedule should normally comprise the following:

- a. A list of the various classes of labor, materials, and Constructional Plant for which basic daywork rates or prices are to be inserted by the Bidder, together with a statement of the conditions under which the Contractor will be paid for work executed on a daywork basis.
- b. Nominal quantities for each item of Daywork, to be priced by each Bidder at Daywork rates as Bid. The rate to be entered by the Bidder against each basic Daywork item should include the Contractor's profit, overheads, supervision, and other charges.

Provisional Sums

A general provision for physical contingencies (quantity overruns) may be made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a provisional sum in the Summary Bill of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises. Where such provisional sums or contingency allowances are used, the SCC should state the manner in which they will be used, and under whose authority (usually the Procuring Entity's Representative's).

The estimated cost of specialized work to be carried out, or of special goods to be supplied, by other contractors should be indicated in the relevant part of the Bill of Quantities as a particular provisional sum with an appropriate brief description. A separate procurement procedure is normally carried out by the Procuring Entity to select such specialized contractors. To provide an element of competition among the Bidders in respect of any facilities, amenities, attendance, etc., to be provided by the successful Bidder as prime Contractor for the use and convenience of the specialist contractors, each related provisional sum should be followed by an item in the Bill of Quantities inviting the Bidder to quote a sum for such amenities, facilities, attendance, etc.

Signature Box

A signature box shall be added at the bottom of each page of the Bill of Quantities where the authorized representative of the Bidder shall affix his signature. Failure of the authorized representative to sign each and every page of the Bill of Quantities shall be a cause for rejection of his bid.

These Notes for Preparing a Bill of Quantities are intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They should not be included in the final documents.

