PAMBANSANG MUSEO NG PILIPINAS
NATIONAL MUSEUM OF THE PHILIPPINES

BIDS AND AWARDS COMMITTEE

BIDDING DOCUMENTS

for the

REPAIR & MAINTENANCE OF ANGONO-BINAGONAN PETROGLYPHS SITE MUSEUM & SATELLITE OFFICE

(Reference No. 7992687*)*

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Section I. Invitation to Bid

PAMBANSANG MUSEO NG PILIPINAS
NATIONAL MUSEUM OF THE PHILIPPINES

Invitation to Bid
for
REPAIR & MAINTENANCE OF ANGONO-BINANGONAN PETROGLYPHS SITE MUSEUM & SATELLITE OFFICE

1. The **National Museum of the Philippines**, through the **General Fund FY 2021** intends to apply the sum of **Three Million Five Hundred Thousand Pesos (PHP 3,500,000.00)**, being the Approved Budget for the Contract (ABC), to payments under the contract for **REPAIR & MAINTENANCE OF ANGONO-BINANGONAN PETROGLYPHS SITE MUSEUM & SATELLITE OFFICE.** Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The **National Museum of the Philippines** now invites bids for the above Procurement Project. Completion of the Works is required within **Seventy-Five (75) calendar days**. Bidders should have completed a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders)

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

4. Interested bidders may obtain further information from the **National Museum of the Philippines Bids and Awards Committee** and inspect the Bidding Documents at the address given below from **Mondays - Fridays** at **9:30 A.M.** to **2:30 P.M.**

5. A complete set of Bidding Documents may be acquired by interested bidders on **13 September 2021,** from the given address below and the website **http://nationalmuseum.gov.ph/** and upon payment of the applicable non-refundable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of **Three Thousand Pesos (PHP 3,000.00)**. The Procuring Entity shall allow the bidder to present its proof of payment for the fees presented in person, or through electronic means.

6. **Pre-Bid Conference** shall be on **20 September 2021, 9:30 A.M.** at **Old Civil Service Building, National Museum of the Philippines, Padre Burgos Street, Manila,** which shall be open to prospective bidders.

7. Bids must be duly received by the BAC Secretariat through manual submission at the office address as indicated below on or before **6 October 2021, at 9:30 A.M. LATE BIDS SHALL NOT BE ACCEPTED.**

8. All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 16.

9. Bid opening shall be on **6 October 2021, at 9:30 A.M.** at **Old Civil Service Building, National Museum of the Philippines, Padre Burgos Street, Manila**. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

10. The **National Museum of the Philippines** 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 2016 revised Implementing Rules and Regulations (IRR) of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

11. For further information, please refer to:

    Mr. Edwin J. dela Rosa
    Head, BAC Secretariat
    2nd Floor, BAC Room, North Annex of the
    National Museum of Fine Arts Building (Motorpool)
    Padre Burgos Street, Manila 1000
    Website: www.nationalmuseum.gov.ph
    Tel No. 298-1100 Local 1014
    Email: **nationalmuseumbac@yahoo.com**
    bac@nationalmuseum.gov.ph

(SGD)
ATTY. MA. ROSENNE M. FLORES-AVILA
Chairperson
Bids and Awards Committee

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, **National Museum of the Philippines,** invites Bids for **REPAIR & MAINTENANCE OF ANGONO-BINANGONAN PETROGLYPHS SITE MUSEUM & SATELLITE OFFICE**, with Project Identification Number ***NMPBAC-PB-2021-09-03***.

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

2. Funding Information

2.1. The GOP through the source of funding as indicated below for **General Fund FY 2021** in the amount of **Three Million Five Hundred Thousand Pesos (Php 3,500,000.00)**.

2.2. The source of funding is: **NGA, the General Appropriations Act or Special Appropriations.**

3. Bidding Requirements

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

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

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

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

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

5. Eligible Bidders

5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.

