



REPUBLIC OF THE PHILIPPINES  
**NATIONAL POWER CORPORATION**  
(Pambansang Korporasyon sa Elektrisidad)

## BID DOCUMENTS

**Name of Project :** CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINDUQUE 69 KV STOCKYARD

**Location :** BRGY. CAGPO, TORRIJOS, MARINDUQUE

**Specs No. :** LuzP21Z1318Sc / S1-M6922-001

**Contents:**

- |              |                                  |
|--------------|----------------------------------|
| Section I    | - Invitation to Bid              |
| Section II   | - Instructions to Bidders        |
| Section III  | - Bid Data Sheet                 |
| Section IV   | - General Conditions of Contract |
| Section V    | - Special Conditions of Contract |
| Section VI   | - Technical Specifications       |
|              | <i>PH – Project Highlights</i>   |
|              | <i>AW – Architectural Works</i>  |
|              | <i>CW – Civil Works</i>          |
|              | <i>EW – Electrical Works</i>     |
| Section VII  | - Bill of Quantities             |
| Section VIII | - Bidding Forms                  |
| Section IX   | - Bid Drawings                   |

Design and Development Department



# **SECTION I**

# **INVITATION TO BID**





# National Power Corporation

## INVITATION TO BID

### PUBLIC BIDDING – BCS 2022-0156

1. The NATIONAL POWER CORPORATION (NPC), through its approved Corporate Budget of CY 2022 intends to apply the sum of **(Please see schedule below)** being the Approved Budget for the Contract (ABC) to payments under the contract. Bids received in excess of the ABC shall be automatically rejected at Bid opening.

| PR Nos./PB Ref No. & Description  | Similar Contracts  | Pre-bid Conference        | Bid Submission / Opening  | ABC/ Amt. of Bid Docs            |
|---|--|---------------------------|---------------------------|----------------------------------|
| <b>S1-SVD22-001 / PB220314-NA00029 (PB2)</b><br>Lease of 1.0 MW Modular Diesel Gensets for San Vicente DPP, San Vicente Palawan   | Lease of Modular Diesel Generating Sets or Operation and Maintenance (O & M) of Diesel Generating Sets | 11 April 2022<br>9:30 A.M | 25 April 2022<br>9:30 A.M | P 16,758,006.00 /<br>P 25,000.00 |
| <b>S1-M6922-001 / PB220425-JD</b><br>Construction of Guard House and Perimeter Fence for Marinduque 69kV Stockyard, Brgy. Cagpo, Torrijos, Marinduque<br>• PCAB License: License Category of at least <b>"Category D – General Building"</b> and registration classification of at least <b>"Small B – Building &amp; Industrial Plant"</b> | Construction of industrial building, warehouse, stadium or storage building                            | 11 April 2022<br>9:30 A.M | 25 April 2022<br>9:30 A.M | P 4,097,000.00 /<br>P 5,000.00   |
| <b>S1-B0622-004 / PB220425-JD</b><br>Rehabilitation of Mooring Facility for Power Barge 106 at Romblon, Romblon<br>• PCAB License: License Category of at least <b>"Category D – General Engineering"</b> and registration classification of at least <b>"Small B – Port, Harbor or Offshore Engineering"</b>                               | Construction / rehabilitation of mooring facilities, port, terminal or loading / unloading jetty       | 11 April 2022<br>9:30 A.M | 25 April 2022<br>9:30 A.M | P 4,744,000.00 /<br>P 5,000.00   |
| <b>Venue: Kafiao Function Room, NPC Bldg. Dillman, Quezon City</b>  |  |                           |                           |                                  |

2. The NPC now invites bids for Items listed above. Delivery of the Goods is required (see table below) specified in the Technical Specifications. Bidders should have completed, within (see table below) from

the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II. (Instruction to Bidders).

| PR No/s. / PB Ref No/s. | Delivery Period / Contract Duration                      | Relevant Period of SLCC reckoned from the date of submission & receipt of bids |
|-------------------------|--|--|
| S1-SVD22-001            | Twelve (12) Months – Maximum<br>Six (6) Months – Minimum | Ten (10) Years   |
| S1-M6922-001            | Ninety (90) Calendar Days                                | -  |
| S1-B0622-004            | Sixty (60) Calendar Days                                 | -  |

3. Bidding will be conducted through open competitive bidding procedures using a non-discretionary "pass/fail" criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA 5183.

4. Prospective Bidders may obtain further information from National Power Corporation, Bids and Contracts Services Division and inspect the Bidding Documents at the address given below during office hours (8:00AM to 5:00PM), Monday to Friday.
5. A complete set of Bidding Documents may be acquired by interested Bidders from the given address and website(s) and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB. Bidding fee may be refunded in accordance with the guidelines based on the grounds provided under Section 41 of R.A. 9184 and its Revised IRR.
6. The National Power Corporation will hold Pre-Bid Conference (**see table above**) and/or through video conferencing or webcasting which shall be open to prospective bidders.

Only registered bidder/s shall be allowed to participate for the conduct of virtual pre-bid conference. **Unregistered bidders** may attend the Pre-Bid Conference at the Kañao Room, NPC subject to the following:

- Only a maximum of two (2) representatives from each bidder / company shall be allowed to participate during the virtual pre-bid conference.
  - A "No Face mask / No Entry" policy shall be implemented in the NPC premises. Face mask shall be 3-ply surgical or KN95 mask type.
  - The requirements herein stated including the medium of submission shall be subject to GPPB Resolution No. 09-2020 dated 07 May 2020
  - The Guidelines on the Implementation of Early Procurement Activities (EPA) shall be subject to GPPB Circular No. 06-2019 dated 17 July 2019
7. Bids must be duly received by the BAC Secretariat through (i) manual submission at the office address indicated below; (ii) online or electronic submission before the specified time stated in the table above for opening of bids. 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 14.
9. Bid opening shall be on Kañao Function Room, NPC Head Office, Diliman, Quezon City and/or via online platform to be announced by NPC. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

10. The National Power Corporation 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 IRR of R.A. No. 9184, without thereby incurring any liability to the affected bidder or bidders.

11. For further information, please refer to:

**Bids and Contracts Services Division,  
Logistics Department**

BIR Road cor. Quezon Avenue

Diliman, Quezon City

Tel Nos.: 8924-5211 and 8921-3541 local 5611

Fax No.: 8922-1622

Email: [bcsd@napocor.gov.ph](mailto:bcsd@napocor.gov.ph) / [bcsd\\_napocor@yahoo.com](mailto:bcsd_napocor@yahoo.com)

12. You may visit the following websites:

For downloading of Bidding Documents: <https://www.napocor.gov.ph/bcsd/bids.php>

  
**ATTY. ROGEL T. TEVES**  
Vice President, Power Engineering Services and  
Chairman, Bids and Awards Committee

## **SECTION II**

# **INSTRUCTION TO BIDDERS**

**SECTION II - INSTRUCTIONS TO BIDDERS****TABLE OF CONTENTS**

| <b><u>CLAUSE NO.</u></b> | <b><u>TITLE</u></b>  | <b><u>PAGE NO.</u></b> |
|--------------------------|--|------------------------|
| 1.                       | SCOPE OF BID .....   | 1                      |
| 2.                       | FUNDING INFORMATION.....   | 1                      |
| 3.                       | BIDDING REQUIREMENTS .....   | 1                      |
| 4.                       | CORRUPT, FRAUDULENT, COLLUSIVE, COERCIVE, AND OBSTRUCTIVE<br>PRACTICES ..... | 1                      |
| 5.                       | ELIGIBLE BIDDERS .....   | 1                      |
| 6.                       | ORIGIN OF ASSOCIATED GOODS.....  | 2                      |
| 7.                       | SUBCONTRACTS .....   | 2                      |
| 8.                       | PRE-BID CONFERENCE .....   | 2                      |
| 9.                       | CLARIFICATION AND AMENDMENT OF BIDDING DOCUMENTS .....                       | 2                      |
| 10.                      | DOCUMENTS COMPRISING THE BID: ELIGIBILITY AND TECHNICAL<br>COMPONENTS .....  | 3                      |
| 11.                      | DOCUMENTS COMPRISING THE BID: FINANCIAL COMPONENT .....                      | 3                      |
| 12.                      | ALTERNATIVE BIDS .....   | 3                      |
| 13.                      | BID PRICES .....   | 4                      |
| 14.                      | BID AND PAYMENT CURRENCIES .....   | 4                      |
| 15.                      | BID SECURITY.....  | 4                      |
| 16.                      | SEALING AND MARKING OF BIDS .....  | 4                      |
| 17.                      | DEADLINE FOR SUBMISSION OF BIDS .....  | 4                      |
| 18.                      | OPENING AND PRELIMINARY EXAMINATION OF BIDS .....                            | 4                      |
| 19.                      | DETAILED EVALUATION AND COMPARISON OF BIDS.....                              | 5                      |
| 20.                      | POST QUALIFICATION .....   | 5                      |
| 21.                      | SIGNING OF THE CONTRACT .....  | 5                      |

## SECTION II - INSTRUCTIONS TO BIDDERS

### 1. Scope of Bid

NPC invites Bids for the **CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINDUQUE 69 KV STOCKYARD**, with Project Identification Number **LuzP21Z1318Sc**.

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

### 2. Funding Information

The GOP through the source of funding as indicated below for CY 2021 in the amount of specified in the Invitation to Bid. The source of funding is the proposed Corporate Operating Budget of the National Power Corporation (NPC).

### 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.
- 7.1. The Bidder must submit together with its Bid the documentary requirements of the subcontractor(s) complying with the eligibility criterion stated in ITB Clause 5 in accordance with Section 23.4 of the 2016 revised IRR of RA No. 9184 pursuant to Section 23.1 thereof.
- 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 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 **Form NPCSF-INFR-01 - Checklist of Technical and Financial Documents, Section VIII - Bidding Forms.**
- 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 PCAB License is required, and in case of joint ventures, a valid special PCAB License, 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 **Form NPCSF-INFR-01 - Checklist of Technical and Financial Documents, Section VIII - Bidding Forms.**
- 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 **One Hundred Twenty (120) calendar days** from the date of opening of bids. 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**

**SECTION III - BID DATA SHEET**

| <b>ITB Clause</b> |   |
|-------------------|---|
| 5.2               | <p>For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be projects involving construction of industrial building, warehouse, stadium or storage building.</p> <p>The Single Largest Completed Contract (SLCC) as declared by the bidder shall be verified and validated to ascertain such completed contract. Hence, bidders must ensure access to sites of such projects/equipment to NPC representatives for verification and validation purposes during post-qualification process.</p> <p>It shall be a ground for disqualification, if verification and validation cannot be conducted for reasons attributable to the Bidder.</p>   |
| 7.1               | Only a maximum of fifty percent (50%) of the Works may be subcontracted. All Subcontractors must be approved by NPC.  |
| 10.1              | <p>The list of on-going contracts (Form No. NPCSF-INFR-02) shall be supported by the following documents for each on-going contract to be submitted during Post-Qualification:</p> <ol style="list-style-type: none"> <li>1. Contract/Purchase Order and/or Notice of Award</li> <li>2. Certification coming from the project owner/client that the performance is satisfactory as of the bidding date.</li> </ol> <p>The bidder shall declare in this form all his on-going government and private contracts including contracts where the bidder (either as individual or as a Joint Venture) is a partner in a Joint Venture agreement other than his current joint venture where he is a partner. Non declaration will be a ground for disqualification of bid.</p> |
|                   | <p>The Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid (Form No. NPCSF-INFR-03) shall be supported by the following documents to be submitted during Bid Opening:</p> <ol style="list-style-type: none"> <li>1. Contract/Purchase Order</li> <li>2. Owner's Certificate of Final Acceptance issued by the project owner other than the contractor or a final rating of at least Satisfactory in the Constructors Performance Evaluation System (CPES). In case of contracts with the private sector, an equivalent document (Ex. Official Receipt or Sales Invoice) shall be submitted.</li> </ol>   |
| 10.3              | The required License issued by the Philippine Contractors Accreditation Board (PCAB): License Category of at least <b>"CATEGORY D – GENERAL BUILDING"</b> and registration classification of at least <b>"SMALL B – BUILDING &amp; INDUSTRIAL PLANT"</b>  |

|      |  |
|------|--|
| 10.4 | <p>The list of key personnel shall include the following minimum requirements:</p> <p><b>a. One (1) Project Engineer</b></p> <p>Registered Civil Engineer who had supervised at least a project similar in nature as to the type and cost of the proposed project within the last 10 years. Must have at least 3 years professional experience as Civil Engineer on similar project.</p> <p><b>b. One (1) Materials Engineer</b></p> <p>Registered Civil Engineer with valid accreditation from the Department of Public Works and Highways (DPWH) as Materials Engineer I</p> <p><b>c. One (1) Safety Officer 2</b></p> <p>Construction Safety Officer who has completed at least forty (40) hours of Construction Safety and Health Training (COSH) from Occupational Safety and Health Center (OSHC) or Safety Training Organizations (STOs) accredited by the Department of Labor and Employment (DOLE)</p> <p>Valid Professional Regulations Commission (PRC) license for professional personnel, Construction Safety and Health Training Certificate from OSHC/STOs accredited by DOLE for the Safety Officer, certificate of accreditation including ID card issued by DPWH for Materials Engineer, shall be submitted and included as an attachment in the Standard Form NPCSF-INFR-09: List of Key Personnel Proposed to be Assign to the Contract.</p> <p>The above key personnel must either be employed by the Bidder or contracted by the Bidder to be employed for the contract to be bid.</p> |
| 10.5 | <p>The list of construction equipment (owned or leased) shall include the following minimum requirements:</p> <p>a. Welding Machine (at least 300 A) - 1 unit</p> <p>b. Concrete Mixer (at least 1 bagger) - 1 unit</p> <p>c. Oxyacetylene cutting outfit - 1 unit</p> <p>d. Bar cutter (25 mm <math>\phi</math> capable) - 1 unit</p>   |
| 10.6 | <p>Bidders shall also submit the following requirements in their first envelope, Eligibility and Technical Component of their bid:</p> <p>1. Complete eligibility documents of the proposed sub-contractor, if any</p>   |
| 10.7 | <p>The prospective bidders shall declare its Joint Venture partner during the purchase of bid/tender documents. Any single bidder/s who already procured/secured the bidding documents but want to avail the Joint Venture Agreement (JVA) shall inform the BAC in writing prior to the bid opening for records and documentation purposes. Failure to do so shall be a ground for disqualification/non-acceptance of its bid.</p>   |
| 12   | No further instructions  |

|      |  |
|------|--|
| 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> <ol style="list-style-type: none"> <li>1. The amount of not less than 2% of ABC, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;</li> <li>2. The amount of not less than 5% of ABC if bid security is in Surety Bond.</li> </ol>  |
| 19.2 | Partial Bid is not allowed   |
| 20   | <ol style="list-style-type: none"> <li>a. Contract/Purchase Order and/or Notice of Award for the contracts stated in the List of all Ongoing Government &amp; Private Contracts Including Contracts Awarded but not yet Started (NPCSF-INFR-02);</li> <li>b. Certification coming from the project owner/client that the performance is satisfactory as of the bidding date for all ongoing contracts stated in form NPCSF-INFR-02.</li> <li>c. The licenses and permits relevant to the Project and the corresponding law requiring it as specified in the Technical Specifications, if any.</li> </ol> |
| 21   | <p>The following documents shall form part of the contract:</p> <ol style="list-style-type: none"> <li>1. Notice to Proceed</li> <li>2. Construction schedule and S-curve</li> <li>3. Manpower Schedule</li> <li>4. Construction Methods</li> <li>5. Equipment Utilization Schedule</li> <li>6. Construction safety and health program of the contractor duly approved by the Bureau of Working Condition (BWC) of the Department of Labor and Employment (DOLE) or proof of submission to BWC</li> <li>7. PERT/CPM.</li> </ol>  |



## **SECTION IV**

# **GENERAL CONDITIONS OF CONTRACT**

**SECTION IV – GENERAL CONDITIONS OF CONTRACT****TABLE OF CONTENTS**

| <b><u>CLAUSE NO.</u></b> | <b><u>TITLE</u></b>                        | <b><u>PAGE NO.</u></b> |
|--------------------------|--|------------------------|
| 1.                       | SCOPE OF CONTRACT .....                    | 1                      |
| 2.                       | SECTIONAL COMPLETION OF WORKS .....        | 1                      |
| 3.                       | POSSESSION OF SITE .....                   | 1                      |
| 4.                       | THE CONTRACTOR'S OBLIGATIONS .....         | 1                      |
| 5.                       | PERFORMANCE SECURITY .....                 | 2                      |
| 6.                       | SITE INVESTIGATION REPORTS .....           | 2                      |
| 7.                       | WARRANTY .....                             | 2                      |
| 8.                       | LIABILITY OF THE CONTRACTOR .....          | 2                      |
| 9.                       | TERMINATION FOR OTHER CAUSES.....          | 2                      |
| 10.                      | DAYWORKS.....                              | 2                      |
| 11.                      | PROGRAM OF WORK .....                      | 3                      |
| 12.                      | INSTRUCTIONS, INSPECTIONS AND AUDITS ..... | 3                      |
| 13.                      | ADVANCE PAYMENT .....                      | 3                      |
| 14.                      | PROGRESS PAYMENTS.....                     | 3                      |
| 15.                      | OPERATING AND MAINTENANCE MANUALS.....     | 3                      |

## SECTION IV – GENERAL 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**

**SECTION V – SPECIAL CONDITIONS OF CONTRACT**

| GCC Clause |   |
|------------|---|
| 2          | Sectional completion is not specified.  |
| 4          | <p>It shall also be the obligation and responsibility of the Contractor to carry out the Works properly and in accordance with this Contract, including but not limited to the following conditions:</p> <p>a. The Contractor shall conduct the Works with due regard to safety and health in accordance with its Construction Safety and Health Program (CSHP) duly approved by the Department of Labor &amp; Employment (DOLE) and in compliance with the DOLE Department Order No. 13 – The Guidelines Governing Occupational Safety and Health in the Construction Industry.</p> <p>Failure to comply with the approved CSHP will be considered as non-compliance with the Contract and shall result to the imposition of Section 19, Violation and Penalties of the DOLE Department Order No. 13 and any appropriate sanctions such as, but not limited to:</p> <ol style="list-style-type: none"> <li>1. Suspend the work until the Contractor complies with the approved CSHP with the condition that the work resumption will not incur additional cost to the Corporation;</li> <li>2. Suspend payment of the portion of work under question;</li> <li>3. Correct the situation by employing 3<sup>rd</sup> party and charge all expenses incurred to the Contractor's collectibles/securities; and</li> <li>4. Report the condition to the Bureau of Working Conditions of the DOLE for their appropriate action.</li> </ol> <p>b. The Contractor shall be responsible for the strict compliance with the provision of the Philippine Laws affecting labor and operation of Work under the contract and shall be responsible for the payment of all indemnities arising out of any labor accident which may occur in the execution of the Works and for which he may be responsible under Republic Act 3428, as amended, known as the Workmen's Compensation Law.</p> <p>c. The Contractor is obliged to exercise due care so as not to endanger life and property in the vicinity of the Works where he operates in connection with this Contract. He shall be liable for all damages incurred in any manner by acts of negligence of his own, or his agents, employees, or workmen.</p> <p>d. It is the responsibility of the Contractor for the strict compliance with the requirements of the Philippine Clean Air Act of 1999 (R.A. 8749) and Philippine Clean Water Act of 2004 (R.A. 9275). The Contractor shall be liable for any damages/destructions to the environment including penalties that will be imposed by the Department of Environment and Natural Resources (DENR) arising from non-compliance of the requirements thereof.</p> |

|     |   |
|-----|---|
|     | <p>e. The Contractor shall be responsible for the strict compliance with the requirements of the Environmental Compliance Certificate (ECC) issued for this project (if any) and DENR Administrative Order No. 26. He shall be liable for any damages/destructions to the environment including penalties that will be imposed by the DENR arising from non-compliance thereof, in any manner by his acts or negligence, or by his agents, employees, or workmen in the execution of the Works. The Contractor may employ a Pollution Control Officer accredited with the DENR for the duration of the project, if so required by the DENR Administrative Order No. 26</p> <p>f. It shall be the Contractor's responsibility for the correctness, accuracy and quality of works. NPC's approval does not relieve his contractual obligation and responsibility under this contract.</p> <p>g. Payment of all forms of taxes, such as value added tax (VAT) including municipal licenses and permits, and others that may be imposed by the Philippine Government or any of its agencies and political subdivisions in connection with the Contract shall be for the account of the Contractor.</p> <p>h. In general, the Contractor is totally responsible for the execution of the Works and therefore, takes upon himself all the technical, legal and economic risks and all obligations which could arise therefrom or connected therewith. The overall responsibility of the Contractor includes the responsibility for actions or omissions of his own personnel as well as the personnel of the sub-contractors.</p> |
| 4.1 | NPC shall give access to the Site for the Contractor to commence and proceed with the works on the start date. The access to the site referred herein shall not be exclusive to the Contractor but only to enable him to execute the Work.  |
| 5   | <p>1. The following must be indicated in the performance bond to be posted by the Contractor:</p> <ul style="list-style-type: none"> <li>i. Company Name</li> <li>ii. Correct amount of the Bond</li> <li>iii. Contract/Purchase Order Reference Number</li> <li>iv. Purpose of the Bond:<br/>           "To guarantee the faithful performance of the Principal's obligation to undertake <u>(Contract/Purchase Order Description)</u> in accordance with the terms and conditions of <u>(Contract No. &amp; Schedule/Purchase Order No.)</u> entered into by the parties."</li> </ul> <p>2. The bond shall remain valid and effective until the duration of the contract <u>(should be specific date reckoned from the contract effectivity)</u> plus sixty (60) days after NPC's acceptance of the last delivery/final acceptance of the project.</p> <p>3. In case of surety bond, any extension of the contract duration or delivery period granted to the CONTRACTOR shall be considered as given, and any modification of the contract shall be considered as authorized, as if with the expressed consent of the surety, provided</p>   |



|      |  |
|------|--|
|      | <p>that such extension or modifications falls within the effective period of the said surety bond. However, in the event that the extension of the contract duration or delivery schedule would be beyond the effective period of the surety bond first posted, it shall be the sole obligation of the CONTRACTOR to post an acceptable Performance Security within ten (10) calendar days after the contract duration/delivery period extension has been granted by NPC.</p> <p>4. Other required conditions in addition to the standard policy terms issued by the Bonding Company:</p> <ul style="list-style-type: none"> <li>i. The bond is a penal bond, callable on demand and the entire amount thereof shall be forfeited in favor of the Obligee upon default of the Principal without the need to prove or to show grounds or reasons for demand for the sum specified therein;</li> <li>ii. The amount claimed by the Obligee under this bond shall be paid in full and shall never be subject to any adjustment by the Surety;</li> <li>iii. In case of claim, the Surety shall pay such claim within sixty (60) days from receipt by the Surety of the Obligee's notice of claim/demand letter notwithstanding any objection thereto by the Principal.</li> </ul> |
| 6    | No site investigation report.  |
| 7.2  | <p>In case of permanent structures, such as buildings of types 4 and 5 as classified under the National Building Code of the Philippines and other structures made of steel, iron, or concrete which comply with relevant structural codes (e.g., DPWH Standard Specifications), such as, but not limited to, steel/concrete bridges, flyovers, aircraft movement areas, ports, dams, tunnels, filtration and treatment plants, sewerage systems, power plants, transmission and communication towers, railway system, and other similar permanent structures: Fifteen (15) years.</p> <p>In case of semi-permanent structures, such as buildings of types 1, 2, and 3 as classified under the National Building Code of the Philippines, concrete/asphalt roads, concrete river control, drainage, irrigation lined canals, river landing, deep wells, rock causeway, pedestrian overpass, and other similar semi-permanent structures: Five (5) years.</p> <p>In case of other structures, such as Bailey and wooden bridges, shallow wells, spring developments, and other similar structures: Two (2) years.</p>   |
| 10   | No dayworks are applicable to the contract.  |
| 11.1 | The Contractor shall submit the Program of Work to the Procuring Entity's Representative within Ten (10) calendar days of delivery of the Notice of Award/Letter of Acceptance.  |
| 11.2 | <p>The period between Program of Work updates is Thirty (30) calendar days.</p> <p>The amount to be withheld for late submission of an updated Program of Work is One percent (1%) of contract amount.</p>   |

|      |   |
|------|---|
| 12   | <p>During contract implementation, the Procuring Entity shall conduct Constructors Performance Evaluation in accordance with Section 12, Annex E of the Revised Implementing Rules and Regulation of R.A. 9184 using the NPC Constructors Performance Evaluation System (CPES) Guidelines.</p> <p>CPES ratings shall be used for the following purposes: a) eligibility screening/post-qualification; b) awarding of contracts; c) project monitoring &amp; control; d) issuance of Certificate of Completion; and in adopting measures to further improve performance of contractors in the prosecution of government projects.</p> <p>Qualified Constructors Performance Evaluators (CPE) shall conduct project evaluation as follows:</p> <p>(a) During Construction - Except for those projects with a duration of 90 calendar days and below which may be subjected to at least one (1) visit, all projects shall be subjected to a minimum of two (2) evaluations to be performed by the CPE. The number of evaluations beyond the prescribed minimum shall be determined by the CPES-Implementing Unit based on the size, nature and complexity of the project and shall be subject to approval by the proper authorities within the agency. The first evaluation shall be performed when the project is at least thirty percent (30%) physically complete or as maybe required by the CPES-IU using the S-curve or other appropriate means to determine whether there is substantial work completed for evaluation.</p> <p>(b) Upon Completion - only one evaluation shall be performed by the CPE right after the Project Implementation Group reports one hundred percent (100%) completion of the project.</p> |
| 13   | The maximum amount of advance payment is fifteen percent (15%) of the Contract Price and paid in lump sum.  |
| 14   | No further instructions.  |
| 15.1 | The date by which "as built" drawings and operating and maintenance manuals are required is within thirty (30) calendar days after completion of contract.  |
| 15.2 | The amount to be withheld for failing to produce "as built" drawings and/or operating and maintenance manuals by the date required is Five percent (5%) of contract amount.   |

## **SECTION VI**

# **TECHNICAL SPECIFICATIONS**

## SECTION VI

# TECHNICAL SPECIFICATIONS

## PROJECT HIGHLIGHTS

**SECTION VI - TECHNICAL SPECIFICATIONS****PH – PROJECT HIGHLIGHTS****TABLE OF CONTENTS**

| <b><u>CLAUSE NO.</u></b> | <b><u>TITLE</u></b>                           | <b><u>PAGE NO.</u></b> |
|--------------------------|---|------------------------|
| PH-1.0                   | PROJECT HIGHLIGHTS .....                      | 1                      |
| PH-1.1                   | General .....                                 | 1                      |
| PH-1.2                   | Project Location.....                         | 1                      |
| PH-1.3                   | Scope of Work .....                           | 1                      |
| PH-1.4                   | Contract Period.....                          | 2                      |
| PH-1.5                   | Contractor's Classification .....             | 2                      |
| PH-1.6                   | Minimum Required Personnel.....               | 2                      |
| PH-1.7                   | Minimum Required Construction Equipment ..... | 3                      |



**SECTION VI - TECHNICAL SPECIFICATIONS****PH – PROJECT HIGHLIGHTS****PH-1.0 PROJECT HIGHLIGHTS****PH-1.1 General**

This section covers the general technical requirements for furnishing all supervision, labor, materials, supplies, tools and equipment in accordance with specifications contained herein and as shown on the accompanying drawings to complete the **CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINDUQUE 69KV STOCKYARD**.

**PH-1.2 Project Location**

The project is located in Brgy. Cagpo, Torrijos, Marinduque near the existing Torrijos DPP.

**PH-1.3 Scope of Work**

The works and services to be performed under this Contract shall essentially consist of, but not limited to the following:

**Architectural Works**

- a) Concrete and Masonry Works;
- b) All insulation works;
- c) Fenestration Works;
- d) All painting and varnishing works;
- e) Supply and installation of roofing and siding sheets;
- f) Soil poisoning;
- g) All carpentry and joinery works;
- h) All other works and services required to complete the project.

**Civil Works**

- a) Moving-in including furnishing, supervision, construction, operation and maintenance of general construction facilities and moving-out thereof after completion and acceptance;
- b) Structural excavation, gravel fill and backfilling works for all concrete footings;
- c) Complete construction of all structural components (i.e. footings, etc.) including fabrication, installation and pre painting of metal/steel structures; and
- d) Complete construction of guard house with toilet (complete with accessories) and perimeter fence with cyclone and barbed wire; and
- e) All other works and services required to complete the project.

**Electrical Works**

- a) Supply, Delivery, Installation, Testing and Commissioning of Complete Lighting and Power System of Guard House;



- b) Supply, Delivery, Installation, Testing and Commissioning of LED Perimeter/Flood Lighting System;
- c) Supply, Delivery and Installation/Erection of Lamp Posts including its concrete foundation;
- d) Supply, Laying and Test of Power Cables including ground conductors and other appurtenances required for the interfacing supplied LED lighting; and
- e) All other works and services including those not specifically detailed herein but are required to fully complete the project.

**PH-1.4 Contract Period**

The Contractor shall complete the works as herein specified within ninety (90) calendar days. The contract period is inclusive of five (5) unworkable days considered unfavorable for the execution of the works. The total contract duration shall be reckoned from the date of contract effectivity as specified in the **Notice to Proceed**.

**PH-1.5 Contractor's Classification**

License Category of at least **"CATEGORY D – GENERAL BUILDING"** and registration classification of at least **"SMALL B – BUILDING & INDUSTRIAL PLANT"**.

**PH-1.6 Minimum Required Personnel**

For the duration of the contract, the Contractor shall have the following minimum required personnel assigned to the project:

a. One (1) Project Engineer

Registered Civil Engineer who had supervised at least a project similar in nature as to the type and cost of the proposed project within the last 10 years. Must have at least 3 years professional experience as Civil Engineer on similar project.

b. One (1) Materials Engineer

Registered Civil Engineer with valid accreditation from the Department of Public Works and Highways (DPWH) as Materials Engineer I.

c. One (1) Safety Officer 2

Construction Safety Officer who has completed at least forty (40) hours of Construction Safety and Health Training (COSH) from Occupational Safety and Health Center (OSHC) or Safety Training Organizations (STOs) accredited by the Department of Labor and Employment (DOLE).

Valid Professional Regulations Commission (PRC) license for professional personnel. Construction Safety and Health Training Certificate from OSHC/STOs accredited by DOLE for the Safety Officer, certificate of accreditation including ID card issued by DPWH for Materials Engineer, shall be submitted and included as an attachment in the Standard Form

NPCSF-INFR-09 List of Key Personnel Proposed to be Assign to the Contract.

The above key personnel must either be employed by the Bidder or contracted by the Bidder to be employed for the contract to be bid.