CONSTRUCTION OF CHEMICAL AND FERTILIZER STORAGE
LOCATION: BRIS LA GRANIA, LA CARLOTA CITY NEGROS OCCIDENTAL

LOCATION: BRGY LA GRANIA, LA CARLOTA CITY NEGROS OCCIDENTAL												
ITEM NO	DESCRIPTION	QUANTITY	UNIT	ESTIMATED DIRECT COS	MARGUINS IN PERCENT	TOTAL MARK-UP VALUE	VAT	TOTAL INDIRECT COS	TOTAL COST	CONTRACT DURATION: 90 DAYS		
1	2	3	4	5	6	7	8	9	10	11	12	13
GENERAL REQUIREMENTS												
PART A	Provision of Field Office for the Engineer (Monthly Basis)	3.00	month	30818.00	-	8%	2480.44	1653.37	34720.81	34720.81		11571.60
TOTAL OF PART A												
OTHER GENERAL REQUIREMENTS												
PART B	Permits and Clearances	1.00	L.S.	51278.13				2561.91	53840.04	53840.04		53840.04
B.3	Project Refillboard / Subboard	1.00	L.S.	6900.00	12%			772.00	7677.00	7677.00		7677.00
B.7.1.1	Occupational Safety and Health Program	1.00	L.S.	57736.00	12%			6467.04	64289.04	64289.04		64289.04
B.9	Mobilization, demobilization	1.00	L.S.	5880.00				588.00	6467.04	6467.04		6467.04
B.2.5	Detailed Engineering and Architectural Design	1.00	L.S.	111765.51	13%			14529.52	126295.03	126295.03		126295.03
TOTAL OF PART B												
DIVISION I - GENERAL												
PART C	Ceiling and Grading	1.00	L.S.	3550.00				355.00	3905.00	3905.00		3905.00
800.13.1	Structure excavation (Common Soil)	13.61	cu.m	13650.00	12%			1536.00	15114.00	15114.00		15114.00
804.12.1	Embankment from borrow	28.00	cu.m	50872.00	12%			5695.84	56502.16	56502.16		56502.16
804.14	Gravel Fill	57.50	cu.m	43548.00	12%			4870.28	48260.72	48260.72		48260.72
TOTAL OF PART C												
PLAIN AND REINFORCED CONCRETE WORKS												
PART D	REINFORCED CONCRETE	61.71	cu.m	209948.30	11%			23094.31	232257.61	232257.61		232257.61
900	Structural Concrete (Footings and Sills on fill) A 28 days	14.04	cu.m	68338.30	12%			7657.32	75571.98	75571.98		75571.98
900.11.1.2	Structural Concrete (Columns) A 28 days	7.60	cu.m	42008.30	11%			4620.89	47429.19	47429.19		47429.19
900.11.1.2.1	Structural Concrete (Beams/Girders) A 28 days	7.40	cu.m	353192.42	12%			39551.47	392240.95	392240.95		392240.95
902.11.1	Reinforcing Steel (Deformed) Grade 40	5753.54	kg	353192.42	12%			39551.47	392240.95	392240.95		392240.95
903.11	Formworks and Scaffolding	1.00	L.S.	53820.00	12%			5927.60	59817.60	59817.60		59817.60
TOTAL OF PART D												
FINISHING AND OTHER CIVIL WORKS												
PART E	PLUMBING WORKS	294.45	sq.m	217466.00	12%			24471.28	241997.28	241997.28		241997.28
1002	Water Closet, Round front, Complete	1.00	sets	8250.00	12%			924.00	9166.00	9166.00		9166.00
1002.11.1	Urinal, Flush Valve, Complete Push Button Type	1.00	sets	7071.00	12%			791.92	7891.08	7891.08		7891.08
1002.11.2	Laboratory Wash Sink, Complete	1.00	sets	2068.00	12%			231.76	2304.24	2304.24		2304.24
1002.11.3	Floor Drain Piles 50 mm dia. Stainless Steel	1.00	pc	3015.00	12%			337.74	3351.26	3351.26		3351.26
1002.12.1	Facial Mirror	1.00	sq.m	2513.00	12%			281.44	2784.56	2784.56		2784.56
1002.12.2	Plumbing Works	1.00	L.S.	30766.90	12%			3445.96	34121.86	34121.86		34121.86
1003	CARPENTRY AND JOINERY WORKS	294.45	sq.m	217466.00	12%			24471.28	241997.28	241997.28		241997.28
1003.11.1	Ceiling 24.5 mm Metal Frame Fiber Cement Board	1.00	sq.m	17131.20	12%			1925.54	19038.66	19038.66		19038.66
1003.11.2	Ceiling 24.5 mm Metal Frame Fiber Cement Board	1.00	sq.m	17131.20	12%			1925.54	19038.66	19038.66		19038.66
1003.11.3	Lower Window	62.80	sq.m	27672.00	12%			3068.64	30365.36	30365.36		30365.36
1013	Aluminum Glass Windows Sliding Type	0.16	sq.m	5950.00	12%			663.00	6563.00	6563.00		6563.00
1013.12.1	Doors Wood Panel	20.79	sq.m	147101.75	12%			16391.39	162460.36	162460.36		162460.36
CORRUGATED METAL ROOFING												
1013.12.2	Corrugated Metal Roofing gauge 26	518.35	sq.m	190486.99	12%			22253.58	218263.41	218263.41		218263.41
1013.12.3	Fabricated Metal Roofing Accessory gauge 26, Ridge/Hip Rolls	24.27	sq.m	29888.84	12%			3338.18	33055.06	33055.06		33055.06
1013.12.4	Fabricated Metal Roofing Accessory gauge 26 Flashings	1.00	pc	86462.75	12%			9673.91	95788.84	95788.84		95788.84