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

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

5.3. For Foreign-funded Procurement, the Procuring Entity and the foreign government/foreign or international financing institution may agree on another track record requirement, as specified in the Bidding Document prepared for this purpose.

5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.2 of the 2016 IRR of RA No. 9184.

6. Origin of Associated Goods

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

7. Subcontracts

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

The Procuring Entity has prescribed that:

Subcontracting is allowed. The portions of Project and the maximum percentage allowed to be subcontracted are indicated in the **BDS,** which shall not exceed fifty percent (50%) of the contracted Works.

7.1. If the bidder has already identified and has an existing contract with its subcontractor(s) during the procurement stage, it must submit together with its Bid the documentary requirements of the subcontractor(s) complying with the eligibility criteria 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, or

7.2. The Supplier may identify its subcontractor during the contract implementation stage. Subcontractors identified during the bidding may be changed during the implementation of this Contract. Subcontractors must submit the documentary requirements under Section 23.1 of the 2016 revised IRR of RA No. 9184 and

comply with the eligibility criteria specified in **ITB** Clause 5 to the implementing or end-user unit.

7.3. 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 as indicated in paragraph 6 of the **IB.**

9. Clarification and Amendment of Bidding Documents

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

10. Documents Comprising the Bid: Eligibility and Technical Components

10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.

10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an Apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

10.3. A valid 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 **Section IX. Checklist of Technical and Financial Documents**.

11.2. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.

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

12. Alternative Bids

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

13. Bid Prices

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

14. Bid and Payment Currencies

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

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

15. Bid Security

15.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.

15.2. The Bid and bid security shall be valid until One Hundred Twenty (120) calendar days. 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 6 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 16 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

Bid Data Sheet

ITB Clause	
5.2	For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be "**having comprising of National Heritage Site**".
7.1	The contractor may subcontract any portion of works under the project, subject to the approval of proper authorities and the National Museum of the Philippines, so long as the works intended to be subcontracted is not significant and material. The subcontracted works shall not exceed fifty percent (50%) of the contracted Works.
10.3	The Contractor must have a **Category C (Size Range: Small B)** PCAB License. In case of a Joint Venture Agreement (JVA) between contractors, a Special Contractor's License is required.
10.4	The key personnel must meet the required minimum years of experience set below: Key Personnel General Experience Relevant Experience ***Note:* ***Kindly refer to the Terms of Reference / Technical Specification of the project for the qualifications of personnel.***
10.5	The minimum major equipment requirements are the following: Equipment Capacity Number of Units ***Note:* ***Kindly refer to the Terms of Reference / Technical Specification of the project for the minimum equipment requirements.***
12	Not applicable.
15.1	The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts: a. The amount of not less than **2% of the ABC,** if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; b. The amount of not less than **5% of the ABC** if bid security is in Surety Bond.
19.2	Partial bids are not allowed. The project was for one (1) lot and not divided to sub-lots.

20	If needed, Environmental Compliance Certificate, Certification that the project site is not within a geohazard zone, among others is required.
21	Additional contract documents to be submitted by the winning bidder relevant to the Project that are required by existing laws and/or the National Museum of the Philippines; 1. Construction schedule and S-curve 2. Manpower schedule 3. Construction methods 4. Equipment utilization schedule 5. Construction safety and health program approved by the DOLE, 6. PERT/CPM

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

Special Conditions of Contract

GCC Clause	
2	Not Applicable
4.1	The project starts after seven (7) days received of NTP
7.2	Fifteen (15) years.
10	Dayworks are applicable at the rate shown in the Contractor's original Bid.
11.1	The Contract shall submit the Program of Work to the Procuring Entity's Representative within Ten (10) calendar days of delivery of the Notice of Award
13	The amount of the advance payment is 15% of ABC Php 525,000.00
14	Materials and equipment delivered on the site but not completely put in place shall be included for payment.
15.1	The date by which operating and maintenance manuals are required is Fifteen (15) days from date of completion The date by which "as built" drawings are required is Fifteen (15) days from date of completion
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 1% of ABC Php 35,000.00