**PH-1.7 Minimum Required Construction Equipment**

The list of construction equipment (owned or leased) shall include the following:

- |                                      |          |
|--------------------------------------|----------|
| a. Welding Machine (300 Amp)         | - 1 unit |
| b. Concrete Mixer (1 bagger)         | - 1 unit |
| c. Oxyacetylene cutting outfit       | - 1 unit |
| d. Bar cutter (25 mm $\Phi$ capable) | - 1 unit |



## SECTION VI

# TECHNICAL SPECIFICATIONS

# ARCHITECTURAL WORKS

## SECTION VI - TECHNICAL SPECIFICATIONS

### AW – ARCHITECTURAL WORKS

#### TABLE OF CONTENTS

| <u>CLAUSE NO.</u> | <u>TITLE</u>   | <u>PAGE NO.</u> |
|-------------------|--|-----------------|
| <b>AW-1.0</b>     | <b>GENERAL ARCHITECTURAL REQUIREMENTS .....</b>  | <b>1</b>        |
| AW-1.1            | General .....  | 1               |
| AW-1.2            | Submission of Samples.....   | 1               |
| AW-1.3            | Substitution of Materials.....   | 1               |
| AW-1.4            | Certification of Materials.....  | 2               |
| AW-1.5            | Other works which even if not specifically mentioned in the<br>Section and Bill of Quantities shall be included: ..... | 2               |
| AW-1.6            | Measurement and Payment .....  | 3               |
| <b>AW-2.0</b>     | <b>CONCRETE MASONRY WORKS .....</b>  | <b>4</b>        |
| AW-2.1            | General .....  | 4               |
| AW-2.2            | Materials .....  | 4               |
| AW-2.3            | Installation .....   | 5               |
| AW-2.4            | Testing of CHB .....   | 5               |
| AW-2.5            | Measurement and Payment .....  | 5               |
| <b>AW-3.0</b>     | <b>PLASTERED PLAIN CEMENT FINISH .....</b>   | <b>6</b>        |
| AW-3.1            | General .....  | 6               |
| AW-3.2            | Materials .....  | 6               |
| AW-3.3            | Application.....   | 6               |
| AW-3.4            | Measurement and Payment .....  | 7               |
| <b>AW-4.0</b>     | <b>ROOFING SHEETS .....</b>  | <b>8</b>        |
| AW-4.1            | General .....  | 8               |
| AW-4.2            | Materials .....  | 8               |
| AW-4.3            | Workmanship.....   | 8               |
| AW-4.4            | Measurement and Payment .....  | 8               |
| <b>AW-5.0</b>     | <b>FIBER CEMENT BOARD .....</b>  | <b>9</b>        |
| AW-5.1            | General .....  | 9               |
| AW-5.2            | Materials .....  | 9               |
| AW-5.3            | Handling and Storage.....  | 9               |
| AW-5.4            | Installation .....   | 9               |
| AW-5.5            | Framing.....   | 9               |
| AW-5.6            | Measurement and Payment .....  | 9               |
| <b>AW-6.0</b>     | <b>PLUMBING FIXTURES AND FITTINGS.....</b>   | <b>10</b>       |
| AW-6.1            | General .....  | 10              |
| AW-6.2            | Make.....  | 10              |
| AW-6.3            | Trade Marks and Certificate of Origin.....   | 10              |



|        |                               |    |
|--------|-------------------------------|----|
| AW-6.4 | Fixtures .....                | 10 |
| AW-6.5 | Installation .....            | 10 |
| AW-6.6 | Toilet Accessories .....      | 11 |
| AW-6.6 | Measurement and Payment ..... | 11 |



## **SECTION VI – TECHNICAL SPECIFICATIONS**

### **AW – ARCHITECTURAL WORKS**

#### **AW-1.0 GENERAL ARCHITECTURAL REQUIREMENTS**

##### **AW-1.1 General**

The work to be done under this section shall include the furnishing of all labor, materials, equipment, tools, storage and stockyards of the pertinent materials and structural components and other incidentals for all architectural works enumerated hereunder, as shown on the accompanying drawings or as otherwise directed.

The work shall be performed and completed in a workmanlike manner, in accordance with generally modern accepted practice in carpentry fenestrations, tinsmithing, plumbing, painting, landscaping and masonry work, etc. notwithstanding any omission from these Specifications or drawings.

Materials and structural parts that the Contractor shall supply and install and which will be incorporated in the structure shall be new and unused. They shall be suitable for their intended purpose and appropriately matched to each other complying with all applicable regulations, quality and dimensions standards. Defective work is not acceptable.

##### **AW-1.2 Submission of Samples**

At least one (1) month before the start of any installation or application of materials, the Contractor shall submit samples of materials for all sections for evaluation and approval. No work shall be done until after samples are approved by the NPC Representative in writing. All work must strictly conform to approved samples as to quality, texture, color and finish.

Failure of the Contractor to comply with the preceding stipulation shall not entitle them of any extension of time nor any claim whatsoever for any delay in the work after rectification due to disapproval of work.

To avoid unnecessary delay, it is suggested that the orders and/or purchase of imported or local materials shall be made within sufficient period in order that adequate supply is available at any time when needed.

##### **AW-1.3 Substitution of Materials**

The Contractor shall submit a written request for substitution of materials in lieu of those specified when deemed very necessary and urgent. Such request shall indicate the reasons for substitution. No substitute material shall be used without written authorization from the NPC Representative.

In case of approved substitution of an inferior kind of material, a reduction in the contract price equal to the difference in cost of the two kinds of materials shall be made. Market prices at the provincial capital or at a commercial center agreed upon by the NPC Representative and the

Contractor on the date upon which authority for substitution is granted shall be the basis of said price reduction. Price differentials shall be determined and agreed upon immediately by both parties and incorporated in the approved letter of substitution.

The Contractor shall submit written request for substitution at least one (1) month before such materials are actually needed. Such request shall be accompanied by samples to be substituted and corresponding certification.

No price increase will be allowed for a better kind of material.

**AW-1.4 Certification of Materials**

The Contractor shall submit to the NPC Representative signed certificates from manufacturer or sole distributor of equipment and materials to be furnished and installed by the Contractor, certifying as to the kind, quality, rated capacity, quantity, performance and other descriptions of the equipment and materials delivered under a receipt number and date. No equipment or materials shall be erected, installed or applied such as electrical fixtures and accessories, concrete reinforcing steel, cement, G.I. and C.I. pipes, valves and fittings, plumbing and sanitary fixtures, building materials and finishes, paint and waterproofing, etc., without the required certificates.

**AW-1.5 Other works which even if not specifically mentioned in the Section and Bill of Quantities shall be included:**

- The measurements for the execution and payment of the Works, including provisions of the measuring equipment and the engagement of labor
- Connecting up of water, gas and electricity from the mains of the site indicated by the NPC Representative to the points of use
- Provision of small equipment and tools
- Safeguarding the Works against surface water, which shall normally be reckoned with, and its possible necessary removal
- Protecting the Works from heat, wind and rain
- Protection and safety measures required
- Protecting the executed works and the items handed over the execution of same from damage and theft up to the time of acceptance
- Supplying of the operational materials
- Supplying of consumable stores
- Supplying of fitting dowels
- Supplying of simple type pipe covering, e.g., in the shape of pipe sheathings with corrugated cardboard and the like
- Supplying and fitting of pipe fastening elements, e.g., pipe clips, hangers, etc.
- installing and dismantling as well as providing all framework and scaffolds

- Making blackouts on concrete
- Chemical preservation of timber
- Instructing the operating and maintenance personnel

NOTE: The above provisions are general for all types of buildings. The Contractor shall be guided accordingly by the applicable provisions in the specifications and what is shown in the drawings for each type.

#### **AW-1.6 Measurement and Payment**

Measurement for payment for different items in Architectural Works will be based on the areas, lengths, volumes and quantity placed and accepted by the NPC Representative.

Payments for each architectural item will be made at the corresponding contract unit price per square meter, linear meter, cubic meter and number of pieces/sets, for the pertinent items under Architectural Works in the Bill of Quantities.

Payment shall constitute full compensation for all labor, materials, equipment, tools and incidentals necessary for the completion of each work.

**AW-2.0 CONCRETE MASONRY WORKS****AW-2.1 General**

The work to be done under this section shall include the furnishing of all labor, materials, equipment, tools and other incidentals to complete the work.

Concrete masonry units of the type and thickness indicated shall be provided, and shall be properly coordinated with the work of other trades. The source of supply for material which will affect the appearance of the finished work shall not be changed after the work has started.

Masonry units shall be handled with care to prevent chipping and breakage. Storage piles shall be so located as to avoid being damaged by construction operations and traffic. Cement and lime shall be stored off the ground under watertight cover until ready for use. Damaged materials shall be rejected.

**AW-2.2 Materials**

Concrete Hollow Blocks shall be of standard manufacture, machine-vibrated, fine and even textured and well-defined edges.

Unless otherwise shown on the drawings, concrete hollow blocks to be used shall conform to the requirements of ASTM Specification C-129-39 Minimum Compressive Strength of not less than 4.48MPa average of the fine specimens.

**Mortar Proportions**

- a) Cement mortar for laying concrete hollow blocks shall consist of one (1) part Portland cement, one-fourth (1/4) part lime and three (3) parts sand. Only sufficient water to make a workable mix will be permitted.
  - 1) Masonry grout for filling cells of concrete blocks shall consist of one (1) Portland cement, one-fourth (1/4) part lime, three (3) parts sand to which three (3) pea gravel is added by volume. Mortar materials shall be accurately measured by volume and thoroughly mixed until evenly distributed throughout the batch mechanical mix. The actual mixing time shall not be less than two minutes.
  - 2) Intersecting hollow blocks walls and partitions shall be bonded by overlapping units on alternative course or by the use of 6.3mm (1/4") diameter ties at 610mm (24") O. C. every second course (maximum) anchored in filled cells.

Cement shall be Portland cement of approved brand conforming to ASTM Specifications C150, Type I.

Lime shall be made with pulverized and quicklime or with hydrated lime.

Sand shall be clean, washed and free from deleterious substances.

Water for mixing shall be clean and potable.



**AW-2.3 Installation**

Laying of all masonry units shall be plumbed, leveled and accurately spaced. All units shall be wetted before laying. The block should be laid on full mortar bedding and in such a way that no cracks are formed between the blocks and the mortar at the time the blocks are placed. All joints should be filled with mortar at the time it is laid. Any horizontal and vertical CHB wall reinforcements shall be anchored to concrete works by means of 10mm (3/8") by 609mm (24") long dowels. Embedding of anchor bolts, expansion shields, conduits, etc. shall be done as the erection progresses.

Cutting and patching of masonry required to accommodate the work of other trades shall be performed by masonry mechanics.

Finishing of all hollow block wall surfaces to be applied with cement plaster will be cleaned and evenly wet slashed with a wash of neat cement and sand followed by 1:2 cement mortar mix 10mm (3/8") thick which shall be applied with a wooden float.

**AW-2.4 Testing of CHB**

Test samples from every 500 units shall be taken at random from the CHB to be used before installation. The testing shall be performed by a laboratory approved by the NPC Representative and the cost thereof shall be charged to the account of the Contractor. Concrete hollow blocks represented by such samples, failing to meet the requirements under the latest edition ASTM 6129-70 shall be rejected.

**AW-2.5 Measurement and Payment**

Measurement and payment for **Concrete Hollow Blocks** including its reinforcing bars will be based on the area in place and accepted by the NPC Representative.

Payment will be made at the corresponding contract unit price per square meter for the pertinent items under Architectural Works in the Bill of Quantities.

Payment shall constitute full compensation for all labor, materials, equipment, tools and incidentals necessary for the completion of this work.



**AW-3.0 PLASTERED PLAIN CEMENT FINISH****AW-3.1 General**

The work to be done under this section includes furnishing of all labor, materials, equipment and other facilities and the satisfactory performance of all work necessary to complete all cement plaster finish.

Plaster mixture is applied in layers to masonry and reinforced concrete, surface to interior or exterior walls and ceilings.

**AW-3.2 Materials**

- a) Portland cement conforming to the latest edition of ASTM Standards C-150
- b) Lime - Slaked quicklime or hydrated lime to make lime putty
- c) Sand - Natural sand, white or light grey, washed and cleaned, strong and free from injurious amount of dust and flaky particles.
- d) Water - Clean and fresh contains no salt, potable and free from sulfur oil and other impurities that may cause discoloration of the finish.

Accessories for plaster work, includes nails, picture, moulds, casings, window stools, bases, etc.

**AW-3.3 Application**

The total thickness of masonry and plaster shall be 15mm (5/8"). For a three-coat plastering, the scratch coat and brown coat shall be at least 6.3mm (1/4") thick and the hard finish 3.2mm (1/8") thick with a minimum thickness of 1.6mm (1/16") at any point. For a two-coat work the base shall be 12.7mm (1/2") thick and the hard finish the same as for a three-coat work.

The lath for plastering shall be leveled, plumb and well secured to the backing material. The leveling elements installed would include grounds and screeds. For walls, a screed shall be installed at the base of the wall with its top about 102mm (4") above finish floor. The screed is run horizontally, leveled and set at the exact thickness of finished plaster. Around all openings and the intersection with the ceiling grounds are installed.

All anchorage for cabinets, furniture, stair, handrails, electrical outlets, etc., should be installed before plastering is started.

All internal corners should be reinforced by lapping wire lath. Mixture for various coats should be checked to see that proportions are correct.

Manufacturer's directions for applying the various types of plaster should be followed scrupulously. The NPC Representative should check whether they conform to end use of the plaster.

**NOTE:** All cement plaster finish shall be painted.



**AW-3.4 Measurement and Payment**

The measurement for payment for all **Plaster Plain Cement Finish** will be based on the area applied and accepted by the NPC Representative.

Payment will be made at the corresponding contract unit price per square meter for the pertinent item under architectural works in the Bill of Quantities.

Payment shall constitute full compensation for all labor, material including metal lath, equipment, tools and incidentals necessary for the completion of this work.



**AW-4.0 ROOFING SHEETS****AW-4.1 General**

The Contractor shall furnish all labor, materials, and operations including tools, other implements and accessories for the complete installation of roofing sheets wherever indicated in the drawings.

Installation shall be performed by skilled workmen in accordance with the construction and shop drawings and the manufacturer's standard.

Shop drawings and manufacturer's catalogue showing product standards and technical data will be provided by the Contractor to the NPC Representative for approval.

**AW-4.2 Materials**

Material for roofing shall be weather, rust free and non-flammable. It shall be corrugated metallic plastic sheet. Thickness shall be determined as specified in the drawing that shall range from 1.0mm to 2.5mm thick. Bended sheets such as flat barge caps, flashings, ridge rolls, capping and moldings that serve as its accessory components shall have the same composition with the roofing and siding sheets of which minimum thickness shall be 1.5mm. Gutters likewise shall have the same material composition with thickness of 2.0mm unless otherwise specified in the drawing.

**AW-4.3 Workmanship**

Roofing sheets shall be securely fastened on steel purlins and channels by hook or stove bolts or self-drilling screws or as required. Fasteners shall be stainless steel and have a maximum distance of 0.30m O.C. along purlins.

Special care shall be given to the joints, lapping, bolting and setting of closers.

**AW-4.4 Measurement and Payment**

Measurement and payment for **Roofing Sheet** will be based on the projected area inspected and accepted by the NPC Representative. No measurement & payment will be made on hidden areas covered by side & end overlaps, the cost for these being included in the projected area.

Payment will be made at the corresponding unit price per square meter for pertinent items under Architectural Works in the Bill of Quantities.

Measurement and payment for flashing and other accessories shall be referred to the Bidding Form.



**AW-5.0 FIBER CEMENT BOARD****AW-5.1 General**

The work to be done under this section includes the furnishing of all labor, materials, equipment, tools and other facilities necessary to complete the work.

Boards for walls of the type and thickness indicated shall be properly installed and coordinated with the work of other trades.

**AW-5.2 Materials**

Fiber cement board for wall shall be of Portland cement, sand, cellulose fiber and water autoclaved, immune to water damage, fire resistant, durable, rot and termite proof.

**AW-5.3 Handling and Storage**

Boards shall be stacked on edge or laid flat on a smooth surface. Edges and corners shall be protected from chipping. To ensure optimum performance, store sheets under cover and keep dry prior to fixing.

**AW-5.4 Installation**

Fiber cement boards shall be fixed by a qualified installer as recommended by the manufacturer.

**AW-5.5 Framing**

Steel channel and wood framing shall be used at maximum spacing of 600mm x 600mm O.C. B.W. Six (6) millimeter thick board shall be fixed to metal frame with 2mm Ø galvanized fiber cement nail.

**AW-5.6 Measurement and Payment**

Measurement for payment for Fiber Cement Board will be based on what is required on the Bill of Quantities.

**AW-6.0 PLUMBING FIXTURES AND FITTINGS****AW-6.1 General**

The work covered by this section of the Specifications consists in furnishing all plant, labor, equipment and tools, articles, appliances and materials and in performing all operations in connections with the installation of all plumbing fixtures, fittings and accessories, complete, in strict accord with this section of the Specifications or indicated on the drawings, are included in this work.

**AW-6.2 Make**

The model numbers herein given are intended to illustrate the quality and design of fixtures that will be required. American standard fixtures specified herein and any substitution made to any item of fixtures specified must first be approved by the NPC Representative.

**AW-6.3 Trade Marks and Certificate of Origin**

All plumbing fixtures and fittings must bear the trademarks of the manufacturer. The Contractor shall furnish the NPC Representative with the Original and two (2) copies of the Certificate of Origin of all plumbing fixtures and fittings that will be used in the project.

All plumbing fixtures and fittings installed without the above trademarks included in the certificate of Origin shall be removed and replaced with properly marked fittings without extra cost to the NPC.

Maintenance Manual shall be submitted including complete instructions for replacing valve washers and strainers and give manufacturer's recommendations as to cleaning finish fixture surfaces.

Submit samples of valves, faucets, trims and others for approval of the NPC Representative.

**AW-6.4 Fixtures**

- a) Water Closet – as shown in the drawings or as specified in the Bill of Quantities
- b) Urinal - as shown in the drawings or as specified in the Bill of Quantities
- c) Lavatory - as shown in the drawings or as specified in the Bill of Quantities
- d) Bibbs - Nickel Plated Copper or Brass Alloy
- e) Floor Drain - Stainless or Brass Alloy
- f) Clean-outs - Brass alloy

**AW-6.5 Installation**

Plumbing fixtures shall be installed free and open in a manner to afford access for cleaning. All brackets, cleat, plates and anchors required to support the fixtures shall be furnished in a rigidly manner. Water closets shall be sat on Boll-Wax.

Installed plumbing fixtures shall be kept clean and in working order for adequate protection so as not be used by anybody until issuance of Certificate of Completion.

All fixtures shall be provided with individual control stop so that each fixture may be separately controlled without affecting any other fixture.

All flush valves shall be equipped with vacuum breaking devices.

**AW-6.6 Toilet Accessories**

- a) Soap Holders – colored, vitreous China to match fixtures quality, brand and wainscoting color.
- b) Tissue Paper Holder - colored, to follow Water Closet brand and quality. Provide and fit, ready for use, on most convenient side of wall inside each water closet compartment, 750mm (30") above the finish floor.
- c) Liquid Soap Dispenser

**AW-6.6 Measurement and Payment**

Measurement and payment for Plumbing Fixtures will be based on the number of sets/pieces installed and accepted by the NPC Representative.

Payment will be made at the corresponding contract unit price per set/piece for the pertinent item under Architectural Works in the Bill of Quantities.

Payment shall constitute full compensation for all labor, materials, equipment, tools and incidentals necessary for the completion of this work.



**SECTION VI**

**TECHNICAL  
SPECIFICATIONS**

**CIVIL WORKS**

**SECTION VI - TECHNICAL SPECIFICATIONS****CW – CIVIL WORKS****TABLE OF CONTENTS**

| <b><u>CLAUSE NO.</u></b> | <b><u>TITLE</u></b>                                     | <b><u>PAGE NO.</u></b> |
|--------------------------|---|------------------------|
| <b>CW-1.0</b>            | <b>GENERAL CONSTRUCTION FACILITIES.....</b>             | <b>1</b>               |
| CW-1.1                   | Scope.....  | 1                      |
| CW-1.2                   | Moving-in.....  | 1                      |
| CW-1.3                   | Contractor's Camp Facilities .....                      | 1                      |
| CW-1.4                   | Water Supply .....                                      | 1                      |
| CW-1.5                   | Sewerage Disposal and Sanitation .....                  | 1                      |
| CW-1.6                   | Fire Protection .....                                   | 2                      |
| CW-1.7                   | Construction Power .....                                | 2                      |
| CW-1.8                   | Camp Security .....                                     | 2                      |
| CW-1.9                   | Construction Material Storage.....                      | 2                      |
| CW-1.10                  | Care Of Water During Construction .....                 | 2                      |
| CW-1.11                  | Removal of Camp and Construction Facilities.....        | 3                      |
| CW-1.12                  | Measurement and Payment .....                           | 3                      |
| <b>CW-2.0</b>            | <b>ENVIRONMENTAL REQUIREMENTS FOR CIVIL WORKS .....</b> | <b>3</b>               |
| CW-2.1                   | Scope .....   | 3                      |
| CW-2.2                   | General Conditions .....                                | 3                      |
| CW-2.3                   | Measurement and Payment .....                           | 5                      |
| <b>CW-3.0</b>            | <b>STRUCTURAL EXCAVATION, FILL AND BACKFILL .....</b>   | <b>5</b>               |
| CW-3.1                   | Scope .....   | 5                      |
| CW-3.2                   | Materials .....   | 5                      |
|                          | CW-3.2.1 Structural Excavation .....                    | 5                      |
|                          | CW-3.2.2 Structural Fill .....                          | 5                      |
|                          | CW-3.2.3 Structural Backfill .....                      | 6                      |
| CW-3.3                   | Construction.....                                       | 6                      |
|                          | CW-3.3.1 Excavation .....                               | 6                      |
| CW-3.4                   | Measurement and Payment .....                           | 7                      |
|                          | CW-3.4.1 Structural Excavation .....                    | 7                      |
|                          | CW-3.4.2 Structural Fill .....                          | 7                      |
|                          | CW-3.4.3 Structural Backfill .....                      | 7                      |
| <b>CW-4.0</b>            | <b>CONCRETE.....</b>                                    | <b>8</b>               |
| CW-4.1                   | Scope .....   | 8                      |
| CW-4.2                   | Class of Concrete.....                                  | 8                      |
| CW-4.3                   | Materials .....   | 8                      |
|                          | CW-4.3.1 Cement.....                                    | 8                      |
|                          | CW-4.3.2 Reinforcing Steel .....                        | 8                      |
|                          | CW-4.3.3 Water .....                                    | 8                      |
|                          | CW-4.3.4 Aggregates .....                               | 8                      |
| CW-4.4                   | Storage of Materials.....                               | 9                      |





|               |           |  |           |
|---------------|-----------|--|-----------|
|               | CW-4.4.1  | Cement and Aggregates.....   | 9         |
|               | CW-4.4.2  | Reinforcing Steel .....  | 9         |
| CW-4.5        |           | Concreting.....  | 9         |
|               | CW-4.5.1  | General.....   | 9         |
|               | CW-4.5.2  | Placing Reinforcement.....   | 9         |
|               | CW-4.5.3  | Mixing Concrete.....   | 9         |
|               | CW-4.5.4  | Placing Concrete .....   | 10        |
|               | CW-4.5.5  | Finishing Concrete.....  | 10        |
|               | CW-4.5.6  | Removal of Forms .....   | 10        |
|               | CW-4.5.7  | Curing and Protection .....  | 10        |
|               | CW-4.5.8  | Sampling and Testing of Concrete .....   | 11        |
|               | CW-4.5.9  | Tolerances and Repair for Concrete Construction.....                           | 12        |
|               | CW-4.5.10 | Second Stage Concrete .....  | 12        |
| CW-4.6        |           | Measurement and Payment .....  | 12        |
| <b>CW-5.0</b> |           | <b>REINFORCING STEEL.....</b>  | <b>12</b> |
| CW-5.1        |           | Description .....  | 12        |
| CW-5.2        |           | Material Requirement.....  | 12        |
|               | CW-5.2.1  | Bar Reinforcement.....   | 13        |
|               | CW-5.2.2  | Sampling.....  | 13        |
| CW-5.3        |           | Construction Requirement.....  | 13        |
|               | CW-5.3.1  | Fabrication .....  | 13        |
|               | CW-5.3.2  | Protection of Material .....   | 13        |
|               | CW-5.3.3  | Placing and Fastening Reinforcement &<br>Miscellaneous Material (ACI-301)..... | 13        |
|               | CW-5.3.4  | Splicing.....  | 15        |
| CW-5.5        |           | Measurement and Payment.....   | 16        |
| <b>CW-6.0</b> |           | <b>DRAINAGE SYSTEM AND APPURTENANT STRUCTURES.....</b>                         | <b>16</b> |
| CW-6.1        |           | Scope.....   | 16        |
| CW-6.2        |           | Materials .....  | 17        |
|               | CW-6.2.2  | Drain Pit .....  | 17        |
| CW-6.3        |           | Measurement and Payment .....  | 17        |
|               | CW-6.3.1  | Drain Pit .....  | 17        |
| <b>CW-7.0</b> |           | <b>STRUCTURAL STEEL .....</b>  | <b>17</b> |
| CW-7.1        |           | General.....   | 17        |
|               | CW-7.1.1  | Submittals .....   | 17        |
|               | CW-7.1.2  | Delivery and Storage.....  | 18        |
| CW-7.2        |           | Materials .....  | 18        |
|               | CW-7.2.1  | Steel.....   | 18        |
|               | CW-7.2.2  | Bolts, Nuts and Washers:.....  | 18        |
|               | CW-7.2.3  | Accessories: .....   | 19        |
| CW-7.3        |           | Execution.....   | 19        |
|               | CW-7.3.1  | Fabrication .....  | 19        |
|               | CW-7.3.2  | Welding of Structural Steelwork: .....   | 19        |
|               | CW-7.3.3  | Shop painting .....  | 19        |
|               | CW-7.3.4  | Erection.....  | 20        |
|               | CW-7.3.5  | Tests and Inspections.....   | 20        |
| CW-7.4        |           | Measurement and Payment .....  | 21        |



|               |   |           |
|---------------|---|-----------|
| <b>CW-8.0</b> | <b>PERIMETER FENCE WITH BARBED WIRE.....</b>        | <b>21</b> |
| CW-8.1        | Scope .....   | 21        |
| CW-8.2        | Materials .....                                     | 21        |
|               | CW-8.2.1 Cement and Reinforcing Steel.....          | 21        |
|               | CW-8.2.2 Concrete Hollow Blocks (CHB) .....         | 21        |
|               | CW-8.2.3 Fine and Coarse Aggregates and Water ..... | 21        |
|               | CW-8.2.4 Galvanized Barbed Wire.....                | 21        |
| CW-8.3        | Construction.....                                   | 22        |
| CW-8.4        | Measurement and Payment .....                       | 23        |



**SECTION VI – TECHNICAL SPECIFICATIONS****CW – CIVIL WORKS****CW-1.0 GENERAL CONSTRUCTION FACILITIES****CW-1.1 Scope**

This section covers the construction and/or maintenance of access roads, drainage system and other appurtenant structures, moving-in of the Contractor's construction equipment, setting up of the Contractor's camp and the disposition of the Contractor's various facilities at the end of the Contract.

**CW-1.2 Moving-in**

The Contractor shall bring to the site all his necessary construction equipment and plant and install all stationary construction equipment and plant at location and in the manner approved by the NPC. The Contractor shall submit sufficient detailed plans showing the proposed location of such stationary equipment and plant and other pertinent data. No installation of such stationary equipment shall be undertaken unless the corresponding plans have been approved by the NPC.

**CW-1.3 Contractor's Camp Facilities**

The Contractor shall provide and grade his camp site, construct his camp, employee housing, warehouse, machine and repair shops, fuel storage tanks and provide such related facilities and sanitary conveniences that the Contractor deems necessary for maintaining health, peace and order in the camp and work areas. The areas that may be used by the Contractor within the plant site shall be designated by the NPC.

The Contractor shall provide, maintain and operate, under competent direction, such camps and facilities as are necessary for the housing, feeding and accommodation of his employees.

**CW-1.4 Water Supply**

The Contractor shall, at his own expense, be responsible for the supply, installation, operation and maintenance of a safe and adequate supply of drinking and domestic water. Whenever there is a possibility of contamination of the water supply for drinking and domestic purposes, chlorination or some other approved methods of sterilization shall be carried out. The installation and maintenance of these services shall be subject to the approval of the NPC.

**CW-1.5 Sewerage Disposal and Sanitation**

The Contractor shall, at his own expense, be responsible for the installation operation and maintenance of an adequate sewerage disposal and sanitation system and shall provide adequate toilet and



wash-up facilities for his employees at his camp and in the areas where work is being carried out.

The Contractor shall execute the work with due regard to adequate sanitary provisions and applicable codes and shall take all necessary steps to prevent the pollution of water in any spring, river, or other sources of water supply. All toilets or wash-up facilities shall be subject to the prior and continuing approval of the NPC.

**CW-1.6 Fire Protection**

The Contractor shall observe all necessary precautions against fire, shall provide and maintain at his own expense, portable fire-fighting equipment he may deem necessary, and shall comply with all applicable laws of the Philippines relating thereto.

In the event of an uncontrollable fire occurring in the area of the Contractor's operation, the Contractor shall have to extinguish the fire immediately at his own expense, to the full extent of the manpower and equipment employed under the contract at the time of the fire.

The Contractor shall indemnify NPC against all liabilities, claims, damages and/or lawsuits arising thereto.

**CW-1.7 Construction Power**

The Contractor shall be responsible for providing his own electric power supply required for construction and erection/installation. If power is available from NPC and should the Contractor elect to utilize the NPC's power supply, he shall make an arrangement with NPC concerned group as to the billing rates and other requirements needed for direct connection to NPC.

**CW-1.8 Camp Security**

The Contractor shall provide his own security force to the extent that he deems necessary for maintaining peace and order in the camp and work areas and to safeguard materials and equipment. Nothing under the provisions of this paragraph shall relieve the Contractor from full responsibility for the maintenance of peace and order and protection of life and property in all areas where he operates.

**CW-1.9 Construction Material Storage**

The Contractor is required to put up warehouse(s) with capacities sufficient to store the construction materials required in the work. The warehouse(s) shall be specifically for this contract, notwithstanding his other facilities in the site that may serve the purpose.

**CW-1.10 Care Of Water During Construction**

In accordance with the specifications contained in this section or otherwise directed, the Contractor shall construct and maintain all necessary temporary drainage ditches and other temporary protective works and he shall also furnish, install, maintain and operate necessary



pumping equipment and other devices to protect construction operations free from water coming from any source, including rain.

The Contractor shall be responsible for dewatering foundation areas so that work can be carried out on a suitably dry condition. The Contractor shall construct drainage ditches, holes, culverts, furnish, maintain and operate at his own expense all necessary pumps and other dewatering devices to keep all work areas free from water.

After the work is completed and before it is accepted by the NPC, the Contractor shall remove all pumping equipment and shall remove, fill or plug all temporary drainage structures as directed, all at his expense.

**CW-1.11 Removal of Camp and Construction Facilities**

After the completion of the work covered by the contract and prior to acceptance of the completed work, the entire camp facilities of the Contractor, including its water supply system, electric distribution system, quarters, warehouses, shops, dining halls, commissaries, temporary shed and other facilities therein shall be removed by the Contractor. The site shall be cleared and cleaned as directed by the NPC.