1013.12.5	Roof Ventilators	588.55	sq.m	27750.00	12%			3108.60	30441.40	30441.40		30441.40
1018	CERAMIC GRANITE Tiles	18.25	sq.m	34898.00	12%			3900.68	38507.32	38507.32		38507.32
1018.11	Glazed Tiles and Trims	18.25	sq.m	34898.00	12%			3900.68	38507.32	38507.32		38507.32
1021.11.1	Cement Floor Finish Main	325.00	sq.m	29708.00	12%			3318.90	32389.10	32389.10		32389.10
1021.11.2	PAINTING, VARNISHING AND OTHER RELATED WORKS	1.00	L.S.	18285.00	12%			2047.80	20080.20	20080.20		20080.20
1021.11.3	Painting Works Steel	1.00	L.S.	18285.00	12%			2047.80	20080.20	20080.20		20080.20
1021.11.4	MASSONRY WORKS	1.00	L.S.	18285.00	12%			2047.80	20080.20	20080.20		20080.20
1046	C18 Non Load Bearing Including Reinforcing Steel 100 mm	719.00	sq.m	360774.50	12%			40285.70	396748.80	396748.80		396748.80
1047	METAL STRUCTURES	1.00	L.S.	107484.00	12%			12038.04	116245.96	116245.96		116245.96
1047.11	Structural Steel	1.00	L.S.	107484.00	12%			12038.04	116245.96	116245.96		116245.96
1047.12	Structural Steel	1.00	L.S.	107484.00	12%			12038.04	116245.96	116245.96		116245.96
1047.13	Structural Steel	1.00	L.S.	107484.00	12%			12038.04	116245.96	116245.96		116245.96
1047.14	Structural Steel	1.00	L.S.	107484.00	12%			12038.04	116245.96	116245.96		116245.96
1047.15	Structural Steel	1.00	L.S.	107484.00	12%			12038.04	116245.96	116245.96		116245.96
1047.16	Structural Steel	1.00	L.S.	107484.00	12%			12038.04	116245.96	116245.96		116245.96
1047.17	Structural Steel	1.00	L.S.	107484.00	12%			12038.04	116245.96	116245.96		116245.96
TOTAL OF PART E												
ELECTRICAL WORKS												
PART F	CONDUITS, BOXES & FITTINGS (CONDUIT WORKS/ CONDUIT ROUGH-IN)	1.00	L.S.	18285.00	12%			2047.80	20080.20	20080.20		20080.20
1100	Conduits, Boxes & Fittings (Conduit Works/Conduit Rough-in)	1.00	L.S.	18285.00	12%			2047.80	20080.20	20080.20		20080.20
1101	WIRES AND WIRING DEVICES	1.00	L.S.	24266.00	12%			2729.28	24067.72	24067.72		24067.72
1101.11.1.2	Electric Wire 3.5mm2 TW/THW/HW/LS Stranded	1.00	L.S.	16244.00	12%			1827.28	16066.72	16066.72		16066.72
1101.11.1.3	Electric Wire 5.5mm2 TW/THW/HW/LS Stranded	1.00	L.S.	16244.00	12%			1827.28	16066.72	16066.72		16066.72
1102	LIGHTING FIXTURES AND LAMPS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1103	Laboratory Features and Fixtures	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1102	POWER LOAD CENTER, SWITCHGEAR AND PANELBOARDS, AND OTHER OVERCURRENT PROTECTION DEVICES	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1102.13	Panelboard with Main & Branch Breakers	1.00	sets	27336.00	12%			3068.00	24268.00	24268.00		24268.00
TOTAL OF PART F												
MECHANICAL WORKS												
PART G	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1100	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1101	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1102	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1103	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1104	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1105	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1106	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1107	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1108	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1109	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1110	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1111	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1112	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1113	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1114	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1115	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1116	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1117	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1118	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1119	MECHANICAL WORKS	1.00	L.S.	27336.00	12%			3068.00	24268.00	24268.00		24268.00
1120	MECHANICAL WORKS	1.00	L.S.	27336.00	12							