Section VI. Technical Specifications, Terms of Reference, Scope of Work and Drawings

VII. SCOPE OF WORKS

PROJECT TITLE AND LOCATION

REPAIRS AND MAINTENANCE OF ANGONO-BINANGONAN PETROGLYPHS SITE MUSEUM & SATELLITE OFFICE
Angono, Rizal



VII. SCOPE OF WORKS

This shall pertain to necessary works needed to complete the proposed project and shall include but is not limited to the supply, fabrication and installation of all materials, labour and equipment; provision for specialized activities, technical knowledge and skills; together with the liaison and coordination of applicable works such as applications of permits, licenses and notices to statutory authorities.

GENERAL WORKS:

1. The Contractor is expected to have conducted a site inspection prior to the actual mobilization, so as to acquiant and familiarize themselves with the location and condition of the project.
2. The Contractor shall obtain all official documents and payment of required fees and other costs incidental to the fullfillment of the requirements of the contract.
3. The Contractor shall safeguard the works and all building materials whether acquired or existing through proper warehousing and timely inventory. This shall include but is not limited to the installation of temporary facilities such as repository or warehouse, office and bunkhouse.
4. The Contractor is held responsible in ensuring the safety and protection of all persons engaged in the execution of the project. They shall also provide good general housekeeping practices.
5. The Contractor shall see to it that the area is clean and in its original condition after the contract is completed. Any damage caused by the Contractor shall be restored by them at no additional cost to the National Museum.
6. All other items of work not specifically mentioned but are necessary to complete the works shall by provided by the Contractor at at no additional cost to the National Museum.

A. PRELIMINARIES / GENERAL REQUIREMENTS

1. Mobilization / Demolization
2. Project Indentification Signage
3. Temporary Facilities (includes warehousing and ulitity consumption)
4. General Cleaning & Hauling of debris
5. Safety, Security and Housing
6. Covid-19 Safety Precautionary Measures

B. ELECTRICAL WORKS

1. **Supply & Installation of underground Meralco / PLDT Feeder Line Pipes and Junction Boxes (Phase I: Within Property Line)**

a. 1 1/2" dia PVC conduit
b. 1 1/2" PVC long elbow conduit
c. 1 1/2 PVC coupling/connectors
d. 3/4" PVC conduit for tel/int line
e. Solderless connectors
f. Double C-clamps, bolts, etc.
g. Concrete junction boxes (50x50x30cm) directly buried w/ steel top cover (Cement, sand, rebar, steel cover, lock, GI wire, etc. - see drawing detail)

2. Supply, delivery, and installation of Lighted Bollards, Timerswitch & underground Electrical Connection (Viewing Deck)

a. Bollard (LED bulb "replaceable, market-available" 15w, 3000k, Die-cast Aluminum Body, Anti-corrosion treated, IP65 - verify color / finish on plan, see site development plan / drawing detail: 2 types)
b. 3/4" PVC conduit
c. 2-set 5.5mm2 THHN wires + 3.5mm 2 ground
d. 3/4" Coupling/connectors, elbows, tee etc.
e. GI wires
f. Timer Switch with manual overide

3. Supply, delivery and installation of LED Flood Lights, steel cage, timer switch, & Electrical Connection (Viewing Deck)

a. LED flood lights (100W, 120deg. Angle, DL/WW) - see site development plan / drawing detail
b. 3/4" PVC conduit
c. 2-set 5.5mm2 THHN wires + 3.5mm 2 ground
d. 3/4" Coupling/connectors, elbows, tee etc.
e. GI wires
f. Timer Switch with manual overide
g. Fabrication of Steel Bar cage for flood lights with one-side opening & lock (see drawing detail)