**CW-1.12 Measurement and Payment**

No separate measurement and payment will be made for the Contractor's Construction Facilities. The cost of furnishing, constructing, maintaining, operating and removing of temporary drainage structures, pumping system and other dewatering devices necessary to keep construction operations free from water, shall be included in the various pay items in the Bill of Quantities for structures where such care of water is required.

**CW-2.0 ENVIRONMENTAL REQUIREMENTS FOR CIVIL WORKS**

**CW-2.1 Scope**

This section pertains to the environmental and safety provisions, requirements and conditions that shall govern during the execution of all civil works under this project.

**CW-2.2 General Conditions**

The Contractor shall ensure compliance with the applicable environmental and safety regulations, as well as ECC conditions, during installation/construction of this project through the implementation of measures that include, but not limited to, the following:

- a) Designate a Safety Officer and a Pollution Control Officer who shall respectively handle all safety and environmental concerns of the project.
- b) Prepare and submit Construction Safety and Health Plan (CSHP).
- c) Properly manage debris and various waste generated during installation/construction, such as the following:



- Dispose of demolition and construction debris in a designated or NPC approved disposal area(s);
  - Stockpile (and cover if possible) or haul to the designated and/or pre-developed dump sites (spoil disposal areas) that shall be provided with suitable drainage – equipped with sediment traps, stripped top soil, spoils from quarry/borrow sites and excavated materials;
  - Segregate solid wastes, such as empty cement sacks, scraps of tin or wood, used wires and other domestic garbage, for recycling or storage in NPC-approved temporary storage areas and further disposal to LGU-designated disposal sites.
  - Properly handle, store and dispose off, through DENR-accredited transporter/treater, hazardous wastes i.e. used oils, paints, thinner, etc.
- d) Limit construction activities that generate excessive noise to daytime works only to prevent nuisance to nearby residents during rest hours.
- e) As far as practicable, undertake site stripping, grading and excavations during dry weather.
- f) Construction/Installation shall be carried-out in a manner where landslides and erosions are minimized.
- g) Avoid unnecessary opening/clearing of areas outside construction sites or destruction of vegetative cover, especially cutting of existing trees; and to re-vegetate disturbed areas.
- h) Implement biological control measures such as maintenance of vegetation buffers (i.e. sodding of grass, planting of creeping vines, herbs, shrubs and trees) to shield streams/rivers from sedimentation; planting of vegetative cover over erodible surfaces; and planting of exposed sloping areas with shallow-rooted species like grasses, herbs or creepers.
- i) Locate fill slopes and spoil heaps away from drainage routes and properly remove/dispose the same as soon as practicable.
- j) Preserve or replace, if practicable, natural drainage patterns (when disturbed by civil works) with appropriate drainage channels.
- k) Convey oil-contaminated wastewater from workshops, garages, or gas filling stations through an oil trap (i.e. improvised oil-water separator) prior to discharge.
- l) Spray water, wherever and whenever necessary, to minimize dust generation.
- m) Provide PPEs and other safety provisions required by DOLE, for its project/site works.



- n) Take all necessary steps to prevent the pollution of groundwater and/or water bodies in the vicinity of the project site.

**CW-2.3 Measurement and Payment**

No separate measurement and payment will be made for the Contractor's compliance to the foregoing. The entire cost thereof shall be included in the various pay items in the Bill of Quantities.

**CW-3.0 STRUCTURAL EXCAVATION, FILL AND BACKFILL**

**CW-3.1 Scope**

In accordance with the specifications contained herein and as shown on the drawings and otherwise directed, the Contractor shall perform all the required structural excavation, fill and backfill for the entire project, including the proper disposal of excess excavated materials.

**CW-3.2 Materials**

**CW-3.2.1 Structural Excavation**

No classification will be made on the materials excavated. The Contractor shall determine his unit bid price for structural excavation based on unclassified material regardless of the nature of the materials actually encountered and excavated.

**CW-3.2.2 Structural Fill**

**a. Sand and Gravel Fill**

The material shall be of the same classification as the sand and gravel base consisting of river sand and gravel as approved by the NPC. The composite material shall be free from vegetable matter and lumps or balls of clay, and shall be uniformly graded from coarse to fine in accordance with the grading requirements shown below:

| <u>Sieve Designation</u><br><u>(Square Mesh Sieves)</u> | <u>Percentage by</u><br><u>Weight Passing</u> |
|---|---|
| 50.0 mm (2")  | 100   |
| 25.4 mm (1")  | 55-85   |
| 9.5 mm (3/8")   | 35-60   |
| 4.76 mm (No. 4)   | 25-50   |
| 2.08 mm (No. 10)  | 20-40   |
| 0.42 mm (No. 40)  | 8-20  |
| 0.074 mm (No. 200)                                      | 2-8   |

**b. Structural Earth Fill**

Structural earth fill shall consist of filling with suitable materials obtained from grading excavation or from borrow areas approved by the NPC.



**CW-3.2.3 Structural Backfill**

Backfill for Structures Other Than Pipes – Material for backfill shall consist of compactable and approved material taken from grading and structural excavations. Any additional material needed shall be obtained from borrow areas proposed by the Contractor and approved by the NPC.

Backfill for Sewerage and Drainage Pipes – The layer of backfill materials immediately above, up to 60 cm. from the top of pipe, and on the sides of the pipe shall consist of selected material consisting of clay soil and/or other fine materials that are free from stone particles, roots, debris. The upper layer shall consist of compactable materials taken from pipe trench and other structural excavation.

Backfill for Water Supply Pipes – Backfill for water supply pipes shall consist of compactable materials taken from trench excavation and approved by the NPC.

**CW-3.3 Construction****CW-3.3.1 Excavation****a. General**

The Contractor shall notify the NPC sufficiently in advance before the beginning of any excavation so that a joint survey for baseline data and cross-sectional measurements can be undertaken on the undisturbed/natural ground surface. All excavation shall be carried out according to the lines, slopes and grades shown on the drawings. In case an increase or decrease in quantities occur as a result of changes made by the NPC to such lines, slopes, and grades, the provisions on Variation Orders under the General Conditions of Contract (GCC) shall apply.

After each excavation is completed or where replacement of unsuitable material below required foundation grade has been undertaken, the Contractor shall notify the NPC so that proper inspection and confirmatory test on the bearing capacity of the foundation material can be made. In no case that concrete, sewer, drainage or water supply pipe can be placed unless a written approval has been issued by the NPC.

Over-excavation performed by the Contractor due to his carelessness shall be filled and properly compacted with the suitable material approved by NPC, at no additional cost to NPC.

**b. Structural Excavation, Structure Other Than Pipes**

The Contractor shall excavate the foundations to the specified side slopes and depths shown on the drawings, after which the NPC will conduct tests on the underlying material below foundation grade to determine the actual bearing capacity at such depth. If the required bearing capacity is not attained, the NPC shall instruct the Contractor to excavate further down until, in the opinion of the NPC, the bearing capacity is adequate to sustain the applied load on the foundation.



Compliance to such instruction shall not entitle the Contractor for additional compensation over and above the unit prices for excavation regardless of the nature of material excavated. For purposes of measurement, the applicable paylines for the excavation under this condition or situation shall be as shown on the drawings that show the paylines for excavation and special foundation materials.

**CW-3.4 Measurement and Payment**

**CW-3.4.1 Structural Excavation**

Measurement for payment for structural excavation performed by the Contractor for structures (except drainage, sewerage and water supply pipes, and appurtenances of which cost of excavation and backfill is included in the cost of installed pipe and constructed appurtenances) will be based on the number of cubic meters of materials excavated.

For purpose of payment, all authorized excavation below foundation grade (like in the case of unsuitable materials encountered) shall be included in the measurement.

Payment will be made at the contract unit price for Structural Excavation in the Bill of Quantities, which payment shall constitute full compensation for furnishing all labor and equipment necessary for excavation work and proper disposal of excess material excavated.

**CW-3.4.2 Structural Fill**

Measurement for payment for Structural Fill will be based on the number of cubic meters of fill materials placed within the neat lines as shown on the drawings.

Payment will be made at the contract unit price for the item, Sand and Gravel Fill/Base, in the Bill of Quantities, which payment shall constitute full compensation for furnishing, placing and compacting fill materials; labor which include spreading, compacting, etc., equipment and other incidentals necessary to complete the item.

**CW-3.4.3 Structural Backfill**

Measurement for payment for Structural Backfill (except backfill for drainage and sewerage pipes, appurtenances and other structures of which cost of backfill is included in the cost of installed pipes and appurtenances) will be based on the number of cubic meters of approved materials, backfilled, satisfactorily compacted and accepted. Any backfill material placed outside the pay lines for excavation to replace slides or over-excavation will not be paid.

Payment will be made at the contract unit price for the item, Structural Backfill, in the Bill of Quantities, which payment shall constitute full compensation for furnishing all labor, materials and equipment necessary for backfilling work.

**CW-4.0 CONCRETE****CW-4.1 Scope**

In accordance with the specifications contained in this section, the Contractor shall furnish all materials, labor, equipment and tools and perform all concreting works in accordance with the drawings, or as otherwise directed.

**CW-4.2 Class of Concrete**

Class of concrete or strength shall be as indicated on the drawings, which shall conform to the minimum requirement for compressive strength indicated on the provision of NSCP for Concrete and, in no case, shall not be less than 20.7 MPa.

**CW-4.3 Materials****CW-4.3.1 Cement**

Cement for concrete works shall be furnished by the Contractor and shall conform to the requirements of the latest edition of the Standard Specifications for Portland Cement (ASTMC150) and/or Portland-Pozzolan Cement (ASTMC595).

Unless otherwise specified, cement shall be ordinary Portland Cement. Type I for general construction which concrete is not in contact with soils or ground water, Type II for concrete in contact with soil or ground water. However, the use of Portland Pozzolan Cement Type IP meeting the AASHTO/ASTM requirements may be allowed, provided that trial mixes shall be done and that the mixes meeting the concrete strength requirements of the AASHTO/ASTM provisions, pertaining the use of Portland Pozzolan Type IP, shall be adopted.

Changing of brand or type of cement within the same structure will not be permitted unless with prior permission and approval obtained from the NPC.

**CW-4.3.2 Reinforcing Steel**

The Contractor shall furnish all reinforcing steel of the sizes shown on the drawings and in accordance with the herein specifications for reinforcing steel.

**CW-4.3.3 Water**

Water for use in concrete shall be subject to the approval of the NPC. It shall not be salty and shall be reasonably clear and free from oil, acid, injurious alkali or vegetable matter.

**CW-4.3.4 Aggregates**

All coarse and fine aggregates shall consist of hard, tough, durable and clean, uncoated particles. All foreign materials and dust shall be removed by processing. Aggregates shall generally be rounded and



reasonably free from thin, flat and elongated particles in all sizes and well graded from coarse to fine.

**CW-4.4 Storage of Materials**

**CW-4.4.1 Cement and Aggregates**

All cement shall be stored, immediately upon delivery at the Site, in weatherproof building that will protect the cement from dampness. The floor shall be adequately raised from the ground and in buildings placed in the locations approved by NPC. Provisions for storage shall be ample, and the shipments of cement as received shall be separately stored in such a manner that allows the earliest deliveries to be used first and to provide easy access for identification and inspection of each shipment. Storage buildings shall have capacity for storage of sufficient quantity of cement to allow sampling at least twelve (12) days before the cement is to be used. Bulk cement, if used, shall be transferred to elevated air tight and weatherproof bins. Stored cement shall meet the test requirements at any time after storage when NPC orders retest. At the time of use, all cement shall be free flowing and free of lumps.

Handling and storing of concrete aggregates shall be such that segregation or inclusion of foreign materials is sufficiently prevented. NPC may require that aggregates be stored on separate platforms at satisfactory locations.

In order to secure greater uniformity of concrete mix, NPC may require that the coarse aggregate be separated into two or more sizes. Different sizes of aggregates shall be stored in separate bins or in separate stockpiles and relatively away from each other to prevent the material at the edges of the piles from intermixing.

**CW-4.4.2 Reinforcing Steel**

Reinforcing steel shall be stored in accordance with the herein specifications for reinforcing steel.

**CW-4.5 Concreting**

**CW-4.5.1 General**

The written approval of the NPC shall be secured prior to any concreting work. All concrete shall be poured on dry and cleaned surfaces.

**CW-4.5.2 Placing Reinforcement**

Reinforcing steel and embedded items shall be properly and securely installed prior to the placing of concrete.

In no case shall concreting start without prior inspection and approval by the NPC of the placed reinforcement and other embedded items.

**CW-4.5.3 Mixing Concrete**

Mixing of concrete shall conform to the requirements of ACI Code for Concrete Construction.

**CW-4.5.4 Placing Concrete**

Concrete shall be conveyed from mixers to the forms or to the place of deposit as rapidly as possible and by methods that will prevent segregation or loss of ingredients. There shall be no vertical drop greater than 1.5 meters except where suitable equipment like metal pipe or tremie is used. The pipe or tremie shall be kept full of concrete and its end shall be kept buried in the newly placed concrete. Chutes through which concrete is delivered to the structure in a thin, continuously exposed flow will not be permitted except for very limited or isolated sections of the work.

Earth surfaces, upon which concrete shall be placed, shall be cleaned, dry and thoroughly compacted before placing the concrete.

Rock surface, upon which concrete shall be placed, shall be thoroughly cleaned of loose or semi-detached or unsound rock particles. Before placing concrete, all surfaces shall be wetted thoroughly to keep them in a completely moist condition, after which leveling mortar of the same cement ratio as the concrete mix complete contact between concrete and the leveled surface.

**CW-4.5.5 Finishing Concrete**

After the concrete has been deposited, distributed and vibrated, the concrete shall be struck off and screened by mechanical means approved by the NPC. The finishing machine shall be of the screening and troweling type designed and operated both to strike off and to consolidate. Hand finishing may be employed when suitable finishing machines are not available. Finishing of concrete shall be done, as directed, to the satisfaction of the NPC.

All finished surfaces shall be tested with 3 meters straight edge and any variation of the surface from the desired crown or cross section shall be properly corrected.

**CW-4.5.6 Removal of Forms**

Forms shall be removed as soon as practicable in order to avoid delay in curing and to make possible earliest practicable repair of surface imperfections, but in no case shall they be removed without approval. Any needed repair or treatment shall be performed at once and shall be followed immediately by the specified curing. Forms shall be removed with care so as to avoid injury to the concrete and any concrete so damaged shall be repaired as directed.

**CW-4.5.7 Curing and Protection**

Concrete shall be cured for a period of not less than fourteen (14) consecutive days by keeping the surfaces of concrete continuously (not periodically) wet. Where tongue and groove forms were used and left in place of curing, they shall be kept wet at all times prevent opening at the joints and drying out of the concrete.

**CW-4.5.8 Sampling and Testing of Concrete**

The Contractor shall furnish all materials, either separately or mixed, as required by NPC. Selection of materials and the making of test specimens shall be made under the supervision of NPC and delivered to NPC laboratory or any NPC-accredited testing agency at the Contractor's expense.

The expense of making and curing all concrete specimens including the materials comprising the concrete specimens shall be borne by the Contractor. The cost of shipping and testing the concrete shall likewise be at the expense of the Contractor.

No concreting work on the project will be permitted to be done until NPC signifies in writing that, following the performance of the necessary tests, he gives his approval to the use of all materials involve in making the concrete.

Test cylinders shall be prepared from the concrete samples and tested. At least one set of four (4) cylinder samples shall be made for each major structural member. Two (2) cylinders shall be tested at 28 days for specification compliance and one shall be tested at 7 and 14 days respectively for information. The acceptance test result shall be the average of the strength of the two cylinders tested at 28 days.

The compressive strength of the concrete shall be deemed acceptable if the averages of the three consecutive strength test results is equal to or exceeds the specified strength and no individual test falls below the specified strength by more than 3.50 MPa if  $f_c'$  is 35 Mpa or less; or by more than  $0.10f_c'$  if  $f_c'$  exceeds 35 Mpa.

Concrete deemed to be not acceptable using the above criteria maybe rejected unless the Contractor can provide evidence, by means of core tests, that the quality of concrete represented by the failed test result is acceptable in place. Three (3) cores shall be taken in accordance with ASTM C42 and soaked for 24 hours prior to testing. Concrete in the area represented by the cores will be deemed acceptable if the average strength of the cores is equal to at least 85% of and no single core is less than 75% of the specified strength.

If the strength of control specimens does not meet the requirements of this Subsection, and it is not feasible or not advisable to obtain cores from the structure due to structural considerations, payment of the concrete specimens as specified hereunder:

| Deficiency in Strength of Concrete Specimens, Percent (%) | Percent (%) of Contract Price Allowed |
|---|---------------------------------------|
| Less than 5   | 100                                   |
| 5 to less than 10   | 80                                    |
| 10 to less than 15  | 70                                    |
| 15 to less than 20  | 60                                    |
| 20 to less than 25  | 50                                    |
| 25 or more  | 0                                     |



**CW-4.5.9 Tolerances and Repair for Concrete Construction**

Concrete structures shall be constructed to the lines shown on the drawings or where so required to suit actual field requirements. Any structure that does not conform to such lines shall be repaired or removed and made anew by the Contractor at no additional cost to the Corporation.

Repairs shall be made at surface imperfections due to faulty placing of concrete and cuts on the structures due to the removal of excess concrete on the lines shown on the drawings. Such repairs shall be made immediately after early stripping of the forms, after the imperfections have been identified and the methods of repair appropriately established.

**CW-4.5.10 Second Stage Concrete**

The second stage of concrete finishing shall be done only after the final installation of all pertinent equipment, anchorages, pipings, conduits and other embedded items as may be required for all electromechanical works.

**CW-4.6 Measurement and Payment**

Measurement for payment for Concrete (except concrete which shall be measured for separate payment) will be based on the volume of concrete placed and accepted within the neat lines of the structure as shown on the drawings or in accordance with the manner of measurement set forth in the various sections of the Technical Provisions. No deduction will be made for rounded or beveled edges or space occupied by the metal items 10 sq. cm. or less in cross section, embedded in concrete.

Payment will be made at the corresponding contract unit price for the various items of concrete shown in the Bill of Quantities. Payment shall cover all costs for furnishing all labor, materials, including equipment and tools required for concreting work. Payment shall also include non-shrink cementitious grout and epoxy grout inside foundation block out and above engine base plate and care of water.

**CW-5.0 REINFORCING STEEL****CW-5.1 Description**

This work shall consist of furnishing, fabricating, and placing of steel reinforcement of the type, size, shape and grade required in accordance with these specifications and in conformity with the requirements shown on the Drawings or as directed by the NPC.

**CW-5.2 Material Requirement**

All material shall conform to the requirements hereinafter given. Certified test reports (mill test or other) shall be submitted to the NPC for all reinforcement steel used. These tests shall show the results of all chemical and physical tests made.



**CW-5.2.1 Bar Reinforcement**

Reinforcement bars for concrete shall be hot-rolled, weld able, deformed billet-steel bars conforming to the requirements specified in ASTM A615 and PNS 49 unless shown on the Drawings or as required by the NPC. The use of the cold twisted bars is not permitted. Bar reinforcement shall be shipped in standard bundles, tagged and marked in accordance with the Code of Standard Practice of the Concrete Reinforcement Steel Institute.

**CW-5.2.2 Sampling**

The NPC's Representative will sample reinforcement bars at the source of supply or at the point of distribution, and the Contractor shall notify the NPC in sufficient time in advance to permit sampling and testing before shipment is made. Three (3) samples from each size shall be taken at random representing five (5) tons or fraction thereof of each size.

**CW-5.3 Construction Requirement****CW-5.3.1 Fabrication**

Bent bar reinforcement shall be cold bent as shown on the drawings or as required by the NPC. Bars shall be bent around circular pin having the following diameters (D) in relation to the diameter of the bar (d):

|  |       |
|--|-------|
| Bars 6mm $\Phi$ to 20mm $\Phi$ inclusive | D=6d  |
| Bars 25mm $\Phi$ and 28mm $\Phi$         | D=8d  |
| Bars 32mm $\Phi$ and greater             | D=10d |

Bends and hooks in stirrups and lateral ties may be bent to the diameter of the principal bar enclosed therein.

**CW-5.3.2 Protection of Material**

Steel reinforcement shall be protected at all times from injury. When placed in the work, it shall be free from dirt, detrimental scale, paint, oil or other foreign matter. However, when steel has on its surface easily removable and detrimental rust, loose scale or dust, it shall be cleaned by a satisfactory method, approved by the NPC.

Store reinforcement of the different sizes in racks raised above the ground with accurate identification. Protect reinforcing steel from contaminants such as grease, oil and dirt.

**CW-5.3.3 Placing and Fastening Reinforcement & Miscellaneous Material (ACI-301)**

All reinforcement bars, stirrups, hanger bars, wire fabric, spirals and other reinforcing materials shall be provided as indicated in the drawing or required by the specification, together with all necessary wire ties, chairs, screws, supports, and other devices necessary to install and secure the reinforcement properly. All reinforcement, when placed, shall be free from rust, scale, oil, grease, clay, and other coatings, and foreign substances that would reduce or destroy the bond. Rusting of reinforcement shall not reduce the effective cross sectional area of the reinforcement to the

extent that the strength is reduced beyond specified values. Heavy, thick rust or loose, flaky rust shall be removed by rubbing with burlap or other approved method, prior to placing. Reinforcement that has bends not shown on the project drawings or on approved shop drawings, or is reduced in section by rusting such that its weight is not within permissible ASTM tolerances, shall not be used. All reinforcement shall be supported and wired together to prevent displacement by construction loads or by the placing of concrete. Unless directed otherwise by the NPC, reinforcement shall not be bent after being partially embedded in hardened concrete. Detailing of reinforcing shall conform to ACI 315. Where cover over reinforcing steel is not specified or indicated, it shall be in accordance with ACI 318.

All steel reinforcement shall be accurately placed in position shown on the drawings or as required by the NPC and firmly held there during the placing and setting of the concrete. Bars shall be tied at all intersections except where spacing is less than 30 mm in each direction, when alternate intersections shall be tied. Ties shall fasten on the inside.

Distance from the forms shall be maintained by means of stays, blocks, hangers or other approved supports. Blocks for holding reinforcement from contact with the forms shall be pre-cast mortar blocks of approved shape and dimensions or approved chairs. Layers of bars shall, be separated by pre-cast mortar blocks or by other equally suitable devices. The use of pebbles, pieces of broken stone or brick, metal pipe and wooden blocks or metal chairs shall not be permitted. Unless otherwise shown on the Drawings or required by the NPC, the minimum distance between bars shall be 40mm. Reinforcement in any member shall be placed and then inspected and approved by the NPC before the placing of concrete commences. Bundled bars shall be tied together at not more than 1.80 meters intervals.

Reinforcement shall be placed accurately and secured. It shall be supported by suitable chairs and spaces or by metal hangers. On the ground, and where otherwise subject to corrosion, concrete or other suitable non-corrodible material shall be used for supporting reinforcement. Where the concrete surface will be exposed to the weather in the finished structure or where rust would impair the appearance or finish of the structure, all reinforcement supports, within specified concrete cover, shall be galvanized or made of a suitable non-corrodible material.

All placement or movement of reinforcing steel after placement, to positions other than indicated or specified, shall be subject to the approval of the NPC.

Concrete protection for reinforcement shall be as indicated, or if not indicated, in accordance with ACI 318.

The minimum concrete cover for reinforcement specified in the bid documents shall take precedence over all permissible reinforcement placement variations; nothing in the variations listed below is to be constructed as permitting violation or compromise thereof:

- |                           |                 |
|---------------------------|-----------------|
| a. Height of bottom bars  | ±6mm above form |
| b. Lengthwise positioning | ±50mm of bars   |



**CW-5.2.1 Bar Reinforcement**

Reinforcement bars for concrete shall be hot-rolled, weld able, deformed billet-steel bars conforming to the requirements specified in ASTM A615 and PNS 49 unless shown on the Drawings or as required by the NPC. The use of the cold twisted bars is not permitted. Bar reinforcement shall be shipped in standard bundles, tagged and marked in accordance with the Code of Standard Practice of the Concrete Reinforcement Steel Institute.

**CW-5.2.2 Sampling**

The NPC's Representative will sample reinforcement bars at the source of supply or at the point of distribution, and the Contractor shall notify the NPC in sufficient time in advance to permit sampling and testing before shipment is made. Three (3) samples from each size shall be taken at random representing five (5) tons or fraction thereof of each size.

**CW-5.3 Construction Requirement****CW-5.3.1 Fabrication**

Bent bar reinforcement shall be cold bent as shown on the drawings or as required by the NPC. Bars shall be bent around circular pin having the following diameters (D) in relation to the diameter of the bar (d):

|  |       |
|--|-------|
| Bars 6mm $\Phi$ to 20mm $\Phi$ inclusive | D=6d  |
| Bars 25mm $\Phi$ and 28mm $\Phi$         | D=8d  |
| Bars 32mm $\Phi$ and greater             | D=10d |

Bends and hooks in stirrups and lateral ties may be bent to the diameter of the principal bar enclosed therein.

**CW-5.3.2 Protection of Material**

Steel reinforcement shall be protected at all times from injury. When placed in the work, it shall be free from dirt, detrimental scale, paint, oil or other foreign matter. However, when steel has on its surface easily removable and detrimental rust, loose scale or dust, it shall be cleaned by a satisfactory method, approved by the NPC.

Store reinforcement of the different sizes in racks raised above the ground with accurate identification. Protect reinforcing steel from contaminants such as grease, oil and dirt.

**CW-5.3.3 Placing and Fastening Reinforcement & Miscellaneous Material (ACI-301)**

All reinforcement bars, stirrups, hanger bars, wire fabric, spirals and other reinforcing materials shall be provided as indicated in the drawing or required by the specification, together with all necessary wire ties, chairs, screws, supports, and other devices necessary to install and secure the reinforcement properly. All reinforcement, when placed, shall be free from rust, scale, oil, grease, clay, and other coatings, and foreign substances that would reduce or destroy the bond. Rusting of reinforcement shall not reduce the effective cross sectional area of the reinforcement to the



extent that the strength is reduced beyond specified values. Heavy, thick rust or loose, flaky rust shall be removed by rubbing with burlap or other approved method, prior to placing. Reinforcement that has bends not shown on the project drawings or on approved shop drawings, or is reduced in section by rusting such that its weight is not within permissible ASTM tolerances, shall not be used. All reinforcement shall be supported and wired together to prevent displacement by construction loads or by the placing of concrete. Unless directed otherwise by the NPC, reinforcement shall not be bent after being partially embedded in hardened concrete. Detailing of reinforcing shall conform to ACI 315. Where cover over reinforcing steel is not specified or indicated, it shall be in accordance with ACI 318.

All steel reinforcement shall be accurately placed in position shown on the drawings or as required by the NPC and firmly held there during the placing and setting of the concrete. Bars shall be tied at all intersections except where spacing is less than 30 mm in each direction, when alternate intersections shall be tied. Ties shall fasten on the inside.

Distance from the forms shall be maintained by means of stays, blocks, hangers or other approved supports. Blocks for holding reinforcement from contact with the forms shall be pre-cast mortar blocks of approved shape and dimensions or approved chairs. Layers of bars shall, be separated by pre-cast mortar blocks or by other equally suitable devices. The use of pebbles, pieces of broken stone or brick, metal pipe and wooden blocks or metal chairs shall not be permitted. Unless otherwise shown on the Drawings or required by the NPC, the minimum distance between bars shall be 40mm. Reinforcement in any member shall be placed and then inspected and approved by the NPC before the placing of concrete commences. Bundled bars shall be tied together at not more than 1.80 meters intervals.

Reinforcement shall be placed accurately and secured. It shall be supported by suitable chairs and spaces or by metal hangers. On the ground, and where otherwise subject to corrosion, concrete or other suitable non-corrodible material shall be used for supporting reinforcement. Where the concrete surface will be exposed to the weather in the finished structure or where rust would impair the appearance or finish of the structure, all reinforcement supports, within specified concrete cover, shall be galvanized or made of a suitable non-corrodible material.

All placement or movement of reinforcing steel after placement, to positions other than indicated or specified, shall be subject to the approval of the NPC.

Concrete protection for reinforcement shall be as indicated, or if not indicated, in accordance with ACI 318.

The minimum concrete cover for reinforcement specified in the bid documents shall take precedence over all permissible reinforcement placement variations; nothing in the variations listed below is to be constructed as permitting violation or compromise thereof:

- |                           |                 |
|---------------------------|-----------------|
| a. Height of bottom bars  | ±6mm above form |
| b. Lengthwise positioning | ±50mm of bars   |



- c. Spacing bars in walls and solid slabs  $\pm 25\text{mm}$
- d. Spacing bars in beams and footings  $\pm 6\text{mm}$
- e. Height of top bars  $\pm 6\text{mm}$
- f. Stirrup spacing:
  - (1) For any one stirrup  $\pm 25\text{mm}$
  - (2) For over-all group  $\pm 25\text{mm}$  of stirrup

Anchors and bolts; including but not limited to those for the machine and equipment bases: frames or edgings, hangers and inserts, door bucks, pipe supports, pipe sleeves, pipe passing through walls, metal ties, conduits, flashing reflects, drains and all other materials in connection with the concrete construction shall, where practicable be placed and secured in position when the concrete is placed. Anchor bolts for machines shall be set to templates, shall be plumbed carefully and checked for location and elevation with an instrument, and shall be held in position rigidly to prevent displacement while concrete is being placed.

#### CW-5.3.4 Splicing

Splicing of reinforcement shall be in accordance with ACI 318, except as indicated otherwise or modified herein. Where splices in addition to those indicated on the drawings are necessary, they shall be approved by the NPC prior to their use. Splices shall not be made in beams, girders, and slabs at points of maximum stress. Butt Splicing shall preferably be used over lapping for bar sizes larger than 32 mm $\Phi$ . Splices to be welded shall conform to AWS D1.4; certification of weld ability of the reinforcement by the manufacturer, shall be submitted to the NPC. If the Contractor elects to use butt splicing of reinforcing, he shall submit complete details of the process to be used by the NPC. If the butt splices are used the Contractor shall ensure that the splice meets the requirements specified herein by performing at least three splices which shall be submitted for tests to a testing laboratory that has been approved for such testing by the NPC. The cost of these shall be borne by the Contractor.

All reinforcement shall be furnished in the full lengths indicated on the Drawings. Splicing of bars, except where shown on the Drawings will not be permitted without the written approval of the NPC. When allowed, splices shall be staggered as far as possible and with a minimum separation of not less than 40 bar diameters. Not more than one-third of the bars may be spliced in the same cross section, except where shown on the Drawings.

Unless otherwise shown on the Drawings, bars shall be lapped a minimum distance of:

| <u>Splice Type</u> | <u>Grade 40 Min.Lap</u> | <u>But Not Less Than</u> |
|--------------------|-------------------------|--------------------------|
| Tension            | 24d                     | 300mm                    |
| Compression        | 20d                     | 300mm                    |

Where d is the diameter of the bar. In lapped splices, the bars shall be placed in contact and wired together. Lapped splices will not be permitted at locations where the concrete section is insufficient to provide a minimum clear distance of one and one-third the maximum size of coarse

aggregate between the splice and the nearest adjacent bar. Welding of reinforcing steel shall only be done if detailed on the Drawings or if authorized by the NPC in writing. Spiral reinforcement shall be spliced by lapping at least one and half (1 1/2) turns or by butt-welding unless otherwise shown on the drawings.