1200 (S) a	Exhaustion causing collapse	1.00	50%	3,821.12	8%	254.57	171.41	43.40	3653.52	36.8.52
1200 (S) a	Fire Alarm System	1.00	50%	4545.64	8%	3635.55	2454.06	6089.72	5135.36	5135.36
TOTAL OF PART G									5135.36	
TOTAL									4026322.173	
									1000000.00	

Prepared and Submitted by:

JESSICA C. BRITANICO
Engineer II COS / PPBTRM Section

Noted by:

MICHAEL R. KAMAYBA
OIC ASSO. and user

Recommending Approval:

HELEN B. LOBATON / ATTY. IGNACIO S. SANTILLANA
RDE - Manager III / Deputy Administrator II

Approved by:

HON. PABLO LUIS S. AZCONA
Administrator

PROJECT NAME

: Construction of Chemical and Fertilizer Storage

Subproject ID No.

LOCATION

: Bryi La Granja, La Carlota City Negros Occidental

SUMMARY

Item No.	Items of Work	Qty.	Unit	Materials	Equipment	Labor	Direct Cost	Indirect Cost (inc. profit, cont. and tax)	Total Cost	Unit Cost
PART A	GENERAL REQUIREMENTS									
A.1.1 (B)	Provision of Field Office for the Engineer (Rentals)	3.00	month	30,618.00	0.00	0.00	30,618.00	4,102.81	34,720.81	31,573.60
PART B	GENERAL REQUIREMENTS									
B.1	Permits and Clearances	1.00	L.S.	51,278.13	0.00	0.00	51,278.13	2,563.91	53,842.04	53,842.04
B.5	Project Billboard / Signboard	1.00	L.S.	6,900.00	0.00	0.00	6,900.00	1,794.00	8,694.00	8,694.00
B.2.1 (2)	Construction Safety and Health Program	1.00	L.S.	57,290.00	0.00	0.00	57,290.00	7,743.86	65,033.86	65,033.86
B.9	Mobilization / demobilization	1.00	L.S.	0.00	8,500.00	7,300.00	15,800.00	790.00	16,590.00	16,590.00
B.25	Detailed Engineering and Architectural Design	1.00	L.S.	111,765.61	0.00	0.00	111,765.61	29,059.06	140,824.67	140,824.67
PART C	DIVISION I - GENERAL									
C.1	Clearing and Grubbing	1.00	L.S.	0.00	0.00	4,550.00	4,550.00	1,183.00	5,733.00	5,733.00
C.1.1 (1)	Structure excavation/ foundation soil	13.63	cum	0.00	0.00	13,650.00	13,650.00	3,549.00	17,199.00	1,253.89
C.1.1 (2)	Excavation from borrow	28.8	cum	18,920.00	2,952.00	8,000.00	50,872.00	11,276.22	64,098.22	2,225.65
C.1.4	Gravel fill	57.6	cum	33,408.00	5,600.00	7,100.00	45,508.00	11,832.08	57,340.08	995.49
PART D	PLAIN AND REINFORCED CONCRETE WORKS									
D.1	REINFORCED CONCRETE									
D.1.1 (1)	Structural Concrete (Foundation and Column E-W & N-S)	81.23	cum	201,465.00	4,383.30	0.00	205,848.30	54,586.56	260,434.86	4,246.74
D.1.1 (2)	Structural Concrete (Column & Rafters)	34.78	cum	63,315.00	1,833.30	0.00	65,148.30	17,275.76	82,424.06	2,371.61
D.1.1 (3)	Structural Concrete (Roofs)	7.40	cum	13,275.00	1,833.30	0.00	15,108.30	40,922.16	55,964.53	7,564.53
D.1.1 (4)	Reinforced Steel Deckwork (Grade 40)	5751.54	sq	321,342.42	0.00	31,850.00	353,192.42	91,830.03	445,022.44	77.35
D.1.1 (5)	Formwork and Scaffolding	1.00	L.S.	40,200.00	0.00	13,650.00	53,850.00	14,100.00	67,950.00	57,851.00
PART E	FINISHING AND OTHER CIVIL WORKS									
E.1	PLUMBING WORKS									
E.1.1 (1)	Sanitary Unit (Toilet/Urinal)	1.00	L.S.	40,000.00	0.00	13,750.00	53,750.00	13,843.00	67,593.00	67,593.00
E.1.1 (2)	Water closet, Basin, Foot, Commode	1.00	L.S.	5,800.00	0.00	2,500.00	8,300.00	2,145.00	10,445.00	10,445.00
E.1.1 (3)	Urinal, Flush Valve, Concealed Pitch, Bidet, Toile	1.00	L.S.	5,253.33	0.00	2,500.00	7,753.33	2,054.84	9,808.17	9,808.17
E.1.1 (4)	Lavatory, Wall hung, Complete	1.00	L.S.	4,421.00	0.00	2,650.00	7,071.00	1,838.46	8,909.46	8,909.46
E.1.1 (5)	Floor Drain Pipes, 60 mm dia, Staples	1.00	L.S.	118.00	0.00	2,650.00	2,768.00	771.68	3,539.68	3,539.68
E.1.1 (6)	Water	1.00	L.S.	1,365.00	0.00	1,650.00	3,015.00	781.00	3,796.00	3,796.00
E.1.1 (7)	Plumbing Works	1.00	L.S.	853.00	0.00	1,650.00	2,503.00	653.48	3,156.48	3,156.48
E.1.1 (8)	CARPENTRY AND JOINERY WORKS	1.00	L.S.	21,466.94	0.00	9,300.00	30,766.94	7,909.40	38,676.34	38,676.34
E.1.1 (9)	Ceiling 4.5 mm Metal Frame Fiber Cement Board	284.45	sqm	180,466.00	11,500.00	25,500.00	217,466.00	56,541.16	274,007.16	930.57
E.1.1 (10)	Ceiling Metal Frame PVC	101.23	sqm	152,331.20	9,200.00	16,800.00	178,331.20	46,366.11	224,697.31	2,219.67
E.1.1 (11)	Lower Window	62.80	sqm	256,224.00	0.00	20,500.00	276,724.00	71,948.24	348,672.24	5,552.11
E.1.1 (12)	Aluminum Glass Windows Sliding Type	0.16	sqm	650.27	0.00	5,300.00	5,950.27	1,537.07	7,487.34	46,858.38
E.1.1 (13)	Door Wood Panel	20.79	sqm	126,401.75	0.00	21,000.00	147,401.75	38,246.45	185,648.20	8,915.26
E.1.1 (14)	CORRUGATED METAL ROOFING									
E.1.1 (15)	Corrugated Metal Roofing 26 gauge 26	688.35	sqm	195,496.99	0.00	35,000.00	230,496.99	59,439.21	289,936.21	421.63
E.1.1 (16)	Painted Metal Roofing Accessory 26, Ridge/Rip Rolls	24.27	sqm	20,288.84	0.00	9,600.00	29,888.84	7,771.30	37,660.14	1,551.71
E.1.1 (17)	Painted Metal Roofing Accessory 26, Ridge/Rip Rolls	156.05	sqm	72,812.75	0.00	13,650.00	86,462.75	22,480.37	108,943.12	698.89
E.1.1 (18)	Paint Metal Roofing Accessory 26, Ridge/Rip Rolls	588.35	sqm	16,841.00	0.00	10,950.00	27,791.00	7,215.00	34,966.00	59.43
E.1.1 (19)	CERAMIC/ GRANITE TILES									
E.1.1 (20)	Glazed Tiles and Trim	18.25	sqm	11,748.00	0.00	23,250.00	34,998.00	9,099.48	44,097.48	2,416.30
E.1.1 (21)	Cement Floor Finish Plain	325.00	sqm	276,250.00	0.00	23,250.00	299,500.00	77,870.00	377,370.00	1,161.14
E.1.1 (22)	PAINTING, VARNISHING AND OTHER RELATED WORKS									
E.1.1 (23)	Painting Works Mason / Concrete	1466.34	sqm	141,763.46	0.00	21,000.00	162,763.46	42,318.50	205,081.96	139.86
E.1.1 (24)	Painting Works Steel	134.01	sqm	18,540.00	0.00	8,400.00	26,940.00	7,004.40	33,944.40	253.30
E.1.1 (25)	MASONRY WORKS									
E.1.1 (26)	CHB Non Load Bearing (Including Reinforcing Steel 100 mm	719.00	sqm	334,674.00	0.00	25,500.00	360,174.00	93,635.24	453,819.24	631.18
E.1.1 (27)	METAL STRUCTURES									