4. Upgrading of 25kVA, 230V, 1-phase, 60Hz silent-type Diesel Generator System Set with Housing

a. 25kVA silent type diesel generator set 230V, 1-phase, 60 hz complete with accessories and spring type footing

SPECIFICATION:

- Prime Power : 25KVA
- Standby Power : 27.5KVA

- Rated Speed : 1800RPM
- Output Frequency : 60HZ
- Phase : 1
- Rated Voltage : 220V
- Engine Model : 4DW92-42D
- Alternator Model :184F
- Noise (7m) dB(A) : 70
- Fuel Consumption (L/H) : 5.6L/H
- Fuel Tank Capacity: 50L
- Random Voltage Rate : ≤±1%
- Voltage Regulation Rate : ≤±1%
- Random Frequency Variation : ≤±0.5%
- Frequency Regulation Rate : ≤±5%
- Weight (silent type) : 580kg
- Dimension (silent type) : 2000*850*850 (mm)

b. Construction of GenSet Cage Housing with one-side opening / lock and concrete pedestal (includes concrete pedestal, rebars, steel tubing, wire mesh, roofing, lock - see drawing detail)

5 Upgrading of Solar Panel Battery System

a. SMN200 solar master 200AH battery for solar power system

a. Description: Motolite Solar Master Deep Cycle Super Heavy Duty (Dimension: 49cm x 28cm x 21 cm)
b. Model: SMN200 Amphere Hours: 200
c. Issue: Old batteries
d. Qty: 16 pieces





C. SITE DEVELOPMENT WORKS

1. Repair of Viewing Deck

a. Replacement of Broken Composite Wood Panels - 14cm x 2.7m (4pcs)



b. Repainting Works of Composite Wood Panels (Wood Varnish - verify color) & Concrete Viewing Deck (Latex : Semi-Gloss White) - **150 sqm**
c. Grinding Works on Slippery Concrete Ramp (Right Pathwalk) **(10 sqm)**



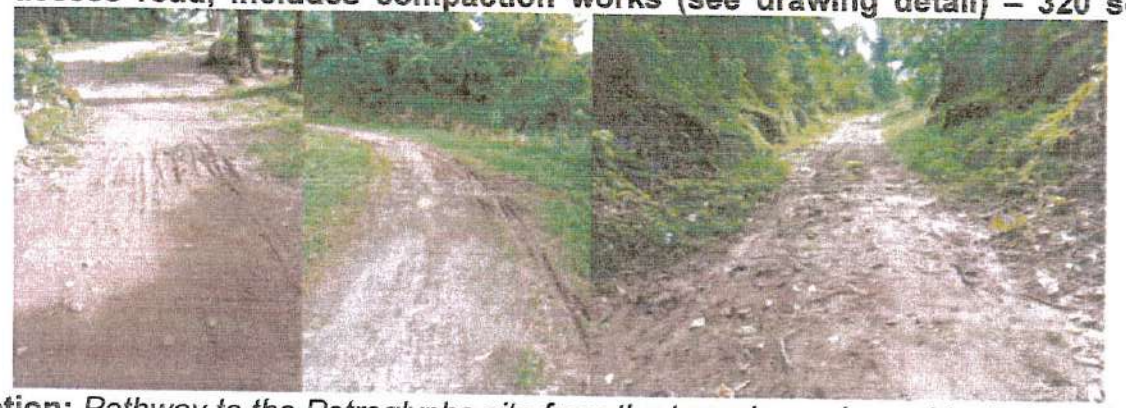
d. Dismantling and alignment of existing steel hand Railing (Right Pathway) - verify color on actual **(3 linear mtr)**
e. Supply and Installation of Turf Block Concrete Paver Pathway, includes soil fill & compaction works (see drawing detail) - **175 sqm**



2. **Construction of Perimeter fence at the back of main building office (concrete footing, cyclone wiring, tubular steel, welded rebar, etc. - verify color - see drawing detail) - 14 linear mtr**



3. **Supply, delivery & installation of 1" thk gravel bedding within property line / access road, includes compaction works (see drawing detail) – 320 sqm**



Caption: *Pathway to the Petroglyphs site from the tunnel area is muddy during rainy season.*

III.A NOTE: All works shall be read in conjuction with the working drawings, any discrepancy shall be timely coordinated with the National Museum of the Philippines-Facilities Management Division.