#### **CW-5.5 Measurement and Payment**

The quantity to be paid for shall be the calculated theoretical number of kilograms of reinforcement steel bars as determined from the net length of the steel shown on the drawings, incorporated in the concrete and accepted.

The weight of deformed bars will be computed from the theoretical weight of the same nominal size as shown in the following tabulation:

| <u>Designation</u> | <u>Size (mm)</u> | <u>Weight (kg/m)</u> |
|--------------------|------------------|----------------------|
| #2                 | 6                | 0.222                |
| #3                 | 10               | 0.616                |
| #4                 | 12               | 0.888                |
| #5                 | 16               | 1.579                |
| #6                 | 20               | 2.468                |
| #8                 | 25               | 3.854                |
| #9                 | 28               | 4.833                |
| #10                | 32               | 6.313                |
| #11                | 36               | 7.991                |

Clips, ties, separators and other and related materials used for positioning and fastening the reinforcement in place as required by the NPC shall not be included in the weight-calculated payment under this item. If bars are substituted upon the Contractor's request and as a result, more steel is used than specified – only the amount specified shall be included.

When laps are made for splices, other than those shown on the drawings or required by the NPC and for the convenience of the Contractor, the extra steel shall not be measured nor paid for.

The accepted quantity shall be paid at the corresponding unit price for the item, Reinforcing Steel as shown in the Bill of Quantities which price and payment shall be made in full compensation for furnishing materials, labor, equipment and incidentals necessary to complete this item.

#### **CW-6.0 DRAINAGE SYSTEM AND APPURTENANT STRUCTURES**

##### **CW-6.1 Scope**

In accordance with the specifications contained herein, the Contractor shall furnish all materials, labor, equipment and tools, perform all required excavation and backfill, install all pipes and construct drain pits and ditches, as the case may be, where indicated on the drawings or where directed conforming with the lines and grades as established in the field by the NPC. The Contractor shall also construct or install, where required, appurtenant structures like street inlet, street inlet-catch basin combination, manhole, catch basin for downspouts, catch basin for



intersecting perforated PVC pipes, drainage outlets, drain pit etc. as well as joints and connections as may be required to complete the system.

**CW-6.2 Materials**

**CW-6.2.2 Drain Pit**

Cement, reinforcing steel, aggregate, and water to be used for the construction of drain pit shall conform to the requirements set forth in Section CW-4.0 - Concrete and Section CW-5.0 - Reinforcing Steel.

**CW-6.3 Measurement and Payment**

**CW-6.3.1 Drain Pit**

Measurement for payment for the drain pit will be made at the corresponding contract unit price as shown in the Bill of Quantities. Payment shall constitute full compensation for furnishing all labor, materials, equipment, and tools necessary for the construction of the concrete canal including attendant excavation and backfill.

**CW-7.0 STRUCTURAL STEEL**

**CW-7.1 General**

This section covers the fabrication, erection, and shop painting of structural steel in accordance with the AISC "Manual of Steel Construction" referred to herein. In the AISC "Manual of Steel Construction" referred to herein, the Specification for Design, Fabrication, and Erection of Structural Steel for Buildings," and "Structural Joints using A325 or A490 Bolts" shall be considered a part thereto.

**CW-7.1.1 Submittals**

Shop Drawings of all structural steel in five (5) copies for approval prior to fabrication of structural steel with complete information necessary for the fabrication and erection of the component parts of the structure including the location, type and size of all bolts and welds, member sizes and lengths, camber & connector details, blocks, copes, and cuts. Include all welds by standard welding symbols.

Erection Plan consists of descriptive data to illustrate the structure steel erection procedure including the sequence of erection and temporary shoring and bracing, and written description of the detailed sequence of all welding, including each welding procedure to be performed.

Certificates of Conformance for the following:

- Bolts, Nuts and Washers
- Welding Electrodes and Rods
- Paint
- Steel
- Certified Test Reports

aggregate between the splice and the nearest adjacent bar. Welding of reinforcing steel shall only be done if detailed on the Drawings or if authorized by the NPC in writing. Spiral reinforcement shall be spliced by lapping at least one and half (1 1/2) turns or by butt-welding unless otherwise shown on the drawings.

#### **CW-5.5 Measurement and Payment**

The quantity to be paid for shall be the calculated theoretical number of kilograms of reinforcement steel bars as determined from the net length of the steel shown on the drawings, incorporated in the concrete and accepted.

The weight of deformed bars will be computed from the theoretical weight of the same nominal size as shown in the following tabulation:

| <u>Designation</u> | <u>Size (mm)</u> | <u>Weight (kg/m)</u> |
|--------------------|------------------|----------------------|
| #2                 | 6                | 0.222                |
| #3                 | 10               | 0.616                |
| #4                 | 12               | 0.888                |
| #5                 | 16               | 1.579                |
| #6                 | 20               | 2.468                |
| #8                 | 25               | 3.854                |
| #9                 | 28               | 4.833                |
| #10                | 32               | 6.313                |
| #11                | 36               | 7.991                |

Clips, ties, separators and other and related materials used for positioning and fastening the reinforcement in place as required by the NPC shall not be included in the weight-calculated payment under this item. If bars are substituted upon the Contractor's request and as a result, more steel is used than specified – only the amount specified shall be included.

When laps are made for splices, other than those shown on the drawings or required by the NPC and for the convenience of the Contractor, the extra steel shall not be measured nor paid for.

The accepted quantity shall be paid at the corresponding unit price for the item, Reinforcing Steel as shown in the Bill of Quantities which price and payment shall be made in full compensation for furnishing materials, labor, equipment and incidentals necessary to complete this item.

#### **CW-6.0 DRAINAGE SYSTEM AND APPURTENANT STRUCTURES**

##### **CW-6.1 Scope**

In accordance with the specifications contained herein, the Contractor shall furnish all materials, labor, equipment and tools, perform all required excavation and backfill, install all pipes and construct drain pits and ditches, as the case may be, where indicated on the drawings or where directed conforming with the lines and grades as established in the field by the NPC. The Contractor shall also construct or install, where required, appurtenant structures like street inlet, street inlet-catch basin combination, manhole, catch basin for downspouts, catch basin for



intersecting perforated PVC pipes, drainage outlets, drain pit etc. as well as joints and connections as may be required to complete the system.

**CW-6.2 Materials**

**CW-6.2.2 Drain Pit**

Cement, reinforcing steel, aggregate, and water to be used for the construction of drain pit shall conform to the requirements set forth in Section CW-4.0 – Concrete and Section CW-5.0 – Reinforcing Steel.

**CW-6.3 Measurement and Payment**

**CW-6.3.1 Drain Pit**

Measurement for payment for the drain pit will be made at the corresponding contract unit price as shown in the Bill of Quantities. Payment shall constitute full compensation for furnishing all labor, materials, equipment, and tools necessary for the construction of the concrete canal including attendant excavation and backfill.

**CW-7.0 STRUCTURAL STEEL**

**CW-7.1 General**

This section covers the fabrication, erection, and shop painting of structural steel in accordance with the AISC "Manual of Steel Construction" referred to herein. In the AISC "Manual of Steel Construction" referred to herein, the Specification for Design, Fabrication, and Erection of Structural Steel for Buildings," and "Structural Joints using A325 or A490 Bolts" shall be considered a part thereto.

**CW-7.1.1 Submittals**

Shop Drawings of all structural steel in five (5) copies for approval prior to fabrication of structural steel with complete information necessary for the fabrication and erection of the component parts of the structure including the location, type and size of all bolts and welds, member sizes and lengths, camber & connector details, blocks, copes, and cuts. Include all welds by standard welding symbols.

Erection Plan consists of descriptive data to illustrate the structure steel erection procedure including the sequence of erection and temporary shoring and bracing, and written description of the detailed sequence of all welding, including each welding procedure to be performed.

Certificates of Conformance for the following:

- Bolts, Nuts and Washers
- Welding Electrodes and Rods
- Paint
- Steel
- Certified Test Reports

Chemical Analysis and Tensile Strength Test of structural steel in accordance to ASTM A53.

For high strength bolts and nuts, the Contractor shall also submit chemical analysis, including tensile strength and hardness tests as required by ASTM A325.

**CW-7.1.2 Delivery and Storage**

All materials shall be handled, shipped and stored in a manner that will prevent distortion or other damages. Materials shall be stored in a clean and properly drained location and out of contact with the ground. Damaged materials shall be replaced or, when permitted by NPC, may be repaired in an approved manner at no additional cost to NPC.

**CW-7.2 Materials**

All the materials shall be of the best quality of their kind, well graded and within the allowable distortions. They shall be free from flakes, corrosion, scale or fragments that could reduce the resistance and durability or injure the external appearance.

Except as modified herein, blast clean surfaces in accordance with SSPC SP6. Wash clean surfaces that become contaminated with rust, dirt, oil, grease or other contaminants with solvents until thoroughly clean. Ensure that steel to be embedded in concrete and surfaces when assembled, are free from rust, grease, dirt and other foreign matter.

**CW-7.2.1 Steel**

Materials shall conform to the respective specifications specified herein. Materials not otherwise specified herein shall conform to the AISC "Manual of Steel Construction".

|   |  |
|---|--|
| Structural Steel:                       | ASTM A36                                     |
| Steel Pipe:                             | ASTM A53, Type E or S, Grade B,<br>ASTM A501 |
| Steel W-Shape Piles<br>(Soldier Piles): | ASTM A328                                    |

**CW-7.2.2 Bolts, Nuts and Washers:**

All bolts, nuts and washers shall be of hot-dip galvanized steel, in accordance with the following:

|          |  |
|----------|--|
| Bolts:   | ASTM A307, Grade C or ASTM A36<br>for Anchor Bolts; ASTM A325 for<br>Fastening Bolts               |
| Nuts:    | ASTM A563, Grade A, heavy hex<br>style, except nuts less than 38mm<br>may be provided in hex style |
| Washers: | ANSI B18.22.1, Type B  |





**CW-7.2.3 Accessories:**

Welding electrodes and steel structural members shall use:

|                  |                         |
|------------------|-------------------------|
| Rods             | E70XX electrodes        |
| Non-shrink Grout | ASTM C827, non-metallic |

**CW-7.3 Execution****CW-7.3.1 Fabrication**

Structural steel fabrication shall be in accordance with the applicable provisions of the Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings as set forth in the AISC "Manual of Steel Construction".

**CW-7.3.2 Welding of Structural Steelwork:**

All welding works shall be as indicated in the drawings and shall conform to AWS D1.1 - 77 "Structural Welding Code". Unless specified on the drawings, fillet welds shall be a minimum of 5 mm (3/16") and welding electrodes shall be with a tensile strength of 485 MPa.

All welding works shall be executed by the AWS D1.1 qualified welders, welding operators and trackers, whose workmanship shall be subject to the approval of NPC.

**CW-7.3.3 Shop painting**

Except as otherwise specified, shop prime surfaces of all structural steel, except steel to be embedded in concrete or mortar. Surfaces to be welded shall not be coated within 12 mm from the specified top of the weld prior to welding. Insure that the surfaces are thoroughly dry and clean when the paint is applied. Do not paint on wet weather except under cover. Do not apply paint to steel, which is at a temperature that will cause blistering or porosity, or will otherwise be detrimental to the life of the paint. Apply paint in a workmanlike manner, and coat all joints and crevices thoroughly. Prior to assembly, paint all surfaces that will be concealed or inaccessible after assembly.

Shop prime coat surfaces as soon as possible after cleaning. Apply one coat of inorganic zinc to a minimum dry film thickness of 100 microns.

- **Field painting:** When the erection work is complete, the heads of field bolts, all welds and any surface from which the shop coat of paint has become worn off or has otherwise become defective, shall be cleaned and thoroughly covered with one coat of shop coat paint. When the paint applied for touching up bolt heads and abraded surfaces has become thoroughly dry, apply two field coats of marine epoxy paint subject to the approval of NPC.

- **Marking:** Prior to erection, members shall be provided with a painted erection mark. In addition, connecting parts assembled in the shop for remaining holes in field connections shall be matched marked with scratch and notch marks. Do not locate erection markings on areas

to be welded. Do not locate erection markings in areas that will decrease member strength or cause stress concentrations.

#### **CW-7.3.4 Erection**

Except as modified herein, erect steel in accordance with the AISC "Manual of Steel Construction". Where parts cannot be assembled or fitted properly as a result of errors in fabrication or of deformation due to handling or transportation, report such condition immediately to the NPC's Representative and obtain approval there from for the methods of correction for straightening, including members of steel conforming to ASTM A514.

Drain Steel work properly; fill pockets in structures exposed to the weather with an approved waterproof material.

Provide safety belts and lines for workmen aloft on high structures unless safe working platforms or safety nets are provided.

When calibrated wrenches are used for tightening bolts, calibrate them at least one each working day using not less than three typical bolts of each diameter. Do not use impact torque wrenches to tighten anchor bolts set in concrete.

Connections: Connections shall be executed as shown on drawing. In case, connections are not detailed, it shall be designed in accordance with AISC "Manual of Steel Construction". Build connections into the existing work. Punch, sub-punch and ream, or drill bolt holes.

Tolerances: Structural steel shall be furnished and installed to the lines and levels as shown on the drawings.

Any structure that does not conform shall be repaired, removed and/or erected anew by the Contractor at no additional cost to NPC.

Tolerances on structural steel shall be in accordance with the "Code of Standard Practice" of the AISC "Manual of Steel Construction".

#### **CW-7.3.5 Tests and Inspections**

Visual Inspection of Welding: After the welding is completed, hand or power wires brush welds, thoroughly clean them before the inspector makes the check inspection. Inspect welds with magnifiers under strong, adequate light for surface cracking, porosity, and slag inclusions; excessive roughness; unfilled craters; gas pockets; undercuts; overlaps; size and insufficient throat and concavity. Inspect the preparation of groove welds for adequate throat opening and for snug positioning of backup bars.

Non-Destructive Testing<sup>1</sup>: In accordance with AWS D1.1 Twenty-five percent (25%) of the total number of joints, as selected by the NPC, shall be tested. If more than 20 percent of welds contain defects identified by testing, then all welds shall be tested by radiographic or ultrasonic testing, and to be approved by the NPC. When all welds made are

<sup>1</sup>Not applicable on non-critical structures/joints and as directed/required by NPC Design Engineer.  
NATIONAL POWER CORPORATION



required to be tested, magnetic particle testing shall be used only in areas inaccessible to either radiographic or ultrasonic testing. Retest defective areas after repair.

**CW-7.4 Measurement and Payment**

Measurement for payment for structural steel shall be based on the total kilogram of structural steel placed and accepted.

Payment will be made at the contract unit price for the item Structural Steel in the Bill of Quantities, which payment shall constitute full compensation for furnishing all labor, materials and equipment necessary to complete the item.

**CW-8.0 PERIMETER FENCE AND GATE**

**CW-8.1 Scope**

In accordance with the specifications contained herein, the Contractor shall furnish all labor, materials, equipment and tools for the construction of cyclone wire perimeter fence to the length or extent shown on the drawing or as established in the field.

**CW-8.2 Materials**

**CW-8.2.1 Cement and Reinforcing Steel**

Cement and reinforcing steel shall conform to the requirements set forth in Section CW-4.0 – Concrete and Section CW-5.0 – Reinforcing Steel. Class of concrete shall be 20.7MPa or as shown on the drawings.

**CW-8.2.2 Concrete Hollow Blocks (CHB)**

Concrete hollow blocks shall be 150 mm x 200 mm x 400 mm (6"x 8"x 16") non-load bearing with a compressive strength of 3.10MPa. CHB units shall be free of chips, splits or other defects, which in the opinion of the NPC, might impair their strength and durability. At the option of the NPC, CHB units delivered to the site shall be tested to check on their specified strength. One specimen taken at random representing 500 units shall be tested. Sampling shall be done by the NPC. The group represented by a specimen that fails the compression test shall not be used in the work.

**CW-8.2.3 Fine and Coarse Aggregates and Water**

Fine and coarse aggregates and water shall conform to the requirements stated in CW-4.0 – Concrete.

**CW-8.2.4 Galvanized Barbed Wire**

Barbed wire shall consist of three (3) strands of 2.7mmØ heavy galvanized wire with 2.2mmØ four-point barbs. It shall be of the coating class as specified in the drawings.

Individual wire specimen shall stand being bent cold through 180° without fracture on the wire and without flaking off of the zinc coating.



**CW-8.2.5 Heavy Galvanized Cyclone Wire**

The material shall be made from steel wire helically wound and interwoven in such a manner as to provide a continuous mesh without knots or ties except in the form of knuckling or of twisting and barbing the ends of the wires to form the selvage of the fabric. The base metal shall be steel of such quality and purity that, when drawn to the size of wire specified and coated with zinc either before or after fabrication, the finished fencing shall be of uniform quality and have the properties and characteristics conforming to ASTM Designation A392. Fabric that is zinc coated after weaving and produced in accordance with this specification shall be hot-dip galvanized. Fabric that is zinc coated before waving may be either electronically or hot-dip galvanized.

At the option of NPC, Heavy Galvanized Cyclone wire delivered to the site shall be tested. One roll from every fifty (50) rolls or fraction thereof shall be taken at random as a sample for test purposes, except in no case shall less than two (2) samples be tested. To determine compliance with the requirements of this specification, the test specimens for each of the test specified shall be taken from the outside end of the sample rolls representing the lot. If any specimen tested fails to meet the requirements of this specification, the roll represented by the specimen shall be rejected and two (2) additional rolls shall be tested, both of which shall meet the requirements in every respect, otherwise the lot represented by the sample may be rejected.

**CW-8.2.6 G.I. PIPES**

Galvanized iron pipes for the seclusion fence and gates shall conform to ASTM A120-68A.

**CW-8.2.7 STRUCTURAL STEEL (VEHICULAR/PEDESTRIAN GATE)**

All structural steel (rolled shapes and plates) for the fabrication of the vehicular and pedestrian gates, unless otherwise specified on the drawings, shall conform to ASTM A36.

**CW-8.3 Construction**

- a. Excavation, backfilling and concreting work shall be in accordance with the applicable provisions of Section CW-3.0 – Structural Excavation, Fill and Backfill and Section CW-4.0 – Concrete, respectively.

- b. CHB Construction

Laying – All masonry units shall be plumbed, leveled and accurately spaced. All units shall be wetted before laying. The block should be laid on full mortar bedding and in such a way that no cracks are formed between the blocks and the mortar at the time it is laid. Any horizontal and vertical CHB wall reinforcements shall be anchored to concrete works by means of 10 mm (3/8") round by 609 mm (24") long dowels. Embedding of anchor bolts, expansion shields, conduits, etc. shall be done as the erection progresses.



Cutting and Patching – Cutting and patching of masonry required to accommodate the work of other trades shall be performed by masonry mechanics.

Finishing – All hollow block wall surfaces to be applied with cement plaster will be cleaned, evenly wet slushed with a wash of neat cement and sand followed by 1:2 cement mortar mix 10 mm (3/8") thick which shall be applied with a wooden float.

c. Mortar Proportions

1) Cement mortar for laying concrete hollow blocks shall consist of one (1) part Portland cement, one-fourth (1/4) part lime and three (3) part sand. Only sufficient water to make a workable mix will be permitted.

2) All horizontal reinforcement shall be tied to vertical reinforcement.

d. Fabrication and installation of vehicular and pedestrian gates shall conform to the requirements of the drawings or as directed by the NPC.

e. All welding work shall conform to the Specifications for Welded Highway and Railway Bridges of the American Welding Society (AWS).

Galvanized surfaces to be painted, in addition to being cleaned with mineral spirits or other solvents, will require surface treatment to which paint will adhere. The galvanized surfaces, therefore, shall be coated with a solution of 7.5 grams of copper sulfate to a liter of water, allowing the coating to remain on the surface of at least twelve (12) hours, and dusting off with stiff brushes.

Surfaces to be painted shall be clean, dry, smooth and free from dust, rust, grease or oil. Sufficient time shall be allowed between coats of paints to insure complete drying but in no case less than 24 hours. No painting shall take place during the presence of rain, fog, dew or where the surfaces may otherwise be damp. All work shall be done with high quality workmanship, leaving finished surfaces free from runs and sags.

**CW-8.4 Measurement and Payment**

**CW-8.4.1 Perimeter Fence**

Measurement for payment for perimeter fence will be based on the number of linear meters of fence constructed and accepted or as indicated in the Bill of Quantities.

**CW-8.4.1 Vehicular/Pedestrian gate**

Measurement for payment for Vehicular/Pedestrian gate will be based on what is indicated in the Bill of Quantities.



## SECTION VI

# **TECHNICAL SPECIFICATIONS ELECTRICAL WORKS**

**TECHNICAL SPECIFICATION****EW - ELECTRICAL WORKS****TABLE OF CONTENTS**

| <b><u>CLAUSE NO.</u></b> | <b><u>TITLE</u></b>   | <b><u>PAGE NO.</u></b> |
|--------------------------|---|------------------------|
| <b>EW-1.0</b>            | <b>GENERAL.....</b>   | <b>1</b>               |
| <b>EW-2.0</b>            | <b>SCOPE OF WORK.....</b>                                   | <b>1</b>               |
| <b>EW-3.0</b>            | <b>STANDARD OF MATERIALS.....</b>                           | <b>1</b>               |
| <b>EW-4.0</b>            | <b>LIGHTING AND POWER SYSTEM.....</b>                       | <b>2</b>               |
| <b>EW-4.1</b>            | <b>Technical Requirements and Characteristics .....</b>     | <b>3</b>               |
| <b>EW-4.2</b>            | <b>Lighting and Power Panelboard .....</b>                  | <b>3</b>               |
| <b>EW-4.3</b>            | <b>Luminaires (Lighting Fixtures) and Accessories .....</b> | <b>3</b>               |
| <b>EW-4.4</b>            | <b>Conductors .....</b>                                     | <b>5</b>               |
| <b>EW-4.5</b>            | <b>Conduit .....</b>  | <b>5</b>               |
| <b>EW-4.6</b>            | <b>Junction / Utility and Pull Boxes .....</b>              | <b>6</b>               |
| <b>EW-5.0</b>            | <b>MEASUREMENT OF PAYMENT .....</b>                         | <b>7</b>               |

## **EW - ELECTRICAL WORKS**

### **EW-1.0 GENERAL**

This section covers the technical and associated requirements for the complete lighting and power system for the **Construction of Guard House and Perimeter Fence for Marinduque 69 kV Stockyard**.

All electrical equipment shall be installed in accordance with the relevant sections of this specification. The Supplier shall submit all related drawings and document deemed necessary, prior to the execution of the work, subject to the approval of NPC.

The works shall be performed and completed in a satisfactory manner in accordance with generally accepted modern engineering practice.

### **EW-2.0 SCOPE OF WORK**

The scope of works shall cover but not limited to the following:

1. Supply, Delivery, Installation, Testing and Commissioning of Lighting and Power System of Guard House.
2. Supply, Delivery, Installation, Testing and Commissioning of LED Perimeter/Flood Lighting System;
3. Supply, Delivery and Installation/Erection of Lamp Posts including its concrete foundation; and,
4. Supply, Laying and Test of Power Cables including ground conductors and other appurtenances required for the interfacing supplied LED lighting;

The following shall be included in the Supplier's scope of work:

1. The Supplier shall be responsible for visiting the delivery site and take particular reference to its accessibility, means of transportation and all other factors that should be considered in carrying out the contract; and,
2. Provide equipment, tools, instruments and consumables necessary during equipment testing for satisfactory completion of the work.

The scope of work shall also include all other works and services which are not indicated on the technical specifications but are necessary for the complete and reliable operation of the system.

### **EW-3.0 STANDARD OF MATERIALS**

All materials to be used in the work shall be new, of high quality, free from all defects and of proven acceptability for the purpose of intended. Unless otherwise specified, materials shall conform to the latest applicable standard issued by the following authorities:



SECTION VI – TECHNICAL SPECIFICATIONS

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|   |      |
|---|------|
| 1. American National Standards Institute            | ANSI |
| 2. Institute of Electrical and Electronic Engineers | IEEE |
| 3. American Society for Testing and Materials       | ASTM |
| 4. National Electrical Manufacturer's Association   | NEMA |
| 5. Underwriters Laboratory                          | UL   |
| 6. International Electro-Technical Commission       | IEC  |
| 7. International Standards Organization             | ISO  |
| 8. National Electrical Code                         | NEC  |
| 9. National Electrical Safety Code                  | NESC |
| 10. Philippine Electrical Code                      | PEC  |
| 11. Illuminating Engineering Society                | IES  |
| 12. Philippine National Standards                   | PNS  |

These codes and standards set forth the minimum requirements which may be exceeded by the Supplier, if, in the Contractor/ Supplier's judgment and with NPC's acceptance, superior or more economical designs or materials are available for successful and continuous operation of the Supplier's equipment as required by this specification.

The equipment furnished shall be in accordance with, but not limited to, the latest issues of the applicable Codes and Standards, including all addenda, in effect at time of purchase order unless otherwise stated in the specification.

**EW-4.0 LIGHTING AND POWER SYSTEM**

The lighting system covered by this specification shall include all indoor and outdoor lighting system of an electric generating plants and/or switchyard. Lighting system includes outlets (convenience and power), switches, associated conduits and cables, lighting fixtures (indoor, outdoor and emergency), fittings, distribution panelboards, lighting transformers, contactors, timers, etc.

The devices/materials furnished shall be in accordance with, but not limited to, the latest issues of the Applicable Codes and Standards, including all addenda, in effect at time of purchase order unless otherwise stated in this specification.

All materials and parts which are not specifically mentioned herein but are necessary for the proper installation, assembly and safe operation of the lighting system shall be identified by the Supplier and furnished by the Supplier at no cost to the NPC. Any cost involve are deemed to be included in the price for the Lighting System.

**EW-4.1 Technical Requirements and Characteristics**

Lighting fixtures shall be controlled and switched locally approximately as shown on the drawings.

Normal lighting/small power outlet and emergency lighting systems shall consist of:

- a. 240 VAC, 1-phase, 60Hz, normal station lighting system, including outlets (indoor and outdoor) and emergency lighting system;
- b. Automatic Stand-alone Emergency Lamp (12 VDC), dual lamp, portable type emergency station lighting system for warehouse, door entrances, guardhouse. This emergency lighting system must be switched on automatically in the event of a lighting failure.

The normal station lighting/small power and convenience outlet system, and the automatic stand-alone lamps power shall be supplied from the powerhouse 240 Volt AC lighting and power panelboard.

Replacement of fixture bulbs or tubes shall be possible without disconnecting any part of the power supply and risk of touching live parts of the installation.

**EW-4.2 Lighting and Power Panelboard**

The lighting and power panelboard shall be flush mounted rated at 240V, 60Hz, operating on a single-phase system.

Main circuit breaker shall be molded case type with instantaneous magnetic trip and thermal over-current trip coordinated with up-stream feeder circuit breaker.

Branch circuit breaker shall be quick-make, quick-break, thermal magnetic and trip indicating type with rating as required by connected load. Nameplate shall be black plastic with engraved white letter. The Supplier shall be responsible for the proper identification and labelling of all branch circuits.

**EW-4.3 Luminaires (Lighting Fixtures) and Accessories**

The Supplier shall submit for approval complete photometry data and type of lighting fixture to be installed together with the shop drawings.

All luminaires when installed shall be free of leaks, warps, dents and other irregularities.

The hangers and brackets of all kinds for safety and proper installation of lighting fixtures shall be furnished and installed by the Supplier at his own expense.

The housings shall be fabricated of steel sheet, corrosion resistant, good ventilation and easy installation.

Samples and catalogues of all luminaires to be supplied shall be submitted for NPC's review and approval prior to the order. No luminaire shall be installed without approval of NPC.

Luminaires shall be wired with approved fixture wire, 90°C insulation. Each fixture shall be wired to a single point with an adequate slack for proper connection. All luminaires shall be protected from damage during installation. Any broken luminaire, receptacles, stems and the like, shall be replaced with new parts, at no cost to NPC.

Types of luminaires to be supplied, installed and tested are as follows:

Lighting Luminaires

a. Compact LED Lighting Fixture

Compact LED Luminaires shall be rated 12W, 230V, 60 Hz operations, cool white, and frosted finish. Lamp holders shall be IP65 surface mounted type downlight, white powder coat housing, diamond design reflector, with E27 Base.

When used in damp and wet locations, it shall have an explosion and corrosion proof body and sealed.

b. Perimeter light

IP66 300 Watts LED Flood Light, Forged with High Quality Aluminum Alloy with Clear Tempered Glass and Built-In Cooling Fins. LED Perimeter/Flood Lights shall be constructed from high pressure die-cast aluminum alloy housing having high conductivity acting as heat sink. Units shall be provided with surge suppression protection. Fixture shall be installed on galvanized steel post with concrete base for new LED Street Lights on the areas as specified in the bid drawing.

Support for perimeter lighting luminaries shall consist of a pole and a bracket arm, giving a mounting height of approximately 6m. Pole and brackets shall be fabricated from galvanized steel or aluminum. Suitably enclosed terminals mounted 600mm above finished ground level shall be provided in each pole, for connection of the luminaires and looping of the power supply cable.

c. Emergency Lighting Fixture

The Supplier shall supply and install the automatic stand-alone emergency lamp of the self-contained battery unit as specified herein.

When the AC main supply is interrupted, the lamps shall be automatically switched ON with a time delay of 1 second to the battery-powered operation. Lamps shall be switched OFF when the batteries are discharged at the low-level voltage (below 7.5V). The charging system of both maximum-constant voltage and constant current shall be able to recharge the completely discharged batteries to their full capacity within 20 hours or less. The charging system shall cut-off automatically and instantaneously upon reaching fully charged state.

Batteries shall be of long life, maintenance free, sealed lead acid type. The batteries shall have sufficient capacity to operate the lamps at full luminous efficiency for up to 3 hours after failure of the main supply.

Rated input voltage of the automatic stand-alone emergency lamps shall be 240 VAC, 1-phase, 60 Hz. Rated Output of the batteries shall be 12 Volt DC.

#### **EW-4.4 Conductors**

Conductors shall be stranded annealed copper conductor suitable for continuous temperature of 90°C when used in wet or dry location and 75°C when exposed to oil or coolant. The minimum size of conductor to be used shall be 3.5mm<sup>2</sup>.

Insulation shall be suitable for wet and dry location, fungi resistant and ultra violet stable.

All conductors shall be moisture and heat resistant, flame retardant polyvinyl chloride insulation, chemical and abrasion resistant nylon sheath.

The conductor specification shall meet ASTM specification, PNS 35, UL standard 83 and requirements of PEC.

The Supplier shall submit catalogues and/or brochures showing details of insulation and ampacity ratings of all types of conductors to be supplied for approval of NPC.

##### **EW-4.4.1 Conductor Installation**

Conductors pulled through conduits shall be supported in an approved manner so as to avoid damage to the insulation. Grease or oily substances shall not be used to facilitate the passage of the conductor in conduits.

The pull shall be applied only by means of approved grips and the end portion, which has been marked or deformed by the grip, shall be cut-off by the Supplier.