Section IX. Checklist of Technical and Financial Documents

Notes on the Checklist of Technical and Financial Documents

The prescribed documents in the checklist are mandatory to be submitted in the Bid, but shall be subject to the following:

- a. GPPB Resolution No. 09-2020 on the efficient procurement measures during a State of Calamity or other similar issuances that shall allow the use of alternate documents in lieu of the mandated requirements; or
- b. any subsequent GPPB issuances adjusting the documentary requirements after the effectivity of the adoption of the PBDs.

The BAC shall be checking the submitted documents of each Bidder against this checklist to ascertain if they are all present, using a non-discretionary “pass/fail” criterion pursuant to Section 30 of the 2016 revised IRR of RA No. 9184.

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class “A” Documents

Legal Documents

- ☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages) in accordance with Section 8.5.2 of the IRR;

In case any of the eligibility documents per Annex A of the PhilGEPS Certificate of Registration is expired, all copies (current and valid) of SEC/DTI Registration, Mayor’s Permit, Tax Clearance, and Audited Financial Statements shall be submitted along with the PhilGEPS Certificate.

Technical Documents

- ☐ (b) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**
- ☐ (c) Statement of the bidder’s Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules; **and**
- ☐ (d) Special PCAB License in case of Joint Ventures **and** registration for the type and cost of the contract to be bid; **and**
- ☐ (e) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission **or** original copy of Notarized Bid Securing Declaration; **and**
- ☐ (f) Project Requirements, which shall include the following:
- ☐ a. Organizational chart for the contract to be bid;
 - ☐ b. List of contractor’s key personnel (*e.g.*, Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data;
 - ☐ c. List of contractor’s major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be; **and**
- ☐ (g) Original duly signed Omnibus Sworn Statement (OSS) **and** if applicable, Original Notarized Secretary’s Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

- ☐ (h) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC) and to include the latest Audited Financial Statements.

Class "B" Documents

- ☐ (i) If applicable, duly signed joint venture agreement (JVA) in accordance with RA No. 4566 and its IRR in case the joint venture is already in existence **or** duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

II. FINANCIAL COMPONENT ENVELOPE

- ☐ (j) Original of duly signed and accomplished Financial Bid Form; **and**

Other documentary requirements under RA No. 9184

- ☐ (k) Original of duly signed Bid Prices in the Bill of Quantities; **and**
- ☐ (l) Duly accomplished Detailed Estimates Form, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; **and**
- ☐ (m) Cash Flow by Quarter.