IV. EXPECTED OUTPUTS

1. The Contractor must provide confirmation of National Museum's building design requirements.
2. The Contractor shall provide all the materials, labor, equipment and services necessary for the construction of the project and other incidental expenses.
3. The Contractor shall secure the property, provide temporary utilities on site, manage their own personnel, dispose and recycle construction waste, monitor schedule and cash flows and maintain daily logbook of activities.
4. Submit for approvals plan that outlines the safety measures that will be implemented to the people not directly related to the construction of the project, the safety and protection of their workers during the construction, prevention and occurence of fire.
5. Furnish the National Museum with a set of the original copy of As-built plans.
6. Abide with the contract including the Technical Specification, General / Special Conditions which form part of this contract.

7. The contractor must ensure high standard of workmanship and structurally sound construction methods if found not in compliance to the standard provision as specified in the building code & related laws,he/she must report the same to FMD for proper disposition otherwise, it is covered by the contractor's liability.
8. The Contractor shall ensure that all its staff to be assigned at this project have been well-screened, technically and professional trained, courteous, cooperative, efficient, reliable, trustworthy, well-groomed, physical and mentally fit. No personnel shall be assigned who has not been approved by the FMD.

Prepared by:

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AO5, FMD

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Architect IV, FMD

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ENGR. JAINAB AIMEE T. ALTILLERO
Chief Administrative Officer, FMD

Recommending Approval:

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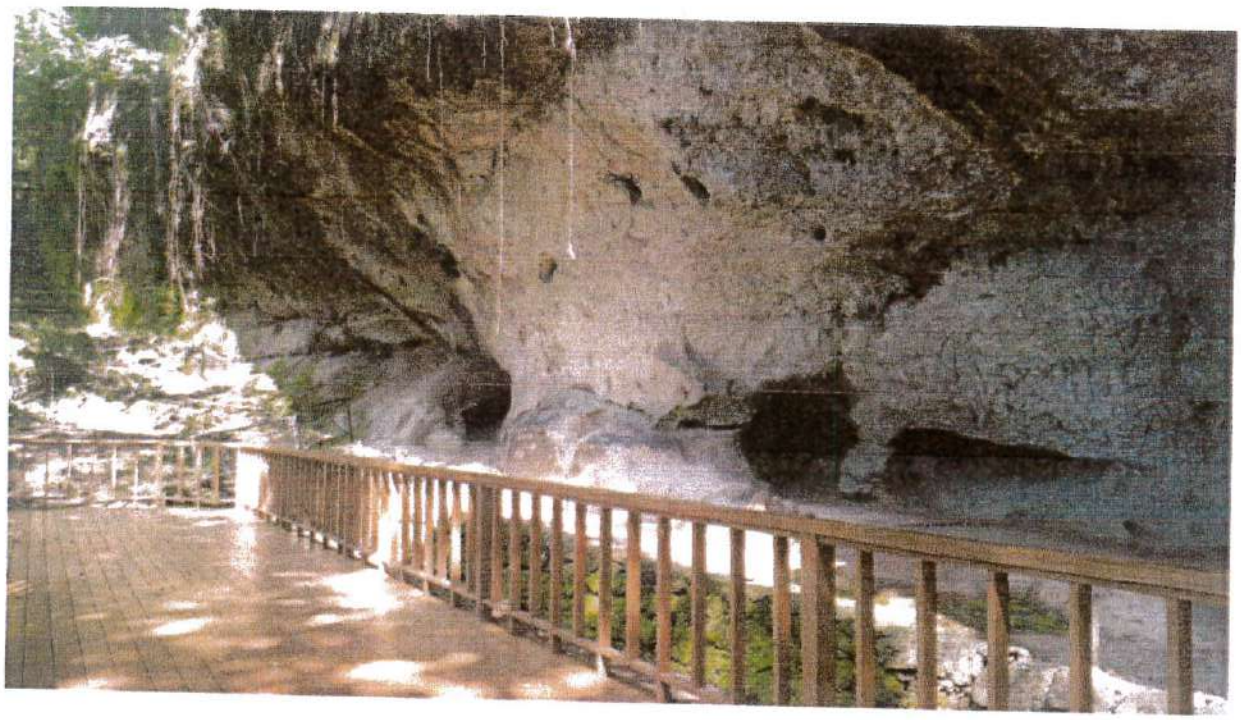
Approved by:

JEREMY R. BARNS, CESO III
Director-General

VI. TERMS OF REFERENCE

PROJECT TITLE AND LOCATION

REPAIRS AND MAINTENANCE OF ANGONO-BINANGONAN PETROGLYPHS SITE MUSEUM & SATELLITE OFFICE
Angono, Rizal



I. PROJECT BACKGROUND

The National Museum Angono Site Museum and Office was established after the accidental discovery in 1965 of a rock shelter by National Artist Carlos V. Francisco during a field trip in the province of Rizal. The development of a museum in the area was further strengthened when the rock art ought to be known as Petroglyphs was declared by the Philippine government as a National Cultural Treasure in 1973. Furthermore, the site was included in the World Inventory of Rock Art in 1985 and was included in UNESCO's tentative list of World Heritage Sites in the Philippines.

In this regard, the Angono site is one of the most visited regional branches of the National Museum, wherein different flocks of people gather including that of persons with disability. Therefore, it is important to create a safe experience for this group of people by making the site accessible in accordance to the standards set by the Batas Pambansa 344 or the Accessibility Law.

II. OBJECTIVE

The National Museum of the Philippines has a legacy of enhancing universal access by all Filipinos to exhibits and displays that showcase our national patrimony and heritage. Likewise, the agency aims to reach and promote these heritage to the public by encouraging more visits to the museums.

Therefore, this project of providing necessary repair and maintenance works to one of National Museum's regional branches and National Cultural Treasure that will further enhance the public's museum experience in turn allows the agency to better achieve its goals and fulfill expectations to the benefit of the entire Filipino people and the wider world.

III. SCOPE OF WORKS

This shall pertain to necessary works needed to complete the proposed project and shall include but is not limited to the supply, fabrication and installation of all materials, labour and equipment; provision for specialized activities, technical knowledge and skills; together with the liaison and coordination of applicable works such as applications of permits, licenses and notices to statutory authorities.

GENERAL WORKS:

1. The Contractor is expected to have conducted a site inspection prior to the actual mobilization, so as to acquiant and familiarize themselves with the location and condition of the project.
2. The Contractor shall obtain all official documents and payment of required fees and other costs incidental to the fullfillment of the requirements of the contract.
3. The Contractor shall safeguard the works and all building materials whether acquired or existing through proper warehousing and timely inventory. This shall include but is not limited to the installation of temporary facilities such as repository or warehouse, office and bunkhouse.
4. The Contractor is held responsible in ensuring the safety and protection of all persons engaged in the execution of the project. They shall also provide good general housekeeping practices.
5. The Contractor shall see to it that the area is clean and in its original condition after the contract is completed. Any damage caused by the Contractor shall be restored by them at no additional cost to the National Museum.
6. All other items of work not specifically mentioned but are necessary to complete the works shall by provided by the Contractor at at no additional cost to the National Museum.