All cable runs shall be continuous and all termination shall be at the terminal boards, equipment, etc. No splices are allowed in conduit or cable tray.

Prior to installation of conductors, conduits and cable trays shall be thoroughly cleaned to prevent damage to conductors during installation. After conductors have been installed, it shall be tested for continuity and insulation resistance and shall be tagged with respective conductor number.

#### **EW-4.5 Conduit**

All embedded and concealed in ceiling conduits, boxes and fitting required for the power and control conductors including all necessary hardware and accessories such as screws, bolts, concrete inserts, clamps, locknuts, couplings shall be furnished by the Supplier. The required quantities of various items of conduits and associated materials shall be furnished in accordance with the installation requirements.

During installation, due precaution shall be taken to protect the conduit and threads from mechanical injury. The ends of the conduit shall be sealed in an approved manner. Conduit runs shall be sealed by the use of caps and discs or plugs. The seals shall be maintained, except during inspection and tests, until the conductor is pulled in. Conduit shall be checked to be free from obstructions by pulling a wooden mandrel of appropriate size through the conduit.

Conduits running in floors and terminating at equipment mounted on concrete bases shall be brought up to the equipment within the concrete bases, wherever possible.

All joints between lengths of conduits and threaded connection to boxes, fittings and equipment enclosures shall be made watertight.

Conduits installed outdoors running underground shall be buried to a minimum of 0.6 m.

#### **Non-Metallic Conduits**

Non-metallic conduit shall be made of un-plasticized polyvinyl chloride (uPVC) smooth walled inside and outside, colored red-orange, schedule 40.

The uPVC conduits shall be non-corrosive and weatherproof, resistant to the attacks of acids and alkalis and must have a self-extinguishing property hence shall not support combustion. It shall resist corrosion, rust and scale.

### **EW-4.6 Junction / Utility and Pull Boxes**

#### **Junction / Utility Boxes**

All junction/utility boxes for concealed work shall be of hot dip galvanized steel or un-plasticized polyvinyl Chloride. All wall boxes on exposed work shall be of aluminum blasted cast iron.

Utility boxes shall be firmly anchored in place and where required provided with fixture supports. The Supplier shall provide special supports for recessed lighting fixtures, etc. Suitable expansion screws shall be used for securing boxes to solid masonry and approved type toggles for securing to hollow masonry units.

#### **Pull Boxes**

Pull boxes shall be installed at all necessary points, to prevent damage to the insulation or other damage that might result from pulling resistance or for other reasons related to improper installation. All pull boxes shall be made of galvanized sheet steel not less than 2mm or un-plasticized polyvinyl chloride. Where pull boxes are used in connection with exposed conduits, plain covers attached to the pull box with a suitable number of countersunk flathead machine screws may be used.

**EW-5.0 MEASUREMENT OF PAYMENT**

Measurement of payment for all electrical works shall be based on the bid price of each item as shown in the Bill of Quantities – Electrical Works, Section VII of the Tender Documents. The cost of each item shall cover all works required and described in the pertinent provisions of the specifications and bid drawings.

## **SECTION VII**

# **BILL OF QUANTITIES**

## SECTION VII

# **BILL OF QUANTITIES ARCHITECTURAL WORKS**



**BILL OF QUANTITIES**  
**CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINDUQUE 69 KV STOCKYARD**  
**ARCHITECTURAL WORKS**

| Item No.                                   | Description of Work or Materials   | Work to Be Done      | Reference                    | Unit  | Estimated Quantity | Unit Price in Pesos (Words and Figures) | Total Amount (In Figures) |
|--|--|----------------------|------------------------------|-------|--------------------|---|---------------------------|
| <b>AW-1.0 GUARD HOUSE AND COMFORT ROOM</b> |  |                      |                              |       |                    |   |                           |
| AW-1.1                                     | Roofing Sheets<br>2 mm thick metallic plastic roofings including fasteners, sealants, retouching paints hardware and accessories                 | furnish<br>& install | Refer to NPC<br>TS & Drawing | sq.m. | 37.00              | _____ (P _____)                         | _____ (P _____)           |
| AW-1.1                                     | Barge Cap Flashing<br>1.5 mm thick metallic plastic barge cap flashing including fasteners, sealants, retouching paints hardware and accessories | furnish<br>& install | Refer to NPC<br>TS & Drawing | l.m.  | 13.00              | _____ (P _____)                         | _____ (P _____)           |
| AW-1.2                                     | Gutter:<br>2 mm thick metallic plastic gutter including fasteners, sealants, retouching paint, hardware and accessories                          | furnish<br>& lay     | Refer to NPC<br>TS & Drawing | l.m.  | 5.50               | _____ (P _____)                         | _____ (P _____)           |
| AW-1.3                                     | Downspout<br>3" (75 mm) 0 uPVC pipe series 1000 downspout including joint fittings, solvent and fasteners  | furnish<br>& install | Refer to NPC<br>TS & Drawing | l.m.  | 7.00               | _____ (P _____)                         | _____ (P _____)           |
| AW-1.4                                     | Roof Drain<br>Removable PVC wire basket strainer   | furnish<br>& install | Refer to NPC<br>TS & Drawing | pcs   | 2.00               | _____ (P _____)                         | _____ (P _____)           |
| AW-1.5                                     | Fascia Board<br>1/2" x 12" x 12" Fiber cement board including steel frame hardware and accessories   | furnish<br>& install | Refer to NPC<br>TS & Drawing | l.m.  | 15.50              | _____ (P _____)                         | _____ (P _____)           |
| AW-1.6                                     | 100MM Thick CHB  | furnish<br>& lay     | Refer to NPC<br>TS & Drawing | sq.m. | 30.00              | _____ (P _____)                         | _____ (P _____)           |
| AW-1.7                                     | Plaster Plain Cement Finish  | furnish<br>& spread  | Refer to NPC<br>TS & Drawing | sq.m. | 45.00              | _____ (P _____)                         | _____ (P _____)           |

Name of Firm

NATIONAL POWER CORPORATION

Name and Signature of Authorized Representative



Designation

VII-BOQ(AW)-[1]

**BILL OF QUANTITIES**  
**CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINDUQUE 69 KV STOCKYARD**  
**ARCHITECTURAL WORKS**

| Item No.  | Description of Work or Materials   | Work to Be Done   | Reference                 | Unit | Estimated Quantity | Unit Price in Pesos (Words and Figures) | Total Amount (In Figures) |
|---|--|-------------------|---------------------------|------|--------------------|---|---------------------------|
| <b>AW-2 COMFORT ROOM</b>                        |  |                   |                           |      |                    |   |                           |
| AW-2.1  | Toilet accessories and plumbing including 1-PVC door (0.60m x 2.1m); 1pc aluminum frame awning 6 mm thick clear glass window (0.5m x 0.5m) | furnish & install | Refer to NPC TS & Drawing | lot  | 1.00               | _____(P_____)                           | _____(P_____)             |
| <b>SUB-TOTAL AMOUNT FOR ARCHITECTURAL WORKS</b> |  |                   |                           |      |                    | _____                                   |                           |

Name of Firm

NATIONAL POWER CORPORATION

Name and Signature of Authorized Representative



Designation

VII-BOQ(AW)-[2

**SECTION VII**

**BILL OF QUANTITIES**

**CIVIL WORKS**

**BILL OF QUANTITIES**  
**CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINDUQUE 69 KV STOCKYARD**  
**CIVIL WORKS**

| Item No.                                    | Description of Work or Materials                      | Work to Be Done                       | Unit  | Estimated Quantity | Unit Price in Pesos (Words and Figures) | Total Amount (In Figures) |
|---|---|---------------------------------------|-------|--------------------|---|---------------------------|
| <b>CW-1.0 GUARD HOUSE WITH COMFORT ROOM</b> |   |                                       |       |                    |   |                           |
| CW-1.1                                      | Structural Excavation                                 | excavate, stockpile & dispose         | cu.m. | 7.00               | _____ (P_____)                          | _____ (P_____)            |
| CW-1.2                                      | Structural Backfill                                   | place, level & compact                | cu.m. | 3.00               | _____ (P_____)                          | _____ (P_____)            |
| CW-1.3                                      | Sand and Gravel Bedding                               | furnish, spread, level & compact      | cu.m. | 1.00               | _____ (P_____)                          | _____ (P_____)            |
| CW-1.4                                      | Concrete (20.7 Mpa)                                   | furnish & place                       | cu.m. | 3.50               | _____ (P_____)                          | _____ (P_____)            |
| CW-1.5                                      | Reinforcing Steel Bar (Grade 275)                     | furnish, cut, bend schedule & install | kgs.  | 288.00             | _____ (P_____)                          | _____ (P_____)            |
| CW-1.6                                      | Structural Steel (A36 Steel including nuts and bolts) | furnish, fabricate & install          | kgs   | 108.00             | _____ (P_____)                          | _____ (P_____)            |
| <b>CW-2.0 DRAINAGE APPURTENANCES</b>        |   |                                       |       |                    |   |                           |
| CW-2.1                                      | Septic Tank   | furnish & construct                   | lot   | 1.00               | _____ (P_____)                          | _____ (P_____)            |
| <b>CW-3.0 PERIMETER FENCE AND LIGHTING</b>  |   |                                       |       |                    |   |                           |
| CW-3.1                                      | Chain Interlink Cyclone Wire with Razor Barbed Wire   | furnish, construct & install          | l.m.  | 266.0              | _____ (P_____)                          | _____ (P_____)            |
| CW-3.2                                      | Lighting Pole Pedestal (lighting post not included)   | furnish, construct & install          | pc    | 4.0                | _____ (P_____)                          | _____ (P_____)            |

Name of Firm

Name and Signature of Authorized Representative

Designation

**BILL OF QUANTITIES**  
**CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINDUQUE 69 KV STOCKYARD**  
**CIVIL WORKS**

| Item No. | Description of Work or Materials   | Work to Be Done                           | Unit | Estimated Quantity | Unit Price in Pesos (Words and Figures) | Total Amount (In Figures) |
|----------|--|---|------|--------------------|---|---------------------------|
| CW-4.0   | MAIN GATE AND PEDESTRIAN GATE<br>(including concrete post, locks and hinges) | furnish, replace,<br>construct, fabricate | lot  | 1.0                | (P _____)                               | (P _____)                 |

**SUB-TOTAL AMOUNT OF CIVIL WORKS**

\_\_\_\_\_

\_\_\_\_\_  
 Name of Firm

\_\_\_\_\_  
 Name and Signature of Authorized Representative

\_\_\_\_\_  
 Designation

## SECTION VII

# **BILL OF QUANTITIES ELECTRICAL WORKS**

## SECTION VII - BILL OF QUANTITIES

## ELECTRICAL WORKS

| Item No.  | Description of Work or Materials  | Work to Be Done           | Reference                 | Unit | Estimated Quantity | Unit Price in Pesos (Words and Figures) | Total Amount (In Figures) |
|---|---|---------------------------|---------------------------|------|--------------------|---|---------------------------|
| <b>EW-1.0 PANELBOARD AND BREAKERS</b>                                   |   |                           |                           |      |                    |   |                           |
|   | 125AF/100AT, 2-Pole Main MCCB with branch   | Furnish, Install and Test | Refer to NPC TS & Drawing | set  | 1                  | _____ (P_____)                          | _____ (P_____)            |
|   | 2 - 50AF/15AT, 2-Pole MCB   |                           |                           |      |                    |   |                           |
|   | 1 - 100AF/60AT, 2-Pole MCB with NEMA 3R Enclosure   |                           |                           |      |                    |   |                           |
| <b>EW-2.0 LIGHTING FIXTURES</b>   |   |                           |                           |      |                    |   |                           |
| a.  | Fixture Type A<br>IP65 1x12 Watts Cool White, Classic Globe Shape, Frosted Finish, E27 Base Compact Led Lamp                                  | Furnish, Install and Test | Refer to NPC TS & Drawing | sets | 2                  | _____ (P_____)                          | _____ (P_____)            |
| b.  | Fixture Type B<br>IP66 300 Watts LED Flood Light, Forged with High Quality Aluminum Alloy with Clear Tempered Glass and Built-In Cooling Fins | Furnish, Install and Test | Refer to NPC TS & Drawing | sets | 4                  | _____ (P_____)                          | _____ (P_____)            |
| c.  | Fixture Type C<br>Portable Emergency Lighting Fixture, 2 x 2 watts LED Warm White With Built-In Sealed Lead Acid Battery                      | Furnish, Install and Test | Refer to NPC TS & Drawing | set  | 1                  | _____ (P_____)                          | _____ (P_____)            |
| <b>EW-3.0 OUTLETS AND SWITCHES INCLUDING PLATE COVER, FLUSH-MOUNTED</b> |   |                           |                           |      |                    |   |                           |
| a.  | Weatherproof Duplex Convenience Outlet, 16A, 250V   | Furnish, Install and Test | Refer to NPC TS & Drawing | set  | 1                  | _____ (P_____)                          | _____ (P_____)            |
| b.  | Single Pole Wall Switch, 10 A, 250 V  | Furnish, Install and Test | Refer to NPC TS & Drawing | sets | 2                  | _____ (P_____)                          | _____ (P_____)            |
| c.  | Duplex Wall Switch, 10 A, 250 V   | Furnish, Install and Test | Refer to NPC TS & Drawing | set  | 1                  | _____ (P_____)                          | _____ (P_____)            |

Name of Firm

Name and Signature of Authorized Representative

Designation

## SECTION VII - BILL OF QUANTITIES

## ELECTRICAL WORKS

| Item No.   | Description of Work or Materials   | Work to Be Done       | Reference                 | Unit | Estimated Quantity | Unit Price in Pesos (Words and Figures) | Total Amount (In Figures) |
|--|--|-----------------------|---------------------------|------|--------------------|---|---------------------------|
|  | d. Boxes, Fittings and Accessories   | Furnish and Install   | Refer to NPC TS & Drawing | lot  | 1                  | _____(P_____) _____(P_____)             |                           |
| <b>EW-4.0 INSULATED COPPER CONDUCTORS INCLUDING TERMINAL LUGS, CONNECTORS, CABLE TIES, IDENTIFICATION TAGS, ETC.</b> |  |                       |                           |      |                    |   |                           |
| a.   | 30 mm <sup>2</sup> , 600 V, Moisture and Heat Resistant Thermoplastic, (THWN), Copper Conductor  | Furnish, Lay and Test | Refer to NPC TS & Drawing | lot  | 1                  | _____(P_____) _____(P_____)             |                           |
| b.   | 8.0 mm <sup>2</sup> , 600 V, Moisture and Heat Resistant Thermoplastic, (THWN), Copper Conductor | Furnish, Lay and Test | Refer to NPC TS & Drawing | lot  | 1                  | _____(P_____) _____(P_____)             |                           |
| c.   | 5.5 mm <sup>2</sup> , 600 V, Moisture and Heat Resistant Thermoplastic, (THWN), Copper Conductor | Furnish, Lay and Test | Refer to NPC TS & Drawing | lot  | 1                  | _____(P_____) _____(P_____)             |                           |
| d.   | 3.5 mm <sup>2</sup> , 600 V, Moisture and Heat Resistant Thermoplastic, (THWN), Copper Conductor | Furnish, Lay and Test | Refer to NPC TS & Drawing | lot  | 1                  | _____(P_____) _____(P_____)             |                           |
| <b>EW-5.0 EMBEDDED AND/OR NON-EMBEDDED CONDUITS INCLUDING BOXES, LOCKNUTS, ELBOWS, BOLTS AND OTHER FITTINGS</b>      |  |                       |                           |      |                    |   |                           |
| a.   | 32 mm dia. uPVC  | Furnish and Lay       | Refer to NPC TS & Drawing | lot  | 1                  | _____(P_____) _____(P_____)             |                           |
| b.   | 20 mm dia. uPVC  | Furnish and Lay       | Refer to NPC TS & Drawing | lot  | 1                  | _____(P_____) _____(P_____)             |                           |
| c.   | Service Entrance Cap for 32mmØ uPVC  | Furnish and Install   | Refer to NPC TS & Drawing | set  | 1                  | _____(P_____) _____(P_____)             |                           |

Name of Firm

Name and Signature of Authorized Representative

Designation



**ELECTRICAL WORKS**

| Item No. | Description of Work or Materials            | Work to Be Done     | Reference                 | Unit | Estimated Quantity | Unit Price in Pesos (Words and Figures) | Total Amount (In Figures) |
|----------|---|---------------------|---------------------------|------|--------------------|---|---------------------------|
| d.       | Boxes, Locknuts, Elbows, and other Fittings | Furnish and Install | Refer to NPC TS & Drawing | lot  | 1                  | _____(P_____)                           | _____(P_____)             |

**EW-8.0 GROUNDING MATERIALS**

|    |   |                     |                           |     |   |               |               |
|----|---|---------------------|---------------------------|-----|---|---------------|---------------|
| a. | Ground Rod, Copper Bonded, 16mmØ x 3000mm with Ground Clamp | Furnish and Install | Refer to NPC TS & Drawing | set | 1 | _____(P_____) | _____(P_____) |
| b. | 8.0 mm <sup>2</sup> , 600V, Bare Stranded Copper Conductor  | Furnish and Install | Refer to NPC TS & Drawing | lot | 1 | _____(P_____) | _____(P_____) |
| c. | Grounding Accessories such as Cable Lugs, etc.              | Furnish and Install | Refer to NPC TS & Drawing | lot | 1 | _____(P_____) | _____(P_____) |

**SUB-TOTAL AMOUNT FOR ELECTRICAL WORKS**

\_\_\_\_\_(P\_\_\_\_\_)      \_\_\_\_\_(P\_\_\_\_\_)

**TOTAL AMOUNT OF BID**

\_\_\_\_\_(P\_\_\_\_\_)      \_\_\_\_\_(P\_\_\_\_\_)

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Name and Signature of Authorized Representative

\_\_\_\_\_  
Designation

# **SECTION VIII**

# **BIDDING FORMS**



## SECTION VIII – BIDDING FORMS

### TABLE OF CONTENTS

|                |   |
|----------------|---|
| NPCSF-INFR-01  | - Checklist of Technical and Financial Envelope Requirements for Bidders  |
| NPCSF-INFR-02  | - List of all Ongoing Government & Private Construction Contracts Including Contracts Awarded but not yet Started |
| NPCSF-INFR-03  | - Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid            |
| NPCSF-INFR-04  | - Computation of Net Financial Contracting Capacity (NFCC)  |
| NPCSF-INFR-05  | - Joint Venture Agreement   |
| NPCSF-INFR-06a | - Form of Bid Security : Bank Guarantee   |
| NPCSF-INFR-06b | - Form of Bid Security : Surety Bond  |
| NPCSF-INFR-06c | - Bid Securing Declaration Form   |
| NPCSF-INFR-07a | - Omnibus Sworn Statement (Sole Proprietorship)   |
| NPCSF-INFR-07b | - Omnibus Sworn Statement (Partnership/Corporation/ Cooperative/Joint Venture)                                    |
| NPCSF-INFR-08  | - Contractor's Organizational Chart for the Project   |
| NPCSF-INFR-09  | - List of Key Personnel Proposed to be Assigned to the Project  |
| NPCSF-INFR-10a | - Key Personnel's Certificate of Employment (Professional Personnel)  |
| NPCSF-INFR-10b | - Key Personnel's Certificate of Employment (Construction Safety and Health Officer)                              |
| NPCSF-INFR-11  | - Key Personnel's Bio-Data  |
| NPCSF-INFR-12  | - List of Equipment, Owned or Leased and/or under Purchase Agreement, Pledged to the Proposed Project             |
| NPCSF-INFR-13  | - Bid Letter  |
| NPCSF-INFR-14  | - Detailed Cost Estimate Form   |
| NPCSF-INFR-15  | - Summary Sheets of Materials Prices, Labor Rates and Equipment Rental Rates                                      |

Standard Form No: NPCSF-INFR-01

**Checklist of Technical & Financial Envelope Requirements for Bidders****A. THE 1<sup>ST</sup> ENVELOPE (TECHNICAL COMPONENT) SHALL CONTAIN THE FOLLOWING:****1. ELIGIBILITY DOCUMENTS****a. (CLASS A)****➤ Any of the following:**

- PhilGEPS Certificate of Registration and Membership under Platinum Category in accordance with Section 8.5.2 of the IRR;

**OR:**

- The following updated and valid Class "A" eligibility documents enumerated under "Annex A" of the Platinum Membership:

- Registration Certificate from the Securities and Exchange Commission (SEC) for corporations, Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives;
- Mayor's/Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas.

In cases of recently expired Mayor's/Business permits, it shall be accepted together with the official receipt as proof that the bidder has applied for renewal within the period prescribed by the concerned local government unit, provided that the renewed permit shall be submitted as a post qualification requirement in accordance with Section 34.2 of the Revised IRR of RA 9184.

- The prospective bidder's audited financial statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission.
- Tax clearance per Executive Order 398, Series of 2005, as finally reviewed and approved by the BIR;
- Valid Philippine Contractors Accreditation Board (PCAB) license and registration for the type and cost of the contract for this Project or Special PCAB License in case of Joint Ventures.

**OR:**

- A combination thereof.

**➤ Statement of all its ongoing government and private contracts if any, whether similar or not similar in nature and complexity to the contract to be bid (NPCSF-INFR-02)****➤ The Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, and whose value, adjusted to current prices using the Philippine Statistics Authority (PSA) consumer price index, must be at least 50% of the ABC (NPCSF-INFR-03) complete with the following supporting documents:**

- Contract
- Owner's Certificate of Final Acceptance issued by the project owner other than the contractor or a final rating of at least Satisfactory in the Constructors Performance Evaluation System (CPES). In case of contracts with the private sector, an equivalent document (Ex. Official Receipt or Sales Invoice) shall be submitted

*This Checklist of Requirements shall be provided to prospective suppliers/contractors including all forms. Suppliers/contractors are encouraged to consult this checklist before submitting their proposals on the deadline for the submission and receipt of offers.*

Standard Form No: NPCSF-INFR-01  
Page 2 of 3

*(The Single Largest Completed Contract (SLCC) as declared by the bidder shall be verified and validated to ascertain such completed contract. Hence, bidders must ensure access to sites of such projects/equipment to NPC representatives for verification and validation purposes during post-qualification process.*

*It shall be a ground for disqualification, if verification and validation cannot be conducted due to inaccessibility of the site for whatever reason or fault of the bidder.)*

- Special PCAB License in case of Joint Ventures
- Duly signed computation of its Net Financial Contracting Capacity (NFCC) at least equal to the ABC (NPCSF-INFR-04);

**b. (CLASS B)**

- Valid Joint Venture Agreement, if applicable (NPCSF-INFR-05)

**2. Technical Documents**

- Bid Security, any one of the following:
  - Bid Securing Declaration (NPCSF-INFR-06c)  
OR
  - Cash or Cashier's/Manager's check issued by a Universal or Commercial Bank – 2% of ABC;  
OR
  - Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: (NPCSF-INFR-06a) - 2% of ABC;  
OR
  - Surety Bond callable upon demand issued by a reputable surety or insurance company (NPCSF-INFR-06b) - 5% of ABC, with
    - Certification from the Insurance Commission as authorized company to issue surety
- Omnibus Sworn statement using any of the following form:
  - NPCSF-INFR-07a - for Sole Proprietorship;  
OR
  - NPCSF-INFR-07b - for Partnership/Corporation/Cooperative/Joint Venture with the following supporting documents:
    - In the case of corporations, board/partnership resolution or secretary's certificate, granting full powers to the authorized signatory;
    - For Joint-Venture, a resolution, duly signed by all the joint-venture partners granting full powers to the authorized signatory
- Organization Chart for the project (NPCSF-INFR-08)
- Duly Signed List of Contractor's Key Personnel (based on the minimum key personnel) with complete supporting documents (NPCSF-INFR-09, 10a, 10b & 11)
- Duly Signed List of Contractor's Equipment (owned, leased or under purchase agreement (NPCSF-INFR-12), with
  - Proof of ownership and/or certificate of availability issued by Equipment Lessors

*This Checklist of Requirements shall be provided to prospective suppliers/contractors including all forms. Suppliers/contractors are encouraged to consult this checklist before submitting their proposals on the deadline for the submission and receipt of offers.*

Standard Form No: NPCSF-INFR-01  
Page 3 of 3

- Complete eligibility documents of proposed sub-contractor, if applicable

**B. THE 2<sup>ND</sup> ENVELOPE (FINANCIAL COMPONENT) SHALL CONTAIN THE FOLLOWING:**

- Duly signed Bid Letter indicating the total bid amount in accordance with the prescribed form (NPCSF-INFR-13)
- Duly signed and completely filled-out Bill of Quantities (Section VII) indicating the unit and total prices per item and the total amount in the prescribed Bill of Quantities form.
- Duly Signed Detailed Estimates for each items of work showing the computations in arriving at each item's unit prices used in coming up with the bid (NPCSF-INFR-14)
- Summary sheets indicating the direct unit prices of construction materials, labor rates and equipment rental rates used in coming up with the bid (NPCSF-INFR-15)

**CONDITIONS:**

1. *Each Bidder shall submit one copy of the first and second components of its Bid. NPC 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.*
2. *A Bidder not submitting bid for reason that his cost estimate is higher than the ABC, is required to submit his letter of non-participation/regret supported by corresponding detailed estimates. Failure to submit the two (2) documents shall be understood as acts that tend to defeat the purpose of public bidding without valid reason as stated under Section 69.1.(i) of the revised IRR of R.A. 9184.*

Standard Form Number: NPCSF-INFR-02

**List of All Ongoing Government and Private Contracts Including Contract Awarded But Not Yet Started**

Business Name : \_\_\_\_\_  
 Business Address : \_\_\_\_\_

| Name of Contract/Location/<br>Project Cost | a. Owner's Name<br>b. Address<br>c. Telephone Nos. | Nature of Work | Contractor's Role |   | a. Date Awarded<br>b. Date Started<br>c. Date of Completion or<br>Estimated Completion Time | Value of<br>Outstanding<br>Works |
|--|--|----------------|-------------------|---|---|----------------------------------|
|  |  |                | Description       | % |   |                                  |
| <u>Government</u>                          |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
| <u>Private</u>                             |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
|  |  |                |                   |   |   |                                  |
|  |  |                |                   |   | Total Cost  |                                  |

The bidder shall declare in this form all his on-going government and private contracts including contracts where the bidder (either as individual or as a Joint Venture) is a partner in a Joint Venture agreement other than his current joint venture where he is a partner. Non declaration will be a ground for disqualification of bid.

Note : This statement shall be supported with the following documents for all the contract(s) stated above which shall be submitted during Post-qualification:

1. Contract/Purchase Order and/or Notice of Award
2. Certification coming from the project owner/client that the performance is satisfactory as of the bidding date.

Submitted by : \_\_\_\_\_  
 (Printed Name & Signature)  
 Designation : \_\_\_\_\_  
 Date : \_\_\_\_\_

Standard Form Number: NPCSF-INFR-03

**The Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid**

Business Name : \_\_\_\_\_  
 Business Address : \_\_\_\_\_

| Name of Contract | a. Owner's Name<br>b. Address<br>c. Telephone Nos. | Nature of Work | Contractor's Role |   | a. Amount at Award<br>b. Amount at Completion<br>c. Duration | a. Date Awarded<br>b. Contract Effectivity<br>c. Date Completed |
|------------------|--|----------------|-------------------|---|--|---|
|                  |  |                | Description       | % |  |   |
|                  |  |                |                   |   |  |   |

- Notes: 1. The bidder must state only one (1) Single Largest Completed Contract (SLCC) similar to the contract to be bid.  
 2. Supporting documents such as Contract/Purchase Order and any of the following: Owner's Certificate of Final Acceptance issued by the project owner other than the contractor; or A final rating of at least Satisfactory in the Constructors Performance Evaluation System (CPES); or Official Receipt (O.R); or Sales Invoice for the contract stated above shall be submitted during Bid Opening.

Submitted by \_\_\_\_\_  
 (Printed Name & Signature)  
 Designation : \_\_\_\_\_  
 Date : \_\_\_\_\_



Standard Form Number: NPCSF-INFR-04

**NET FINANCIAL CONTRACTING CAPACITY (NFCC)**

- A. Summary of the Bidder's/Contractor's assets and liabilities on the basis of the income tax return and audited financial statement for the immediately preceding calendar year are:

|    |                           | Year 20__ |
|----|---------------------------|-----------|
| 1. | Total Assets              |           |
| 2. | Current Assets            |           |
| 3. | Total Liabilities         |           |
| 4. | Current Liabilities       |           |
| 5. | Net Worth (1-3)           |           |
| 6. | Net Working Capital (2-4) |           |

- B. The Net Financial Contracting Capacity (NFCC) based on the above data is computed as follows:

NFCC = [(Current assets minus current liabilities) x 15] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started coinciding with the contract for this Project.

NFCC = P \_\_\_\_\_

Herewith attached is certified true copy of the audited financial statement, stamped "RECEIVED" by the BIR or BIR authorized collecting agent for the immediately preceding calendar year.

Submitted by:

\_\_\_\_\_  
Name of Bidder/Contractor

\_\_\_\_\_  
Signature of Authorized Representative

Date : \_\_\_\_\_

Standard Form Number: NPCSF-INFR-05

**JOINT VENTURE AGREEMENT****KNOW ALL MEN BY THESE PRESENTS:**

That this JOINT VENTURE AGREEMENT is entered into by and between:  
\_\_\_\_\_, of legal age, *(civil status)* \_\_\_\_\_, authorized representative of  
\_\_\_\_\_ and a resident of \_\_\_\_\_.

- and -

\_\_\_\_\_, of legal age, *(civil status)* \_\_\_\_\_, authorized representative of  
\_\_\_\_\_ a resident of \_\_\_\_\_.

That both parties agree to join together their capital, manpower, equipment, and other resources and efforts to enable the Joint Venture to participate in the Bidding and Undertaking of the hereunder stated Contract of the **National Power Corporation**.

**NAME OF PROJECT****CONTRACT AMOUNT**

\_\_\_\_\_

That the capital contribution of each member firm:

| NAME OF FIRM | CAPITAL CONTRIBUTION |
|--------------|----------------------|
| 1.           | P                    |
| 2.           | P                    |

That both parties agree to be jointly and severally liable for their participation in the Bidding and Undertaking of the said contract.

That both parties agree that \_\_\_\_\_ and/or \_\_\_\_\_ shall be the Official Representative/s of the Joint Venture, and are granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the Joint Venture in the Bidding and Undertaking of the said contract, as fully and effectively and the Joint Venture may do and if personally present with full power of substitution and revocation.

That this Joint Venture Agreement shall remain in effect only for the above stated Contract until terminated by both parties.

\_\_\_\_\_  
*Name & Signature of Authorized Representative*

\_\_\_\_\_  
*Official Designation*

\_\_\_\_\_  
*Name of Firm*

\_\_\_\_\_  
*Name & Signature of Authorized Representative*

\_\_\_\_\_  
*Official Designation*

\_\_\_\_\_  
*Name of Firm*

**Witnesses**

1. \_\_\_\_\_ 2. \_\_\_\_\_

Standard Form Number: NPCSF-INFR-05

Page 2 of 2

**ACKNOWLEDGMENT**

BEFORE ME, a Notary Public for and in \_\_\_\_\_, Philippines, this \_\_\_\_ day of \_\_\_\_\_, 200\_\_, personally appeared \_\_\_\_\_, authorized representative, of \_\_\_\_\_ with Community Tax Certificate No. \_\_\_\_\_, issued at \_\_\_\_\_, on \_\_\_\_\_, AND \_\_\_\_\_ authorized representative, of \_\_\_\_\_ with Community Tax Certificate No. \_\_\_\_\_, issued at \_\_\_\_\_, on \_\_\_\_\_ known to me to be the same person who executed the foregoing instrument consisting of two (2) pages, including the page whereon the acknowledgements are written, all pages signed by both parties and their instrumental witnesses and they acknowledged before me that the same are their free and voluntary acts and deeds and that of the Corporations they represents.

WITNESS MY HAND AND NOTARIAL SEAL, at the place and on the date first above written.

Notary Public  
Until 31 December 20\_\_\_\_\_  
PTR No. \_\_\_\_\_  
Issued at: \_\_\_\_\_  
Issued on: \_\_\_\_\_  
TIN No. \_\_\_\_\_

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of \_\_\_\_\_

Standard Form Number: NPCSF-INFR-06a

**FORM OF BID SECURITY (BANK GUARANTEE)**

WHEREAS, (Name of Bidder) (hereinafter called "the Bidder") has submitted his bid dated (Date) for the [name of project] (hereinafter called "the Bid").

KNOW ALL MEN by these presents that We (Name of Bank) of (Name of Country) having our registered office at \_\_\_\_\_ (hereinafter called "the Bank" are bound unto National Power Corporation (hereinafter called "the Entity") in the sum of [amount in words & figures as prescribed in the bidding documents] for which payment well and truly to be made to the said Entity the Bank binds himself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.

THE CONDITIONS of this obligation are that:

- 1) if the Bidder withdraws his Bid during the period of bid validity specified in the Bidding Documents; or
- 2) if the Bidder does not accept the correction of arithmetical errors of his bid price in accordance with the Instructions to Bidder; or
- 3) if the Bidder, having determined as the LCB, fails or refuses to submit the required tax clearance, latest income and business tax returns and PhilGEPs registration certificate within the prescribed period; or
- 4) if the Bidder having been notified of the acceptance of his bid and award of contract to him by the Entity during the period of bid validity:
  - a) fails or refuses to execute the Contract; or
  - b) fails or refuses to submit the required valid JVA, if applicable; or
  - c) fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders;

we undertake to pay to the Entity up to the above amount upon receipt of his first written demand, without the Entity having to substantiate its demand, provided that in his demand the Entity will note that the amount claimed by it is due to the occurrence of any one or combination of the four (4) conditions stated above.

The Guarantee will remain in force up to 120 days after the opening of bids or as it may be extended by the Entity, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE \_\_\_\_\_ SIGNATURE OF THE BANK \_\_\_\_\_

WITNESS \_\_\_\_\_ SEAL \_\_\_\_\_

\_\_\_\_\_  
(Signature, Name and Address)

Standard Form Number: NPCSF-INFR-06b

**FORM OF BID SECURITY (SURETY BOND)**

BOND NO.: \_\_\_\_\_ DATE BOND EXECUTED: \_\_\_\_\_

By this bond, We (Name of Bidder) (hereinafter called "the Principal") and (Name of Surety) of (Name of Country of Surety), authorized to transact business in the Philippines (hereinafter called "the Surety") are held and firmly bound unto National Power Corporation (hereinafter called "the Employer") as Obligee, in the sum of (amount in words & figures as prescribed in the bidding documents), callable on demand, for the payment of which sum, well and truly to be made, we, the said Principal and Surety bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

SEALED with our seals and dated this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_

WHEREAS, the Principal has submitted a written Bid to the Employer dated the \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_, for the \_\_\_\_\_ (hereinafter called "the Bid").

NOW, THEREFORE, the conditions of this obligation are:

- 1) if the Bidder withdraws his Bid during the period of bid validity specified in the Bidding Documents; or
- 2) if the Bidder does not accept the correction of arithmetical errors of his bid price in accordance with the Instructions to Bidder; or
- 3) if the Bidder, having determined as the LCB, fails or refuses to submit the required tax clearance, latest income and business tax returns and PhilGEPs registration certificate within the prescribed period; or
- 4) if the Bidder having been notified of the acceptance of his bid and award of contract to him by the Entity during the period of bid validity:
  - d) fails or refuses to execute the Contract; or
  - e) fails or refuses to submit the required valid JVA, if applicable; or
  - f) fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders;

then this obligation shall remain in full force and effect, otherwise it shall be null and void.

PROVIDED HOWEVER, that the Surety shall not be:

- a) liable for a greater sum than the specified penalty of this bond, nor
- b) liable for a greater sum than the difference between the amount of the said Principal's Bid and the amount of the Bid that is accepted by the Employer.

*Standard Form Number: NPCSF-INFR-06b**Page 2 of 2*

This Surety executing this instrument hereby agrees that its obligation shall be valid for 120 calendar days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Surety is hereby waived.

PRINCIPAL \_\_\_\_\_

SURETY \_\_\_\_\_

SIGNATURE(S) \_\_\_\_\_

SIGNATURES(S) \_\_\_\_\_

NAME(S) AND TITLE(S) \_\_\_\_\_

NAME(S) \_\_\_\_\_

SEAL \_\_\_\_\_

SEAL \_\_\_\_\_

Standard Form No: NPCSF-INFR-06c

REPUBLIC OF THE PHILIPPINES )  
CITY OF \_\_\_\_\_ ) S.S.

**BID-SECURING DECLARATION**  
**CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINDUQUE 69**  
**KV STOCKYARD**  
**LuzP21Z1318Sc**

**TO: National Power Corporation**  
BIR Road cor. Quezon Ave.  
Diliman, Quezon City

*I/We*<sup>1</sup>, the undersigned, declare that:

1. *I/We* understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid-Securing Declaration.
2. *I/We* accept that: (a) *I/we* will be automatically disqualified from bidding for any contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) *I/we* will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the Procuring Entity for the commission of acts resulting to the enforcement of the Bid Securing Declaration under Sections 23.1 (b), 34.2, 40.1 and 69.1, except 69.1 (f) of the IRR of R.A. 9184; without prejudice to other legal action the government may undertake.
3. *I/We* understand that this Bid-Securing Declaration shall cease to be valid on the following circumstances:
  - (a) Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
  - (b) *I am/we are* declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) *I/we* failed to timely file a request for reconsideration or (ii) *I/we* filed a waiver to avail of said right;
  - (c) *I am/we are* declared as the bidder with the Lowest Calculated and Responsive Bid, and *I/we* have furnished the performance security and signed the Contract.

---

<sup>1</sup> Select one and delete the other. Adopt same instruction for similar terms throughout the document.

Standard Form Number: NPCSF-INFR-06c

Page 2 of 2

IN WITNESS WHEREOF, I/we have hereunto set my hand this \_\_\_\_ day of \_\_\_\_  
20\_\_\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
[Name and Signature of Bidder's Representative/  
Authorized Signatory]  
[Signatory's legal capacity]  
Affiant

**SUBSCRIBED AND SWORN** to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ at \_\_\_\_\_, Philippines. Affiant/s is/are personally known to me and was/were identified by me through competent evidence of identity as defined in the 2004 Rules on Notarial Practice (A.M. No. 02-8-13-SC). Affiant exhibited to me his/her [insert type of government identification card used], with his/her photograph and signature appearing thereon, with no. \_\_\_\_\_ and his/her Community Tax Certificate No. \_\_\_\_\_ issued on \_\_\_\_\_ at \_\_\_\_\_.

Witness my hand and seal this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**NAME OF NOTARY PUBLIC**

Serial No. of Commission \_\_\_\_\_  
Notary Public for \_\_\_\_\_ until \_\_\_\_\_  
Roll of Attorneys No. \_\_\_\_\_  
PTR No. \_\_\_, [date issued], [place issued]  
IBP No. \_\_\_, [date issued], [place issued]

Doc. No. \_\_\_\_  
Page No. \_\_\_\_  
Book No. \_\_\_\_  
Series of \_\_\_\_.



Standard Form No: NPCSF-INFR-07b

### OMNIBUS SWORN STATEMENT (PARTNERSHIP/CORP/COOP/JV)

REPUBLIC OF THE PHILIPPINES     )  
CITY/MUNICIPALITY OF \_\_\_\_\_ ) S.S.

### AFFIDAVIT

I, [Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with law, do hereby depose and state that:

1. I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];
2. I am granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the [Name of Bidder] in the bidding as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Special Power of Attorney, Board/Partnership Resolution, or Secretary's Certificate, whichever is applicable)];
3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;
4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;
6. None of the officers, directors, and controlling stockholders of [Name of Bidder] is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;
7. [Name of Bidder] complies with existing labor laws and standards and with the eligibility requirements under **ITB Clause 5** of the bidding documents;
8. [Name of Bidder] will accept corrections made to our bid to consider computational errors, omissions and other bid modifications, which shall be calculated in monetary terms to determine the calculated prices;
9. [Name of Bidder] is free and clear of all tax liabilities to the government;
10. [Name of Bidder] is aware of and has undertaken the following responsibilities as a Bidder:
  - a) Carefully examined and accepted all of the Terms and Conditions of the Bidding Documents;

*This omnibus statement is a requirement in the Technical Envelope. The following additional requirements shall also be submitted: In the case of corporation/partnership/JV, duly notarized Special Power of Attorney, Board/Partnership Resolution, or Secretary's Certificate, whichever is applicable.*

Standard Form Number: NPCSF-INFR-07b

Page 2 of 2

- b) Conducted site inspection and acknowledged all conditions, local or otherwise, affecting the implementation of the Contract;
- c) Made an estimate of the facilities available and needed for the contract to be bid, if any;
- d) Inquired or secured Supplemental/Bid Bulletin(s) issued for the [Name of the Project]\_\_\_\_; and
11. [Name of Bidder]\_\_\_\_\_ did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
12. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_ day of \_\_\_\_, 20\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
Name and Signature of  
Bidder's Representative/Authorized Signatory

**ACKNOWLEDGMENT**

REPUBLIC OF THE PHILIPPINES )  
QUEZON CITY )SS.

BEFORE ME, a Notary Public for and in Quezon City, Philippines, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared:

NAMECTC NO.ISSUED AT/ON

known to me and known to be the same person who executed the foregoing instrument consisting of \_\_\_\_\_ ( ) pages, including the page whereon the acknowledgments is written and acknowledged before me that the same is his free and voluntary act and deed and that of the Corporation he represents.

WITNESS MY HAND AND NOTARIAL SEAL, at the place and on the date first above written.

Notary Public  
Until 31 December 20\_\_\_\_  
PTR No. \_\_\_\_\_  
Issued at: \_\_\_\_\_  
Issued on: \_\_\_\_\_  
TIN No. \_\_\_\_\_

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of \_\_\_\_\_.

*This omnibus statement is a requirement in the Technical Envelope. The following additional requirements shall also be submitted: In the case of corporation/partnership/JV, duly notarized Special Power of Attorney, Board/Partnership Resolution, or Secretary's Certificate, whichever is applicable.*

Standard Form No: NPCSF-INFR-07a

**OMNIBUS SWORN STATEMENT  
(SOLE PROPRIETORSHIP)**REPUBLIC OF THE PHILIPPINES )  
CITY/MUNICIPALITY OF \_\_\_\_\_ ) S.S.**AFFIDAVIT**

I, [Name of Affiant]\_\_\_\_\_, of legal age, [Civil Status\_\_\_\_], [Nationality]\_\_\_\_\_, and residing at [Address of Affiant]\_\_\_\_\_, after having been duly sworn in accordance with law, do hereby depose and state that:

1. I am the sole proprietor of [Name of Bidder]\_\_\_\_\_ with office address at [address of Bidder]\_\_\_\_\_;
2. As the owner and sole proprietor of [Name of Bidder]\_\_\_\_\_, I have full power and authority to do, execute and perform any and all acts necessary to represent it in the bidding for \_\_\_\_\_ [name of project]\_\_\_\_\_ of the **National Power Corporation**.
3. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
4. [Name of Bidder]\_\_\_\_\_ is authorizing the President of NPC or its duly authorized representative(s) to verify all the documents submitted;
5. I am not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;
6. [Name of Bidder]\_\_\_\_\_ is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;
7. [Name of Bidder]\_\_\_\_\_ complies with existing labor laws and standards and with the eligibility requirements under ITB Clause 5 of the bidding documents;
8. [Name of Bidder]\_\_\_\_\_ will accept corrections made to our bid to consider computational errors, omissions and other bid modifications, which shall be calculated in monetary terms to determine the calculated prices;
9. [Name of Bidder]\_\_\_\_\_ is free and clear of all tax liabilities to the government;
10. [Name of Bidder]\_\_\_\_\_ is aware of and has undertaken the following responsibilities as a Bidder:
  - a) Carefully examined and accepted all of the Terms and Conditions of the Bidding Documents;
  - b) Conducted site inspection and acknowledged all conditions, local or otherwise, affecting the implementation of the Contract;

*This omnibus statement is a requirement in the Technical Envelope. The following additional requirements shall also be submitted: In the case of corporation/partnership/JV, duly notarized Special Power of Attorney, Board/Partnership Resolution, or Secretary's Certificate, whichever is applicable.*

Standard Form Number: NPCSF-INFR-07a

Page 2 of 2

- c) Made an estimate of the facilities available and needed for the contract to be bid, if any;
- a) Inquired or secured Supplemental/Bid Bulletin(s) issued for the [Name of the Project]\_\_\_\_; and
11. [Name of Bidder]\_\_\_\_\_ did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
12. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_ day of \_\_\_\_, 20\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
Name and Signature of  
Bidder's Representative/Authorized Signatory

**ACKNOWLEDGMENT**

REPUBLIC OF THE PHILIPPINES )  
QUEZON CITY )SS.

BEFORE ME, a Notary Public for and in Quezon City, Philippines, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared:

| <u>NAME</u> | <u>CTC NO.</u> | <u>ISSUED AT/ON</u> |
|-------------|----------------|---------------------|
| _____       | _____          | _____               |

known to me and known to be the same person who executed the foregoing instrument consisting of \_\_\_\_\_ ( ) pages, including the page whereon the acknowledgments is written and acknowledged before me that the same is his free and voluntary act and deed and that of the Corporation he represents.

WITNESS MY HAND AND NOTARIAL SEAL, at the place and on the date first above written.

Notary Public  
Until 31 December 20\_\_\_\_  
PTR No. \_\_\_\_\_  
Issued at: \_\_\_\_\_  
Issued on: \_\_\_\_\_  
TIN No. \_\_\_\_\_

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of \_\_\_\_\_

*This omnibus statement is a requirement in the Technical Envelope. The following additional requirements shall also be submitted: In the case of corporation/partnership/JV, duly notarized Special Power of Attorney, Board/Partnership Resolution, or Secretary's Certificate, whichever is applicable.*

Standard Form Number: NPCSF-INFR-08

## CONTRACTOR'S ORGANIZATIONAL CHART FOR THE CONTRACT

Submit Copy of the Organizational Chart that the Contractor intends to use to execute the Contract if awarded to him. Indicate in the chart the names of the Project Manager, Project Engineer, Foreman and other Key Engineering Personnel.

Attach the required Proposed Organizational Chart for the Contract as stated above

### NOTES:

1. *This organization chart should represent the "Contractor's Organization" required for the Project, and not the organizational chart of the entire firm.*
2. *Each such nominated engineer/key personnel shall comply with and submit duly accomplished forms NPCSF-INFR-10a, NPCSF-INFR-10b and NPCSF-INFR-11.*
3. *All these are required to be in the Technical Envelope of the Bidder.*

Standard Form Number: NPCSF-INFR-09

**LIST OF KEY PERSONNEL PROPOSED TO BE ASSIGNED TO THE CONTRACT**  
*(Based on the Minimum Key Personnel Required in the Bidding Documents)*

Business Name: \_\_\_\_\_

Business: \_\_\_\_\_

|                       | DESIGNATION |  |  |  |  |
|-----------------------|-------------|--|--|--|--|
|                       |             |  |  |  |  |
| 1 Name                |             |  |  |  |  |
| 2 Address             |             |  |  |  |  |
| 3 Date of Birth       |             |  |  |  |  |
| 4 Employed Since      |             |  |  |  |  |
| 5 Experience          |             |  |  |  |  |
| 6 Previous Employment |             |  |  |  |  |
| 7 Education           |             |  |  |  |  |
| 8 PRC License         |             |  |  |  |  |

**Required Attachments:**

1. Certificate of Employment, Bio Data and Construction Safety and Health Training Certificate of the Safety Officer
2. Certificate of Employment, Bio Data and valid PRC License of the (professional) personnel
3. Certificate of Employment, Bio Data and accreditation from DPWH as Materials Engineer for the Materials Engineer

Submitted by: \_\_\_\_\_

(Printed Name &amp; Signature)

Designation: \_\_\_\_\_

Date: \_\_\_\_\_

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (based on the minimum key personnel required in the bidding documents) to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract).*

Standard Form Number: NPCSF-INFR-10a

**KEY PERSONNEL'S CERTIFICATE OF EMPLOYMENT**  
**(PROFESSIONAL PERSONNEL)**

**Issuance Date**

## THE PRESIDENT

**National Power Corporation**  
BIR Road cor. Quezon Ave.  
Diliman, Quezon City

**Dear Sir:**

I am (Name of Nominee) a Licensed                      Engineer with Professional License No.                      issued on (date of Issuance) at (place of issuance).

I hereby certify that (Name of Bidder) has engaged my services as  
(Designation) for the (Name of Project), if awarded to it.

As (Designation) \_\_\_\_\_, I supervised the following completed projects similar to the contract under bidding:

| NAME OF PROJECT | OWNER | COST | DATE COMPLETED |
|-----------------|-------|------|----------------|
|                 |       |      |                |
|                 |       |      |                |
|                 |       |      |                |
|                 |       |      |                |

**At present, I am supervising the following projects:**

| NAME OF PROJECT | OWNER | COST | DATE COMPLETED |
|-----------------|-------|------|----------------|
|                 |       |      |                |
|                 |       |      |                |
|                 |       |      |                |
|                 |       |      |                |

In case of my separation for any reason whatsoever from the above-mentioned Contractor, I shall notify the National Power Corporation at least twenty one (21) days before the effective date of my separation.

As (Designation) \_\_\_\_\_, I know I will have to stay in the job site all the time to supervise and manage the Contract works to the best of my ability, and aware that I am authorized to handle only one (1) contract at a time.

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz. Project Manager, Project Engineer, Construction Safety Officer, Foremen, etc), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract).*

Standard Form Number: NPCSF-INFR-10a  
Page 2 of 2

I do not allow the use of my name for the purpose of enabling the above-mentioned Contractor to qualify for the Contract without any firm commitment on my part to assume the post of (Designation) therefor, if the contract is awarded to him since I understand that to do so will be a sufficient ground for my disqualification as (Designation) in any future National Power Corporation bidding or employment with any Contractor doing business with the National Power Corporation.

\_\_\_\_\_  
(Name and Signature)  
AFFIANT

REPUBLIC OF THE PHILIPPINES     )  
CITY OF \_\_\_\_\_     ) S.S.

SUBSCRIBED AND SWORN TO before me this \_\_\_\_\_, day of \_\_\_\_\_ 200\_\_\_\_,  
affiant exhibiting to me his/her Community Tax Certificate No. \_\_\_\_\_ issued on  
\_\_\_\_\_ at \_\_\_\_\_, Philippines.

Notary Public  
Until 31 December 20\_\_\_\_  
PTR No. \_\_\_\_\_  
Issued at: \_\_\_\_\_  
Issued on: \_\_\_\_\_  
TIN No. \_\_\_\_\_

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of \_\_\_\_\_.

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz. Project Manager, Project Engineer, Construction Safety Officer, Foremen, etc), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract).*



**Standard Form Number: NPCSF-INFR-10b**

**KEY PERSONNEL'S CERTIFICATE OF EMPLOYMENT  
(CONSTRUCTION SAFETY AND HEALTH OFFICER)**

**Issuance Date**

## THE PRESIDENT

**National Power Corporation**  
BIR Road cor. Quezon Ave.  
Diliman, Quezon City

**Dear Sir:**

I am (Name of Nominee) an Construction Safety & Health Officer with  
Certificate No.                      issued on (date of Issuance) at (place of  
issuance) .

I hereby certify that (Name of Bidder) has engaged my services as Construction Safety & Health Officer for the (Name of Project), if awarded to it.

I am the Construction Safety & Health Officer of the following completed projects similar to the contract under bidding:

| NAME OF PROJECT | OWNER | COST | DATE COMPLETED |
|-----------------|-------|------|----------------|
|                 |       |      |                |
|                 |       |      |                |
|                 |       |      |                |

At present, I am the Construction Safety & Health Officer of the following projects:

| NAME OF PROJECT | OWNER | COST | DATE COMPLETED |
|-----------------|-------|------|----------------|
|                 |       |      |                |
|                 |       |      |                |
|                 |       |      |                |
|                 |       |      |                |

In case of my separation for any reason whatsoever from the above-mentioned Contractor, I shall notify the National Power Corporation at least twenty one (21) days before the effective date of my separation.

As Construction Safety & Health Officer, I know I will have to stay in the job site all the time and aware that I am authorized to handle only one (1) contract at a time.

One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz. Project Manager, Project Engineer, Construction Safety Officer, Foremen, etc), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract).

Standard Form Number: NPCSF-INFR-10b  
Page 2 of 2

I do not allow the use of my name for the purpose of enabling the above-mentioned Contractor to qualify for the Contract without any firm commitment on my part to assume the post of Construction Safety & Health Officer, if the contract is awarded to him since I understand that to do so will be a sufficient ground for my disqualification as Construction Safety & Health Officer in any future National Power Corporation bidding or employment with any Contractor doing business with the National Power Corporation.

\_\_\_\_\_  
(Name and Signature)  
AFFIANT

REPUBLIC OF THE PHILIPPINES     )  
CITY OF \_\_\_\_\_     ) S.S.

SUBSCRIBED AND SWORN TO before me this \_\_\_\_\_, day of \_\_\_\_\_ 200\_\_\_\_,  
affiant exhibiting to me his/her Community Tax Certificate No. \_\_\_\_\_ issued on  
\_\_\_\_\_ at \_\_\_\_\_, Philippines.

Notary Public  
Until 31 December 20\_\_\_\_  
PTR No. \_\_\_\_\_  
Issued at: \_\_\_\_\_  
Issued on: \_\_\_\_\_  
TIN No. \_\_\_\_\_

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of \_\_\_\_\_.

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz. Project Manager, Project Engineer, Construction Safety Officer, Foremen, etc), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract).*

Standard Form Number: NPCSF-INFR-11

**KEY PERSONNEL  
(FORMAT OF BIO-DATA)**

Give the detailed information of the following personnel who are scheduled to be assigned as full-time field staff for the project. Fill up a form for each person.

1. Name : \_\_\_\_\_
2. Date of Birth : \_\_\_\_\_
3. Nationality : \_\_\_\_\_
4. Education and Degrees : \_\_\_\_\_
5. Specialty : \_\_\_\_\_
6. Registration : \_\_\_\_\_
7. Length of Service with the Firm : \_\_\_\_\_ Year from \_\_\_\_\_ (months) \_\_\_\_\_ (year)  
To \_\_\_\_\_ (months) \_\_\_\_\_ (year)
8. Years of Experience : \_\_\_\_\_
9. If Item 7 is less than ten (10) years, give name and length of service with previous employers for a ten (10)-year period (attached additional sheet/s), if necessary:

Name and Address of EmployerLength of Service

|       |                                   |
|-------|-----------------------------------|
| _____ | _____ year(s) from _____ to _____ |
| _____ | _____ year(s) from _____ to _____ |
| _____ | _____ year(s) from _____ to _____ |

**10. Experience:**

This should cover the past ten (10) years of experience. (Attached as many pages as necessary to show involvement of personnel in projects using the format below).

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz. Project Manager, Project Engineer, Construction Safety Officer, Foremen, etc), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract).*

Standard Form Number: NPCSF-INFR-11  
Page 2 of 2

1. Name : \_\_\_\_\_
2. Name and Address of Owner : \_\_\_\_\_
3. Name and Address of the  
Owner's Engineer : \_\_\_\_\_  
(Consultant)
4. Indicate the Features of Project  
(particulars of the project  
components and any other particular  
interest connected with the project): \_\_\_\_\_
5. Contract Amount Expressed in  
Philippine Currency : \_\_\_\_\_
6. Position : \_\_\_\_\_
7. Structures for which the employee  
was responsible : \_\_\_\_\_
8. Assignment Period : from \_\_\_\_\_ (months) \_\_\_\_\_ (years)  
to \_\_\_\_\_ (months) \_\_\_\_\_ (years)

\_\_\_\_\_  
Name and Signature of Employee

It is hereby certified that the above personnel can be assigned to this project, if the contract is awarded to our company.

\_\_\_\_\_  
(Place and Date)

\_\_\_\_\_  
(The Authorized Representative)

*One of the requirements from the bidder to be included in its Technical Envelope is a list of contractor's key personnel (viz. Project Manager, Project Engineer, Construction Safety Officer, Foremen, etc), to be assigned to the contract to be bid, with their complete qualification and experience data (including the key personnel's signed written commitment to work for the project once awarded the contract).*

Standard Form Number: NPCSF-INFR-12

**LIST OF EQUIPMENT, OWNED OR LEASED AND/OR UNDER PURCHASE AGREEMENTS**  
*(Based on the Minimum Equipment Required in the Bidding Documents)*

Business Name: \_\_\_\_\_

Business: \_\_\_\_\_

| Description                         | Model/Year | Capacity /<br>Performance / Size | Plate No. | Motor No. /<br>Body No. | Location | Condition | Proof of Ownership /<br>Lessor or Vendor |
|-------------------------------------|------------|----------------------------------|-----------|-------------------------|----------|-----------|--|
| <b>A. Owned</b>                     |            |                                  |           |                         |          |           |  |
| i.                                  |            |                                  |           |                         |          |           |  |
| ii.                                 |            |                                  |           |                         |          |           |  |
| iii.                                |            |                                  |           |                         |          |           |  |
| iv.                                 |            |                                  |           |                         |          |           |  |
| v.                                  |            |                                  |           |                         |          |           |  |
| <b>B. Leased</b>                    |            |                                  |           |                         |          |           |  |
| i.                                  |            |                                  |           |                         |          |           |  |
| ii.                                 |            |                                  |           |                         |          |           |  |
| iii.                                |            |                                  |           |                         |          |           |  |
| iv.                                 |            |                                  |           |                         |          |           |  |
| v.                                  |            |                                  |           |                         |          |           |  |
| <b>C. Under Purchase Agreements</b> |            |                                  |           |                         |          |           |  |
| i.                                  |            |                                  |           |                         |          |           |  |
| ii.                                 |            |                                  |           |                         |          |           |  |
| iii.                                |            |                                  |           |                         |          |           |  |
| iv.                                 |            |                                  |           |                         |          |           |  |
| v.                                  |            |                                  |           |                         |          |           |  |

Submitted by: \_\_\_\_\_

(Printed Name &amp; Signature)

Designation: \_\_\_\_\_

Date: \_\_\_\_\_

One of the requirements from the bidder to be included in its Technical Envelope is the list of its equipment units pledged for the contract to be bid, based on minimum equipment required in the bidding docs. which are owned (supported by proof/s of ownership), leased, and/or under purchase agreements (with corresponding engine numbers, chassis numbers and/or serial numbers), supported by certification of availability of equipment from the equipment lessor/vendor for the duration of the project

Standard Form No. : NPCSF-INFR-13

**BID LETTER**

Date: \_\_\_\_\_

To: **THE PRESIDENT**  
National Power Corporation  
BIR Road cor. Quezon Ave.  
Diliman, Quezon City

We, the undersigned, declare that:

- (a) We have examined and have no reservation to the Bidding Documents, including Addenda, for the Contract **CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINDUQUE 69 KV STOCKYARD (LuzP21Z1318Sc)**.
- (b) We offer to execute the Works for this Contract in accordance with the Bid Documents, Technical Specifications, General and Special Conditions of Contract accompanying this Bid;

The total price of our Bid, excluding any discounts offered below is: insert information \_\_\_\_\_;

The discounts offered and the methodology for their application are: insert information \_\_\_\_\_;

- (c) Our Bid shall be valid for a period of insert number \_\_\_\_\_ days from the date fixed for the Bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (d) If our Bid is accepted, we commit to obtain a Performance Security in the amount of insert percentage amount \_\_\_\_\_ percent of the Contract Price for the due performance of the Contract;
- (e) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from the following eligible countries: insert information \_\_\_\_\_;
- (f) We are not participating, as Bidders, in more than one Bid in this bidding process, other than alternative offers in accordance with the Bidding Documents;
- (g) Our firm, its affiliates or subsidiaries, including any subcontractors or suppliers for any part of the Contract, has not been declared ineligible by the Funding Source;
- (h) We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed; and
- (i) We understand that you are not bound to accept the Lowest Calculated Bid or any other Bid that you may receive.

- (j) We likewise certify/confirm that the undersigned, is the duly authorized representative of the bidder, and granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for the **CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINDUQUE 69 KV STOCKYARD (LuzP21Z1318Sc)** of the National Power Corporation.
- (k) We acknowledge that failure to sign each and every page of this Bid Letter, including the Bill of Quantities, shall be a ground for the rejection of our bid.

Name: \_\_\_\_\_

In the capacity of: \_\_\_\_\_

Signed: \_\_\_\_\_

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

Date: \_\_\_\_\_

**DETAILED COST ESTIMATE FORM**

**Name of Bidder :** \_\_\_\_\_

[illegible]

Name, Signature of Authorized Representative

Designation



Standard Form No. : NPCSF-INFR-15

**SUMMARY SHEETS OF MATERIALS PRICES, LABOR RATES  
AND EQUIPMENT RENTAL RATES**Name of Bidder : \_\_\_\_\_  
\_\_\_\_\_**I. Unit Prices of Materials**

| Materials Description | Unit | Unit Price |
|-----------------------|------|------------|
| 1.                    |      |            |
| 2.                    |      |            |
| 3.                    |      |            |
| 4.                    |      |            |
| 5.                    |      |            |
| 6.                    |      |            |
| 7.                    |      |            |

**II. Manpower Hourly Rates**

| Designation | Rate/Hr. |
|-------------|----------|
| 1.          |          |
| 2.          |          |
| 3.          |          |
| 4.          |          |
| 5.          |          |
| 6.          |          |
| 7.          |          |

**III. Equipment Hourly Rental Rates**

| Equipment Description | Rental Rate/Hr. |
|-----------------------|-----------------|
| 1.                    |                 |
| 2.                    |                 |
| 3.                    |                 |
| 4.                    |                 |
| 5.                    |                 |
| 6.                    |                 |
| 7.                    |                 |

\_\_\_\_\_  
Name, Signature of Authorized Representative\_\_\_\_\_  
Designation

## SECTION IX

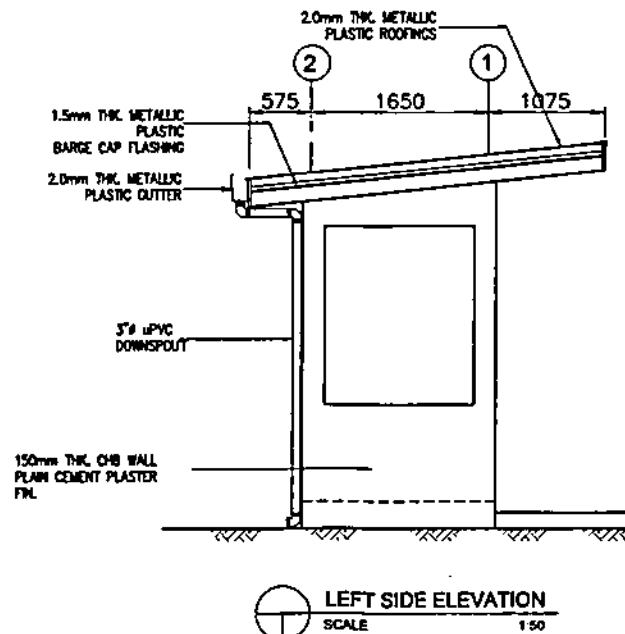
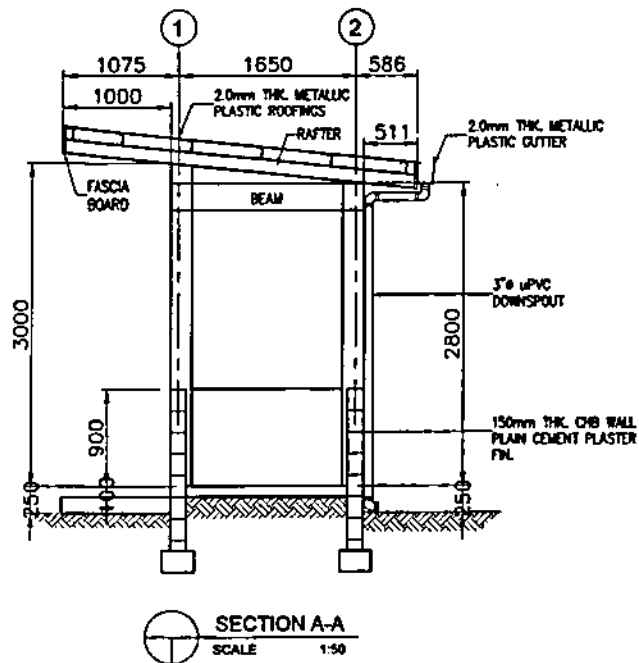
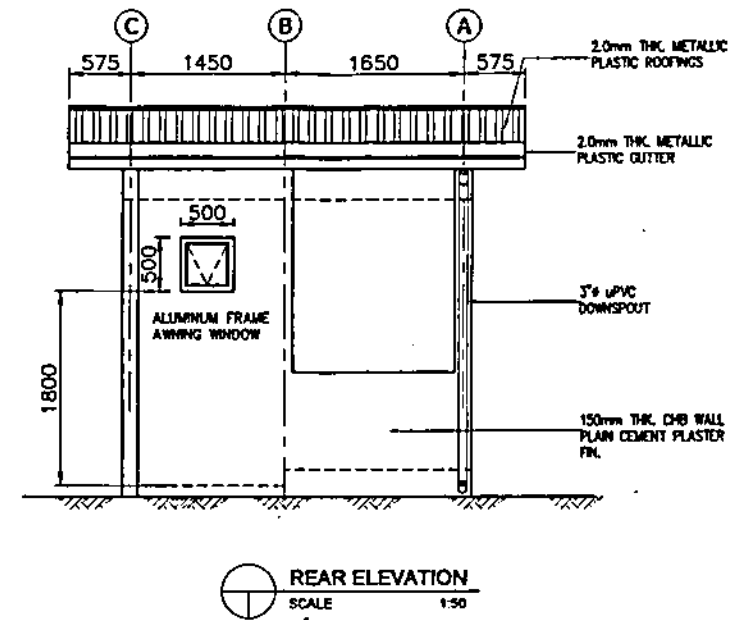
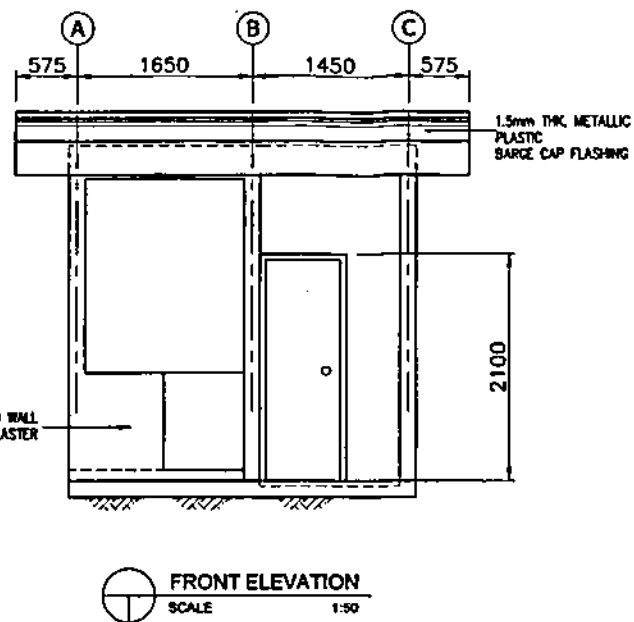
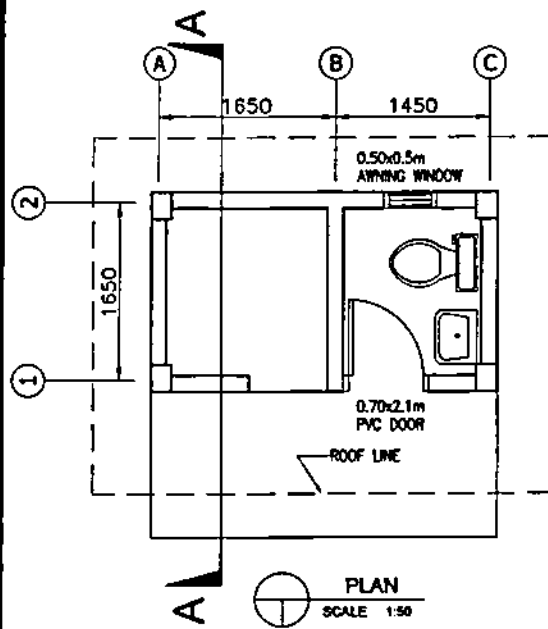
# BID DRAWINGS

# ARCHITECTURAL WORKS

**SECTION IX – BID/REFERENCE DRAWINGS****AW – ARCHITECTURAL WORKS**

| <b><u>DRAWING NO.</u></b> | <b><u>TITLE</u></b>                         |
|---------------------------|---|
| PFGH-BDA-13.001           | GUARD POST (PLAN, ELEVATION AND<br>SECTION) |





#### NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. WORK THIS DRAWING WITH CIVIL & ELECTRICAL DRAWINGS.

|  |   |
|--|---|
| <b>NATIONAL POWER CORPORATION</b><br>AGHAM ROAD, DILIMAN, QUEZON CITY  |   |
| PROJECT: CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINAQUE 89 RV STOCKYARD<br>LOCATION: BRGY. CAGPO, TORILLOS, MARINAQUE   |   |
| TITLE: <b>GUARD POST</b><br>(PLAN, ELEVATION, & SECTION)   |   |
| DESIGNED BY: <i>[Signature]</i><br>DRAWN BY: <i>[Signature]</i><br>REVISIONS: <i>[Signature]</i><br>CHECKED BY: <i>[Signature]</i><br>ELEC. BY: <i>[Signature]</i><br>MECH. BY: <i>[Signature]</i> | SUBMITTED BY: <i>[Signature]</i><br>RECOMMENDED BY: <i>[Signature]</i><br>APPROVED BY: <i>[Signature]</i> |
| DWG. NO. PFGH-BDA-17.001<br>SCALE: AS SHOWN  | SPEC. NO. LUZP21Z1318Sc<br>BID DRAWING  |

## SECTION IX

# BID DRAWINGS

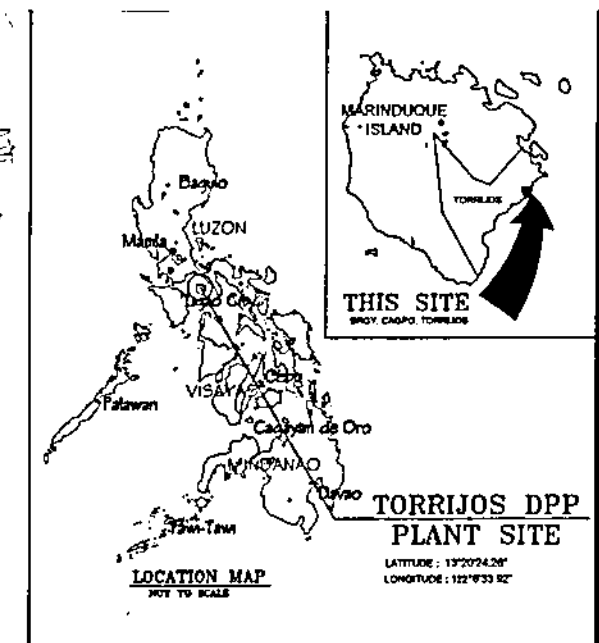
# CIVIL WORKS



**SECTION IX – BID/REFERENCE DRAWINGS****CW – CIVIL WORKS**





| <b><u>DRAWING NO.</u></b> | <b><u>TITLE</u></b>                                      |
|---------------------------|--|
| PFGH-BDC-17.001           | SITE DEVELOPMENT PLAN (NEW 69KV STOCKYARD)               |
| PFGH -BDC-17.002          | PERIMETER FENCE (ELEVATION AND DETAILS)                  |
| PFGH -BDC-17.003          | GUARD POST (FOUNDATION PLAN AND DETAILS)                 |
| PFGH -BDC-17.004          | GUARD POST (ROOF FRAMING PLAN, DEAM SECTION AND DETAILS) |
| PFGH -BDC-17.005          | MAIN GATE (ELEVATION AND DETAILS)                        |
| PFGH -BDC-17.006          | SEPTIC TANK (PLAN, SECTION AND DETAILS)                  |

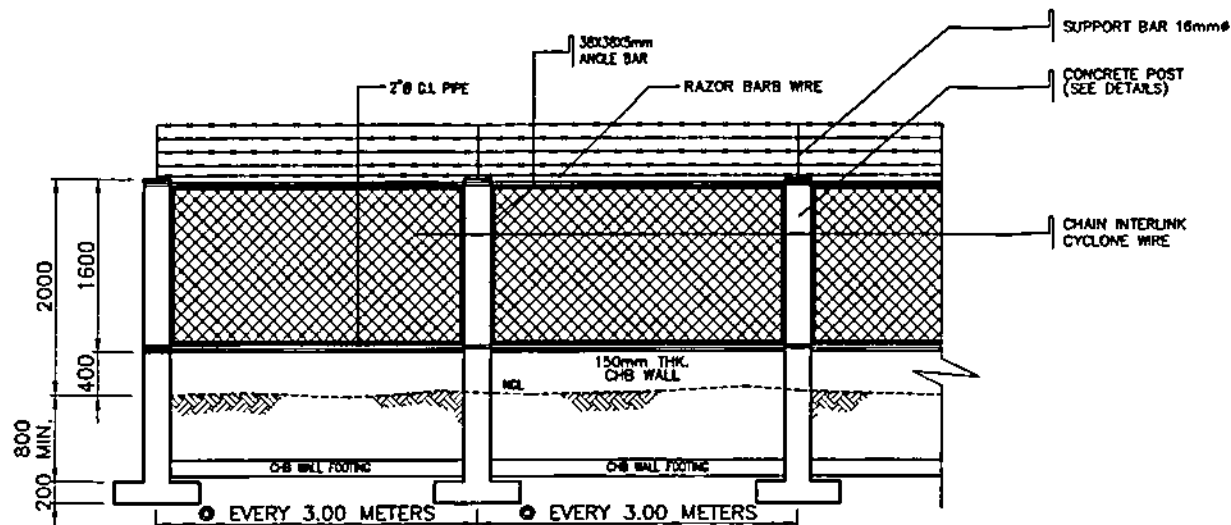




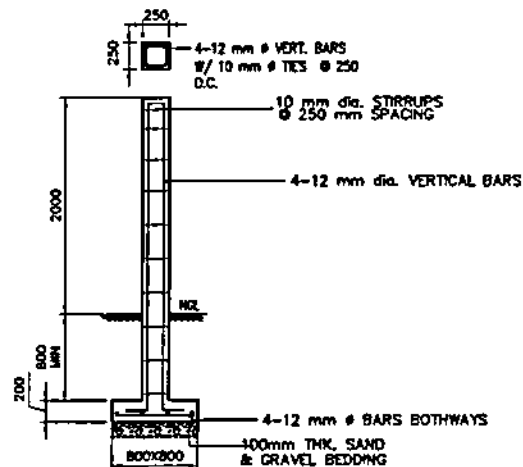
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT 28-DAYS PERIOD SHALL BE  $f_c = 20.7$  MPa.
3. REINFORCING BARS SHALL CONFORM TO THE LATEST REQUIREMENTS OF PNS FOR RSB GR. 275.
4. ALL ASPECTS OF CONSTRUCTION AND DETAILING OF REINFORCEMENTS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE ACI CODE.
5. ALL CONNECTIONS ARE WELDED AND SHALL CONFORM TO A MINIMUM OF E60XX.
6. ALL STRUCTURAL SHAPES SHALL CONFORM TO ASTM A36.



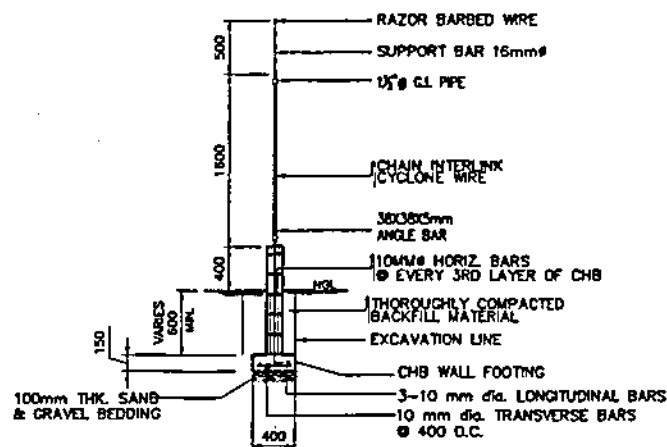
|  |                           |   |      |
|--|---------------------------|---|------|
| OWNER:   |                           |  <b>NATIONAL POWER CORPORATION</b><br>AGHAM ROAD, DILIMAN, QUEZON CITY |      |
| PROJECT: CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINOQUE #1 KV STOCKYARD |                           |   |      |
| LOCATION: BRGY. CAGPO, TORILLOS, MARINOQUE   |                           |   |      |
| TITLE:   |                           | <b>SITE DEVELOPMENT PLAN</b><br>(NEW 66 KV STOCKYARD)   |      |
| DESIGNED   | BY                        | OWN   | DATE |
| DRAWN  | CHECKED                   |   |      |
| REVIEWED   | PRINCIPAL ENGR. IN CHARGE |   |      |
| CIVIL/ARCHT  |                           |   |      |
| ELEC.  |                           |   |      |
| MACH.  |                           |   |      |
| SUBMITTED:   |                           | <br><b>H. L. MENDOCCA</b><br>PRINCIPAL ENGINEER IN CHARGE              |      |
| RECOMMENDED:   |                           | <br><b>A. C. ESPIRITU</b><br>MANAGER, CAGU                             |      |
| APPROVED:  |                           | <br><b>M. G. BOSCAWEN</b><br>MANAGER, DDO                              |      |
| DWG. NO. PFGH-BDC-17.001   |                           | SHEET NO. LuzP21Z1318Sc   |      |
| SCALE: AS SHOWN  |                           | BID DRAWING   |      |
|  |                           | REV. 1  |      |



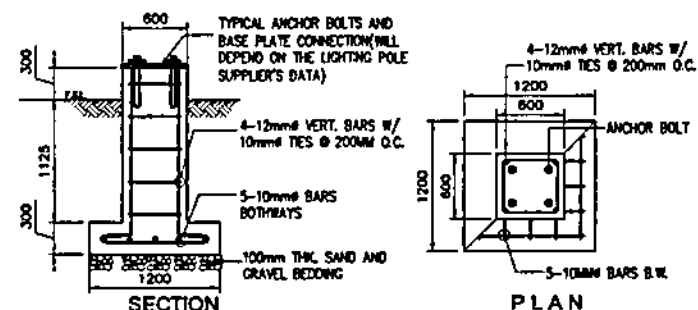
ELEVATION OF PROPOSED PERIMETER FENCE  
SCALE 1:50



CONCRETE POST DETAILS  
SCALE 1:40



CHB WALL SECTION  
SCALE 1:40



LIGHTING POLE FOUNDATION  
SCALE 1:20

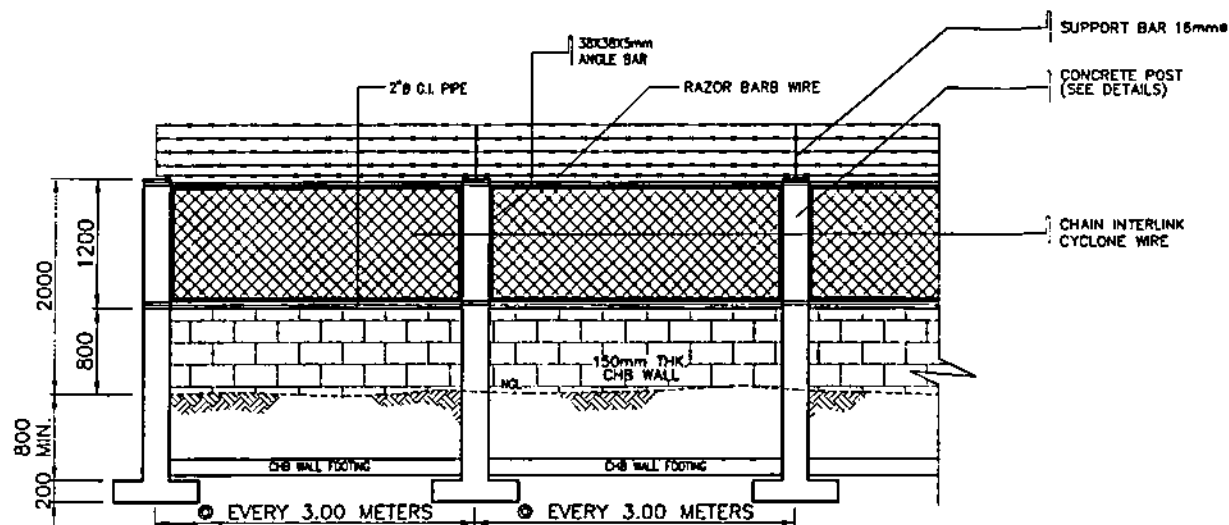
#### NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED IN THE DRAWING.
2. USE 17.30MPa CONCRETE FOR ALL APPURTENANT STRUCTURES UNLESS OTHERWISE INDICATED.
3. REINFORCING STEEL BARS SHALL CONFORM TO THE REQUIREMENTS OF THE PNS FOR DEFORMED STEEL BARS GRADE 275.
4. WORK THIS DRAWING WITH ELECTRICAL DRAWINGS.

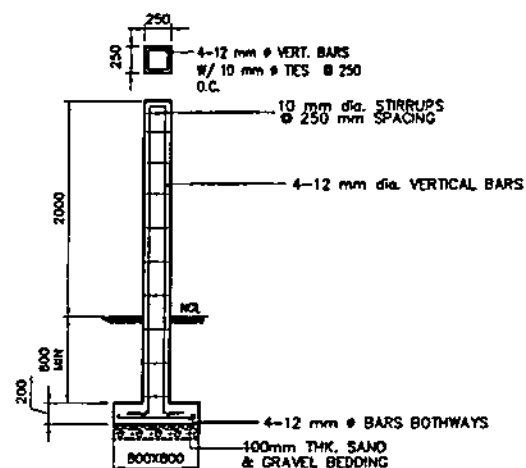
|                          |                             |   |  |
|--------------------------|-----------------------------|---|--|
| OWNER                    |                             | NATIONAL POWER CORPORATION<br>AGHAM ROAD, DILIMAN, QUEZON CITY                  |  |
| PROJECT                  |                             | CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINADUQUE 66 KV STOCKYARD |  |
| LOCATION                 |                             | BAYOY, CAGIPO, TORILLOS, MARINADUQUE  |  |
| TITLE                    |                             | PERIMETER FENCE<br>(ELEVATION AND DETAILS)                                      |  |
| DESIGNED                 | BY                          | CHKD  | DATE                                     |
| DRAWN                    | DATE                        | SUBMITTER   | N.L. MENDOZA<br>PRINCIPAL ENGINEER & GEO |
| REVIEWED                 | PRINCIPAL ENGINEER / ARCHT. | RECOMMENDED   | A.C. ESPINOSA<br>MANAGER, GEO            |
| CHECKED                  | DATE                        | APPROVED  | N.L. MENDOZA<br>MANAGER, GEO             |
| DWG. NO. PFGH-BDC-17.002 |                             | SPEC. NO. LUZP21Z1318Sc   |  |
| SCALE: AS SHOWN          |                             | BID DRAWING   |  |

| REV. | DATE | NATURE OF REVISION | BY | CHKD | RECD | APPR. |
|------|------|--------------------|----|------|------|-------|
|      |      |                    |    |      |      |       |

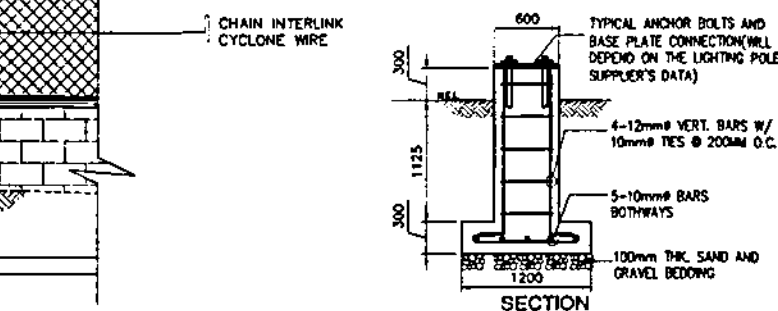




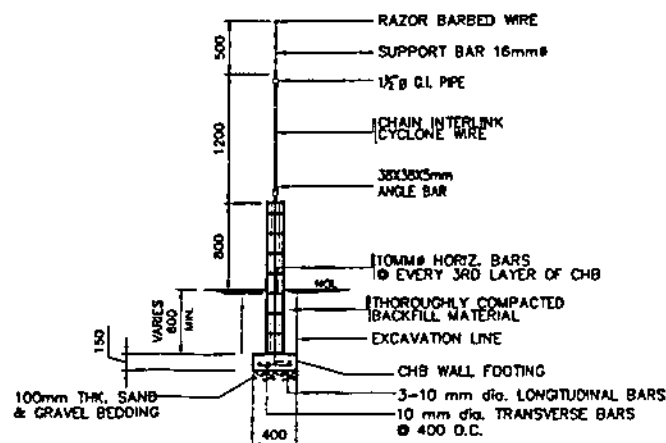
**ELEVATION OF PROPOSED PERIMETER FENCE**  
SCALE 1:50



**CONCRETE POST DETAILS**  
SCALE 1:40



**CHB WALL SECTION**  
SCALE 1:40

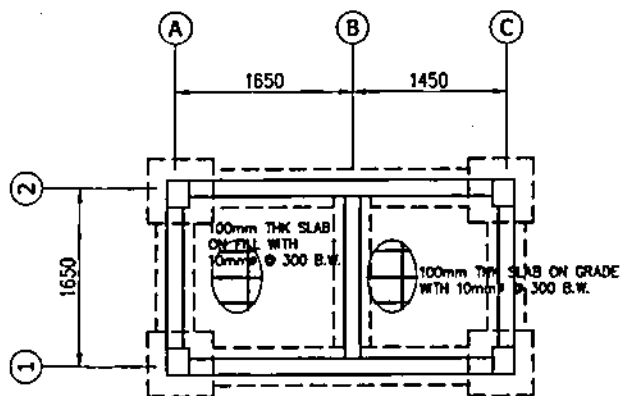


**LIGHTING POLE FOUNDATION**  
SCALE 1:20

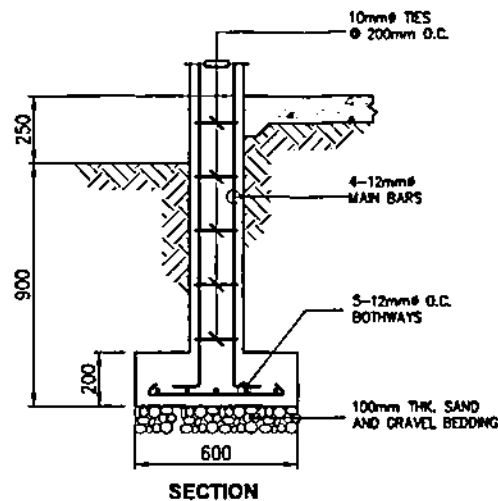
**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED IN THE DRAWING.
2. USE 17.30MPa CONCRETE FOR ALL APPURTENANT STRUCTURES UNLESS OTHERWISE INDICATED.
3. REINFORCING STEEL BARS SHALL CONFORM TO THE REQUIREMENTS OF THE PNS FOR DEFORMED STEEL BARS GRADE 275.
4. WORK THIS DRAWING WITH ELECTRICAL DRAWINGS.

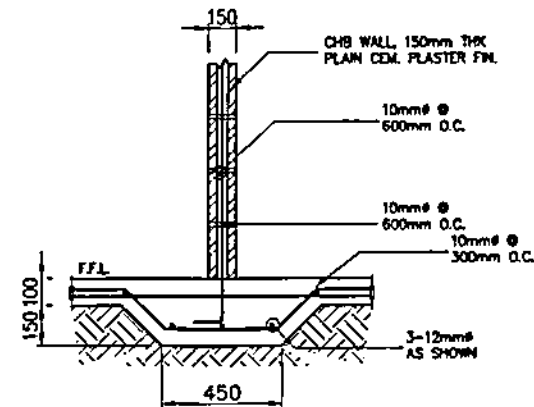
|                          |                        |  |             |
|--------------------------|------------------------|--|-------------|
| OWNER                    |                        | NATIONAL POWER CORPORATION<br>AGHAM ROAD, DILIMAN, QUEZON CITY                 |             |
| PROJECT                  |                        | CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINOUQUE 69 KV STOCKYARD |             |
| LOCATION                 |                        | BRGY. CAGPO, TORRESJOS, MARINOUQUE   |             |
| TITLE                    |                        | PERIMETER FENCE<br>(ELEVATION AND DETAILS)                                     |             |
| DESIGNED                 | BY                     | CHD  | DATE        |
| DRAWN                    | BY                     | CHD  | DATE        |
| REVIEWED                 | PRINCIPAL ENGR./ARCHT. |  | RECOMMENDED |
| CHECKED                  | S.E.C.                 |  | APPROVED    |
| DWG. NO. PFGH-BDC-17.002 |                        | SHEET NO. LuzP21Z1318Sc  |             |
| SCALE AS SHOWN           |                        | BID DRAWING  |             |



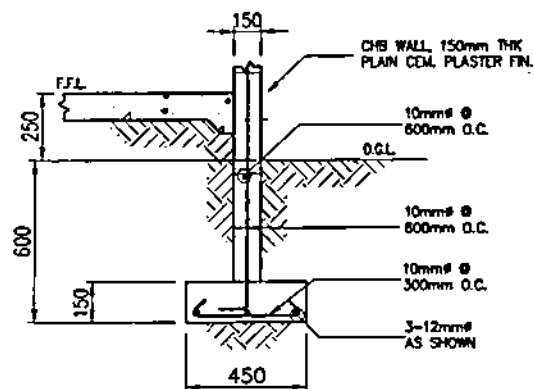
FOUNDATION PLAN  
SCALE 1:50



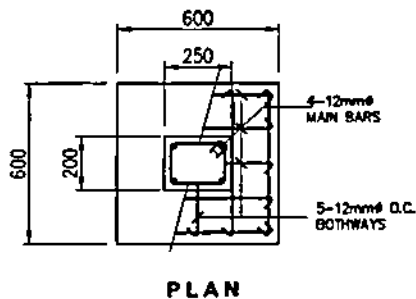
SECTION



INTERIOR WALL FOOTING  
SCALE 1:20



WALL FOOTING  
SCALE 1:20



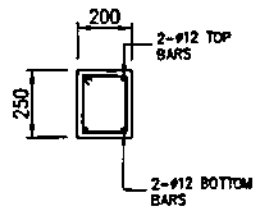
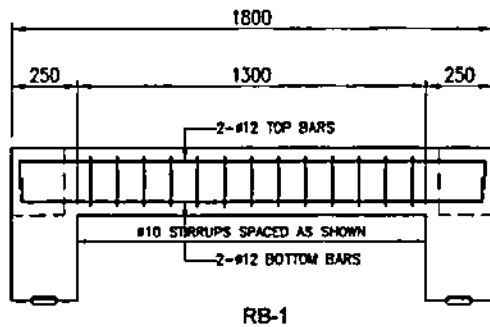
COLUMN FOOTING  
SCALE 1:20

#### NOTES:

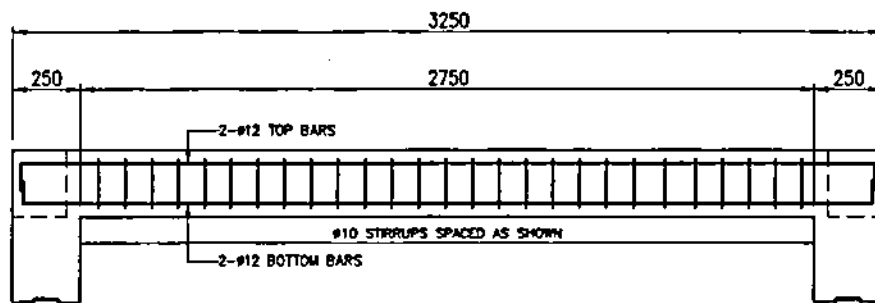
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. WORK THIS DRAWING WITH ARCHITECTURAL DRAWINGS.

|   |  |   |   |
|---|--|---|---|
|   |  | <b>NATIONAL POWER CORPORATION</b><br>AGHAM ROAD, DILIMAN, QUEZON CITY |   |
| PROJECT: CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINQUE 99 KV STOCKYARD |  |   |   |
| LOCATION: BROY, CAGPO, TORRUCOS, MARINQUE   |  |   |   |
| TITLE: <b>GUARD POST (FOUNDATION PLAN AND DETAILS)</b>                                |  |   |   |
| DESIGNED<br>DRAWN<br>REVISIONS<br>CHECKED<br>S.E.C.<br>MECH.                          | BY<br>SUBS<br>PRINCIPAL ENGR./ARCHT.<br>DATE | DATE<br>SUBMITTER<br>RECOMMENDED<br>APPROVED                          | H.L. MENDOZA<br>PRINCIPAL ENGR./ARCHT.<br>A.C. MENDOZA<br>ENGR. CHD<br>H.L. MENDOZA<br>MANAGER, E&C |
| DWG. NO. PFGH-BDC-17.003  |  | REVISION NO. LUZP21Z1318Sc  |   |
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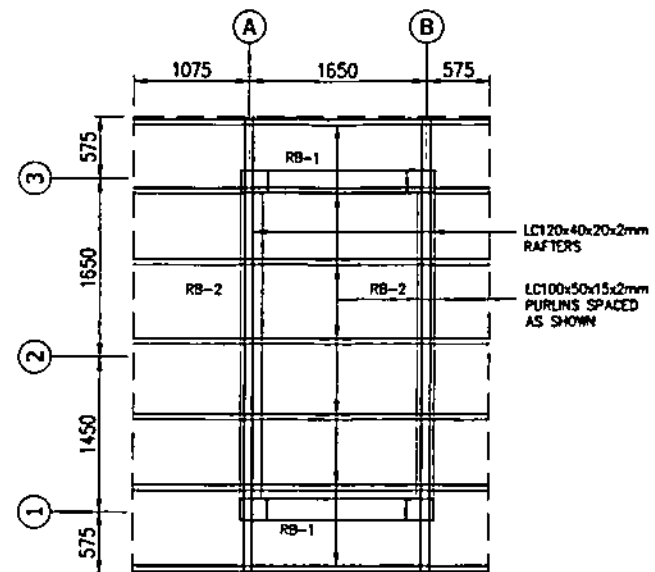
| REV. | DATE | DESCRIPTION OF REVISION | BY | CHKD. | RECD. | APPR. |
|------|------|-------------------------|----|-------|-------|-------|
|      |      |                         |    |       |       |       |



SECTION



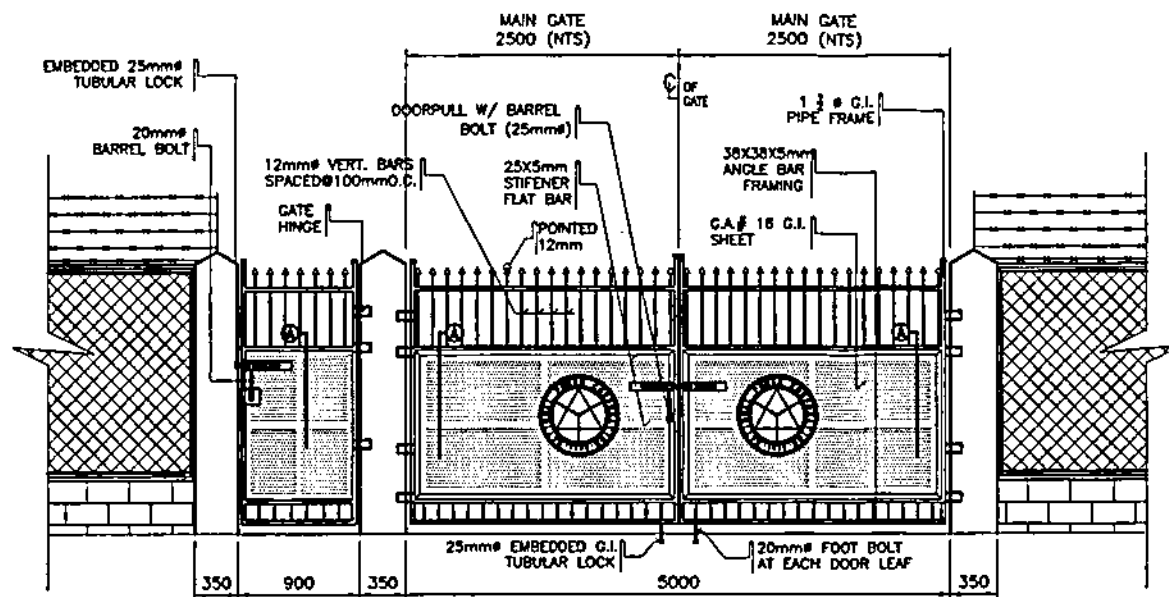
ROOF BEAM DETAIL  
SCALE 1:50



ROOF FRAMING PLAN  
SCALE 1:50

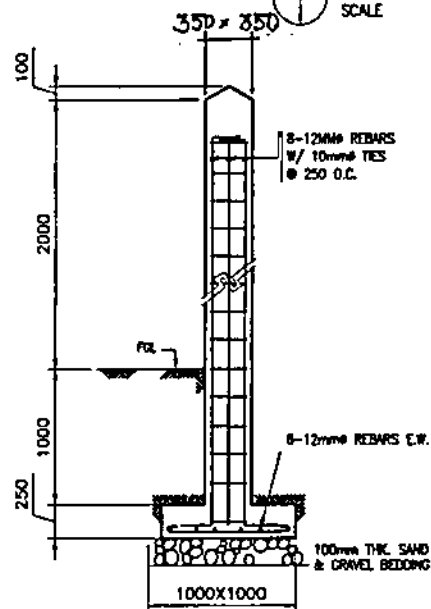
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|--|-----------------------------|---|------|
|  |                             | <b>NATIONAL POWER CORPORATION</b><br>AGHAM ROAD, OLIJMAN, QUEZON CITY |      |
| PROJECT: CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR<br>MARINOUQUE 66 KV STOCKYARD |                             |   |      |
| LOCATION: BERRY, CAGPO, TORRELOS, MARINOUQUE   |                             |   |      |
| TITLE: <b>GUARD POST</b><br>(ROOF FRAMING PLAN, BEAM SECTION AND DETAILS)                  |                             |   |      |
| DESIGNED   | BY                          | CHECK   | DATE |
| DRAWN  | DRAWING                     |   |      |
| REVIEWED   | PRINCIPAL ENGINEER / ARCHT. | RECOMMENDED   |      |
| CHALKING   |                             | APPROVED  |      |
| BLK.   |                             |   |      |
| INCH   |                             |   |      |
| DWG. NO. PFGH-BDC-17.004   |                             | SPEC. NO. LuzP21Z1318Sc   |      |
| SCALE: AS SHOWN  |                             | BID DRAWING   |      |

| REV. | DATE | DESCRIPTION OF REVISION | BY | CHECK | APPROVED |
|------|------|-------------------------|----|-------|----------|
|      |      |                         |    |       |          |



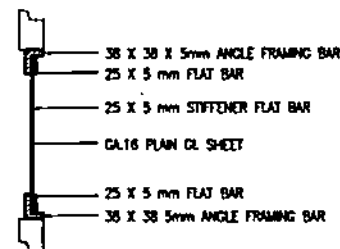
TYPICAL GATE ELEVATION

SCALE 1:40



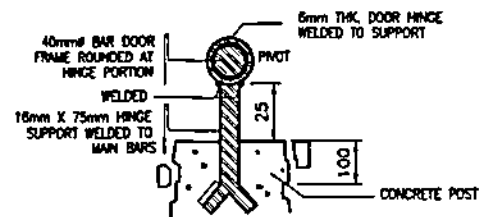
GUARD POST DETAIL

SCALE 1:40



SECTION A

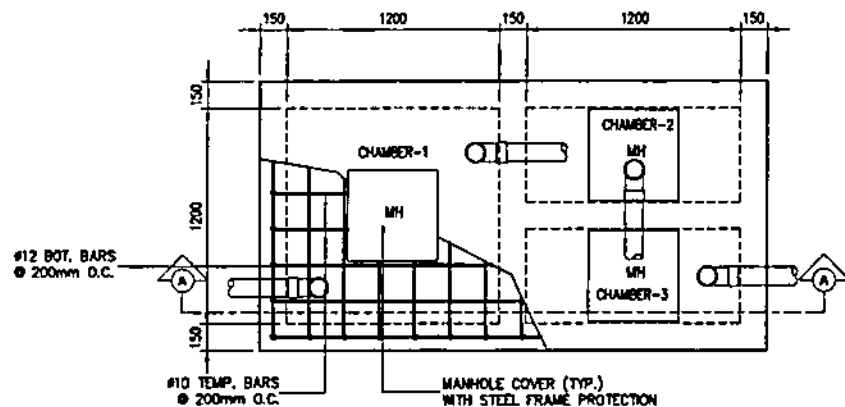
N.T.S.



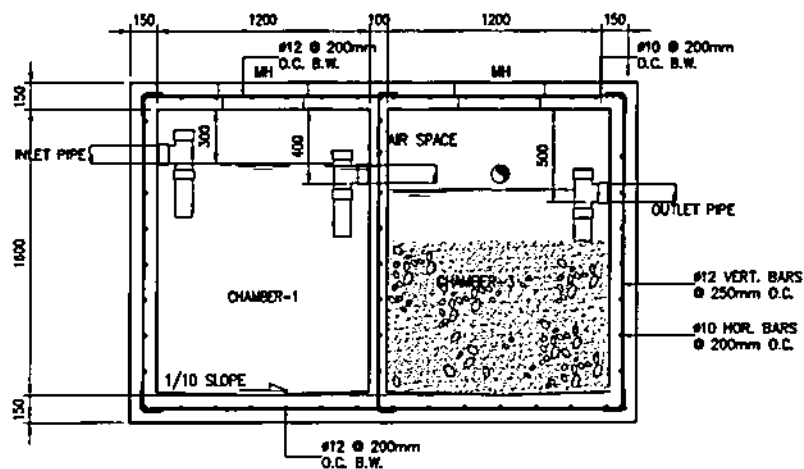
GATE HINGES

SCALE NTS

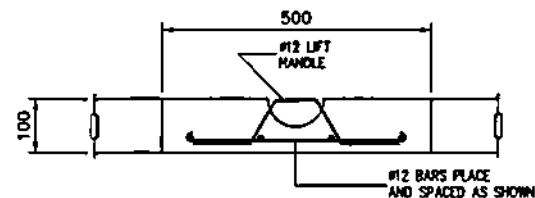
|   |  |
|---|--|
| <b>NATIONAL POWER CORPORATION</b><br>AGHAM ROAD, DILMAN, QUEZON CITY                    |  |
| PROJECT: CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINOUQUE #9 KV STOCKYARD |  |
| LOCATION: BRGY. CAGPO, TORRALBA, MARINOUQUE   |  |
| <b>TITLE</b><br><b>MAIN GATE</b><br><b>(ELEVATION AND DETAILS)</b>                      |  |
| DESIGNED<br>DRAWN<br>REVISIONS<br>CHECKED<br>BILL<br>RECD.                              | BY<br>DATE<br>SUBMITTED<br>REVIEWED<br>RECOMMENDED<br>APPROVED<br>H. L. MENDOZA<br>PROJECT ENGINEER / CEO<br>A. C. BERNARDO<br>SUPERVISOR<br>H. L. MENDOZA<br>CHAIRMAN |
| DWG. NO. PFGH-BDC-17.005      SPEC. NO. LUZP21Z1318Sc                                   |  |
| SCALE: AS SHOWN <b>BID DRAWING</b> REV. 0   |  |



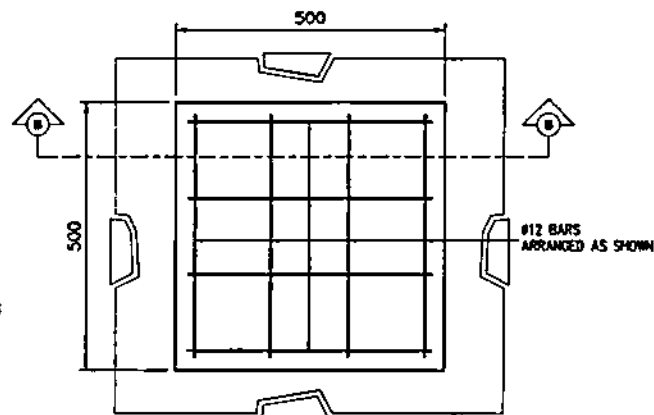
PLAN



SECTION 'A'



SECTION 'B'



PLAN



# NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED IN THE DRAWING.
2. USE 17.50MPa CONCRETE FOR ALL DRAINAGE APPURTENANT STRUCTURES UNLESS OTHERWISE INDICATED.
3. REINFORCING STEEL BARS SHALL CONFORM TO THE REQUIREMENTS OF THE PNS FOR DEFORMED STEEL BARS GRADE 275.
4. POLYVINYL CHLORIDE (PVC) PIPE SHALL BE UNPLASTICIZED CONFORMING TO ISO4433 OR EQUIVALENT.

|   |    |  |      |
|---|----|--|------|
| OWNER   |    | <b>NATIONAL POWER CORPORATION</b><br>AGHAM ROAD, DILMAN, QUEZON CITY |      |
| PROJECT: CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINDUQUE 66 KV STOCKYARD |    |  |      |
| LOCATION: BRGY. CAGPO, TORNJOR, MARINDUQUE  |    |  |      |
| TITLE: <b>SEPTIC TANK</b><br>(PLAN, SECTION AND DETAILS)                                |    |  |      |
| DESIGNED  | BY | CHKD   | DATE |
| DRAWN   | BY | CHKD   | DATE |
| REVIEWED  | BY | CHKD   | DATE |
| APPROVED  | BY | CHKD   | DATE |
| DATE  | BY | CHKD   | DATE |
| DATE  | BY | CHKD   | DATE |
| SUBMITTED: <i>[Signature]</i><br>H. L. MENDOZA<br>PRINCIPAL ENGINEER / CHIEF            |    | RECOMMENDED: <i>[Signature]</i><br>A. C. SANTI<br>MANAGING CHIEF     |      |
| APPROVED: <i>[Signature]</i><br>H. L. MENDOZA<br>MANAGING CHIEF                         |    | DATE: <i>[Signature]</i>   |      |
| DRAWING NO. PFGH-BDC-17.006   |    | SPEC. NO. LUZP21213185c  |      |
| SCALE: AS SHOWN   |    | BID DRAWING  |      |
| REV. DATE   |    | REV. DATE  |      |
| DESCRIPTION OF REVISION   |    | DESCRIPTION OF REVISION  |      |
| BY  |    | BY   |      |
| CHKD  |    | CHKD   |      |
| APPR.   |    | APPR.  |      |

## SECTION IX

# **BID DRAWINGS**

# **ELECTRICAL WORKS**



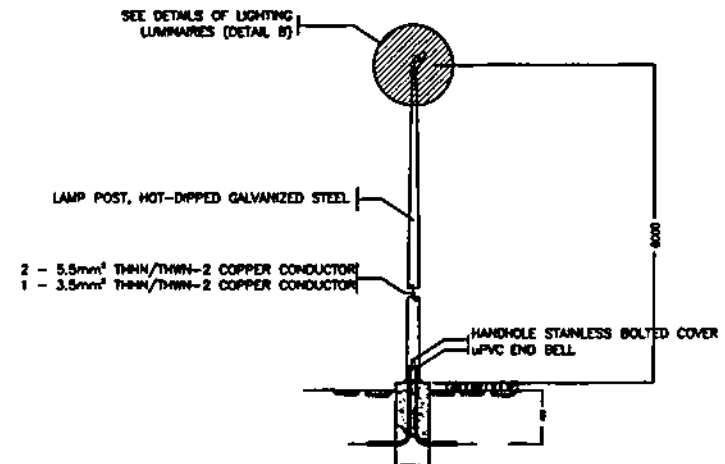
**SECTION IX – BID/REFERENCE DRAWINGS****EW – ARCHITECTURAL WORKS**

| <b><u>DRAWING NO.</u></b> | <b><u>TITLE</u></b>                               |
|---------------------------|---|
| PFGH-BDE-17.001           | GENERAL NOTES AND DETAILS OF<br>LIGHTING FIXTURES |
| PFGH-BDE-17.002           | PERIMETER LIGHTING LAYOUT                         |
| PFGH-BDE-17.003           | LIGHTING AND POWER LAYOUT<br>(GUARD POST)         |
| PFGH-BDE-17.004           | SCHEDULE OF LOADS AND RISER<br>DIAGRAM            |


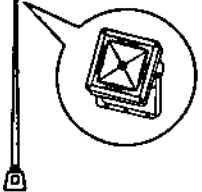



## GENERAL NOTES:

1. ALL WORKS SHALL BE DONE IN ACCORDANCE WITH THE LATEST PROVISIONS OF THE PHILIPPINE ELECTRICAL CODE, LAWS AND ORDINANCES OF THE LOCAL CODE ENFORCING AUTHORITIES.
2. POWER SUPPLY SHALL BE SINGLE PHASE, 230V, 60Hz TO BE PROVIDED BY THE END USER.
3. METHOD OF WIRING SHALL BE IN uPVC WITH PROPER FITTINGS, DEVICES, BOXES AND SUPPORTS, WORK SHALL BE AS PER PLAN AND SPECIFICATIONS AS TO LOCATION, TYPE AND USE.
4. ALL SWITCHES SHALL BE FLUSH-MOUNTED 1.37 METERS ABOVE THE FINISHED FLOOR.
5. CONDUIT RUNS ARE INDICATIVE ONLY. THE ACTUAL RUNS SHALL BE DETERMINED IN THE FIELD.
6. WIRES, BOXES, ELECTRICAL AS WELL AS NON-ELECTRICAL MATERIALS NOT INCLUDED IN THE PLANS AND SPECIFICATION BUT NECESSARY TO COMPLETE THE JOB SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
7. ALL ELECTRICAL MATERIALS TO BE USED IN THE INSTALLATION SHALL BE NEW, STANDARD AND APPROVED TYPE AS TO LOCATION, TYPES AND PURPOSE.
8. MINIMUM SIZE OF CONDUCTOR TO BE USED SHALL BE 3.5 mm<sup>2</sup> THWN IN 20 mm<sup>2</sup> uPVC, SCH.40 CONDUIT UNLESS OTHERWISE SPECIFIED IN THE PLAN.
9. ELECTRICAL WORKS SHALL BE DONE UNDER THE DIRECT SUPERVISION OF A DULY LICENSED ELECTRICAL ENGINEER.




PERIMETER LIGHTING DETAILS

| A  | B  | C   |
|--|--|---|
|               |    |    |
| <p>IP20 1x12W COOL WHITE, CLASSIC GLOBE SHAPE, FROSTED FINISH, E227 BASE COMPACT LED LAMP.</p> | <p>IP66 RATING 300 WATTS LED FLOOD LIGHT, FORGED WITH HIGH QUALITY ALUMINUM ALLOY WITH CLEAR TEMPERED GLASS AND BUILT-IN COOLING FINS.</p> | <p>PORTABLE EMERGENCY LIGHTING FIXTURE, 2 x 22 x 2 WATTS LED WARM WHITE WITH BUILT-IN SEALED LEAD ACID BATTERY.</p> <p>CHARGING TIME &lt; 20 HRS; USAGE TIME &lt; 4 HRS</p> |



DETAILS OF LIGHTING FIXTURES

|   |                          |   |      |   |                    |
|---|--------------------------|---|------|---|--------------------|
| OWNER   |                          |  |      | NATIONAL POWER CORPORATION<br>AGHAM ROAD, DELMAN, QUEZON CITY |                    |
| PROJECT: CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARIQUOQUE 66 KV STOCKYARD |                          |   |      |   |                    |
| LOCATION: BRGY. CAGPO, TORRALBA, MARIQUOQUE   |                          |   |      |   |                    |
| TITLE: GENERAL NOTES AND DETAILS OF LIGHTING FIXTURES                                   |                          |   |      |   |                    |
| DESIGNED  | BY                       | CHD   | DATE | SUBMITTED   | <i>[Signature]</i> |
| DRAWN   | BY                       | CHD   | DATE | RECOMMENDED   | <i>[Signature]</i> |
| REVIEWED  | PRINCIPAL ENGR. / ARCHT. |   |      | APPROVED  | <i>[Signature]</i> |
| CIVIL/ARCHT.  |                          |   |      |   |                    |
| ELEC.   |                          |   |      |   |                    |
| MECH.   |                          |   |      |   |                    |
| DWG. NO. PFGH-BDE-17.001  |                          |   |      | SHEET NO.   |                    |
| SCALE: N.T.S.   |                          |   |      | BID DRAWING   |                    |
| REV. DATE NATURE OF REVISION  |                          |   |      | REV. 8  |                    |

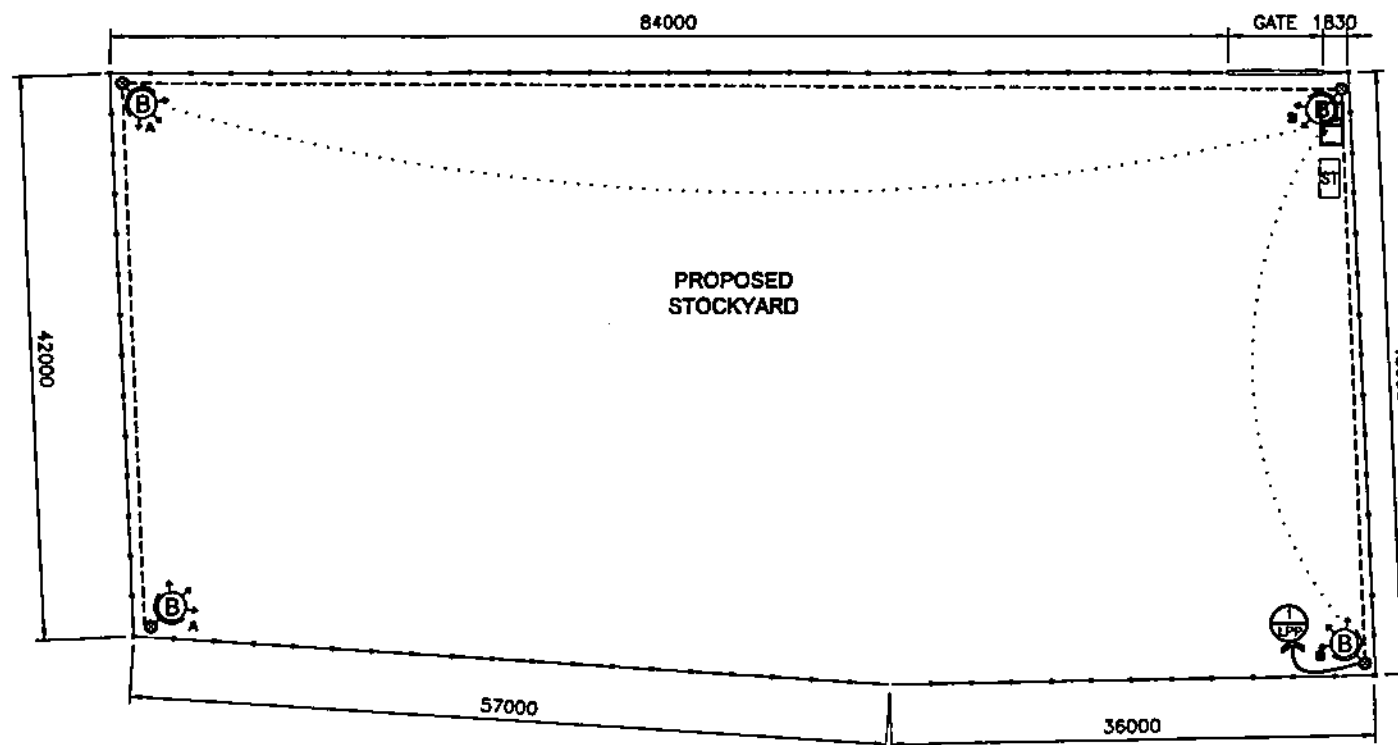


# NOTES:

1. PERIMETER LIGHTING AND STREET LIGHTING FIXTURE INSTALLATION HEIGHT SHALL BE AT LEAST 6 METERS.
2. FINAL LOCATIONS OF OUTDOOR LIGHTING FIXTURE TO BE SUPPLIED, INSTALLED OR CONSTRUCTED BY THE SUPPLIER SHALL BE CLOSELY COORDINATED WITH SPUG MANAGEMENT AND PLANT HEADS/PLANT IN CHARGE TO SUIT ACTUAL SITE CONDITIONS PRIOR TO DELIVERY/INSTALLATION/ CONSTRUCTION FOR THE TIMELY AND EFFICIENT IMPLEMENTATION OF THE PROJECT.
3. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
4. THIS DRAWING SHALL BE WORKED WITH CIVIL DRAWINGS.

## LEGENDS:

- ⊙ B - 300W FIXTURE TYPE B
- ..... - CONTROL CIRCUIT
- - CIRCUIT RUNNING UNDERGROUND
- ⊙ TPV - CIRCUIT HOMERUN
- LPV - PERIMETER LIGHTING PANELBOARD
- S AS - DUPLEX POLE SWITCH (SUBSCRIPT DENOTES LAMP BEING CONTROLLED)



PERIMETER LIGHTING LAYOUT

SCALE 1:400

|  |                          |  |      |
|--|--------------------------|--|------|
| OWNER:   |                          | NATIONAL POWER CORPORATION<br>AGHAM ROAD, DILIMAN, QUEZON CITY |      |
| PROJECT: CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARBODQUE IN KY STOCKYARD |                          |  |      |
| LOCATION: BRDY, CAGPO, TORRELJOS, MARBODQUE  |                          |  |      |
| TITLE: PERIMETER LIGHTING LAYOUT (STOCKYARD)   |                          |  |      |
| DESIGNED   | BY                       | CHKD   | DATE |
| DRAWN  | APP/CHK                  |  |      |
| REVIEWED   | PRINCIPAL DESIG./INCHGT. | RECOMMENDED  |      |
| CHECKED  |                          |  |      |
| ELEC.  |                          |  |      |
| MECH.  |                          |  |      |
| SUBMITTED:   |                          | APPROVED:  |      |
| N. R. DELA   |                          | N. G. SOROSERRA  |      |
| PRINCIPAL ENGINEER   |                          | MANAGER, EDC   |      |
| C. C. LUGO   |                          | MANAGER, EDC   |      |
| DMD NO. PFGH-BDE-17.002  |                          | SPEC NO. LuzP21Z1318Sc   |      |
| SCALE: AS SHOWN  |                          | BID DRAWING  |      |
| REV. II  |                          |  |      |

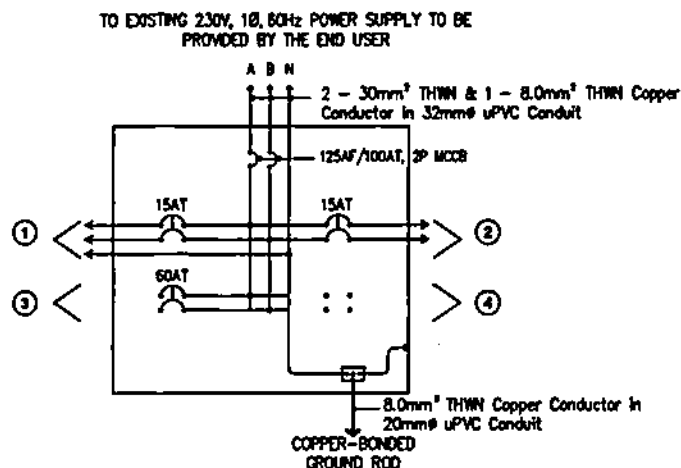
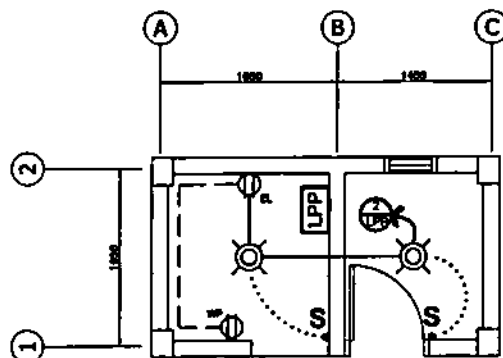
| REV. | DATE | NATURE OF REVISION | BY | CHKD. | RECD. | APPD. |
|------|------|--------------------|----|-------|-------|-------|
|      |      |                    |    |       |       |       |

# NOTES:

1. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. THIS DRAWING SHALL BE WORKED WITH CIVIL DRAWINGS.

## LEGENDS:

- 1x12W FIXTURE TYPE A
- SINGLE POLE SWITCH
- CONVENIENCE OUTLET FOR EMERGENCY LIGHT
- WEATHERPROOF CONVENIENCE OUTLET
- CIRCUIT RUNNING ON WALL
- CONTROL CIRCUIT
- CIRCUIT RUNNING ON CEILING
- CIRCUIT HOMERUN
- LIGHTING & POWER PANELBOARD



LIGHTING & POWER LAYOUT (GUARD POST)

SCALE

1:50



RISER DIAGRAM

LIGHTING AND POWER PANELBOARD

| CMT. NO. | LOAD DESCRIPTION             | UNIT LOAD (VA) | VOLTAGE (V) | CURRENT (A) | SIZES   |  |            |
|----------|------------------------------|----------------|-------------|-------------|---------|--|------------|
|          |                              |                |             |             | BREAKER | WIRE   | CONDUIT    |
| 1        | 4 - 300W LED STREET LIGHT    | 1500           | 230         | 6.52        | 15AT    | 2-5.5 mm² THWN/THWN-2<br>1-3.5 mm² THWN/THWN-2 | 20mmØ uPVC |
| 2        | 2 - 1x12W FIXTURE TYPE A     | 235            | 230         | 1.02        | 15AT    | 2-3.5 mm² THWN/THWN-2                          | 20mmØ uPVC |
|          | 1 - 2x12W EMERGENCY LIGHTING |                |             |             |         |  |            |
|          | 1 - 200VA CONVENIENCE OUTLET |                |             |             |         |  |            |
| 3        | SPACE (FUTURE EQUIPMENT)     | 13800          | 230         | 50          | 60AT    |  |            |
| 4        | SPACE                        |                |             |             |         |  |            |
|          | TOTAL                        | 15535          |             | 57.54       |         |  |            |

PROVIDE: 125AF/100AT, 2P MCCB  
WITH BRANCH CIRCUIT OF:  
2 - 15AT, 2P, MCB  
1 - 60AT, 2P, MCB

PROVIDE: 2 - 30mm² THWN & 1 - 8.0mm² THWN Copper Conductor in 32mmØ uPVC Conduit



SCHEDULE OF LOADS

LIGHTING & POWER PANELBOARD

|  |                        |  |             |
|--|------------------------|--|-------------|
| OWNER:   |                        | NATIONAL POWER CORPORATION<br>AGHAM ROAD, DILIMAN, QUEZON CITY |             |
| PROJECT: CONSTRUCTION OF GUARD HOUSE AND PERIMETER FENCE FOR MARINAQUE 66 KV STOCKYARD |                        |  |             |
| LOCATION: BRBY, CAGPO, TORRILLO, MARINAQUE   |                        |  |             |
| TITLE: LIGHTING AND POWER LAYOUT, RISER DIAGRAM AND SCHEDULE OF LOADS                  |                        |  |             |
| DESIGNED   | BY                     | CHKD   | DATE        |
| DRAWN  | APP                    | CPD  |             |
| REVIEWED   | PRINCIPAL ENGR./ARCHT. |  | RECOMMENDED |
| CHECKED  |                        |  | APPROVED    |
| ELEC.  |                        |  |             |
| MECH.  |                        |  |             |
| DWG. NO. PFGH-8DE-17.003   |                        | SPEC. NO. LUP21Z1318Sc   |             |
| SCALE: AS SHOWN  |                        | BID DRAWING  |             |
| REV. DATE  |                        | NATURE OF REVISION   |             |
| BY   | CHKD                   | RECD   | APPD        |

REV. 0