A. PRELIMINARIES / GENERAL REQUIREMENTS

1. Mobilization / Demolization
2. Project Indentification Signage
3. Temporary Facilities (includes warehousing and ulitity consumption)
4. General Cleaning & Hauling of debris
5. Safety, Security and Housing
6. Covid-19 Safety Precautionary Measures

B. ELECTRICAL WORKS

1. Supply & installation of underground Meralco / PLDT Feeder Line Pipes and Junction Boxes (Phase I: Within Property Line)

a. 1 1/2" dia PVC conduit

b. 1 1/2" PVC long elbow conduit

c. 1 1/2 PVC coupling/connectors

d. 3/4" PVC conduit for tel/int line

e. Solderless connectors

f. Double C-clamps, bolts, etc.

g. Concrete junction boxes (50x50x30cm) directly buried w/ steel top cover (Cement, sand, rebar, steel cover, lock, GI wire, etc. - see drawing detail)

2. Supply, delivery, and installation of Lighted Bollards, Timerswitch & underground Electrical Connection (Viewing Deck)

a. Bollard (LED bulb "replaceable, market-available" 15w, 3000k, Die-cast Aluminum Body, Anti-corrosion treated, IP65 - verify color / finish on plan, see site development plan / drawing detail: 2 types)

b. 3/4" PVC conduit

c. 2-set 5.5mm2 THHN wires + 3.5mm 2 ground

d. 3/4" Coupling/connectors, elbows, tee etc.

e. GI wires

f. Timer Switch with manual overide

3. Supply, delivery and installation of LED Flood Lights, steel cage, timer switch, & Electrical Connection (Viewing Deck)

a. LED flood lights (100W, 120deg. Angle, DL/WW) - see site development plan / drawing detail

b. 3/4" PVC conduit

c. 2-set 5.5mm2 THHN wires + 3.5mm 2 ground

d. 3/4" Coupling/connectors, elbows, tee etc.

e. GI wires

f. Timer Switch with manual overide

g. Fabrication of Steel Bar cage for flood lights with one-side opening & lock (see drawing detail)

4. Upgrading of 25kVA, 230V, 1-phase, 60Hz silent-type Diesel Generator System Set with Housing

a. 25kVA silent type diesel generator set 230V, 1-phase, 60 hz complete with accessories and spring type footing

SPECIFICATION:

1. Prime Power : 25KVA
2. Standby Power : 27.5KVA
3. Rated Speed : 1800RPM
4. Output Frequency : 60HZ
5. Phase : 1
6. Rated Voltage : 220V
7. Engine Model : 4DW92-42D
8. Alternator Model :184F
9. Noise (7m) dB(A) : 70
10. Fuel Consumption (L/H) : 5.6L/H
11. Fuel Tank Capacity: 50L
12. Random Voltage Rate : ≤±1%
13. Voltage Regulation Rate : ≤±1%
14. Random Frequency Variation : ≤±0.5%
15. Frequency Regulation Rate : ≤±5%
16. Weight (silent type) : 580kg
17. Dimension (silent type) : 2000*850*850 (mm)

b. Construction of GenSet Cage Housing with one-side opening / lock and concrete pedestal (includes concrete pedestal, rebars, steel tubing, wire mesh, roofing, lock - see drawing detail)

5 Upgrading of Solar Panel Battery System

a. SMN200 solar master 200AH battery for solar power system

a. Description: Motolite Solar Master Deep Cycle Super Heavy Duty (Dimension: 49cm x 28cm x 21 cm)

b. Model: SMN200 Amphere Hours: 200
c. Issue: Old batteries
d. Qty: 16 pieces

C. SITE DEVELOPMENT WORKS

1. **Repair of Viewing Deck**
   a. Replacement of Broken Composite Wood Panels - 14cm x 2.7m **(4pcs)**
   b. Repainting Works of Composite Wood Panels (Wood Polyurethane - verify color) & Concrete Viewing Deck (Latex : Semi-Gloss White) - **150 sqm**
   c. Grinding Works on Slippery Concrete Ramp (Right Pathwalk) **(10 sqm)**
   d. Dismantling and alignment of existing steel hand Railing (Right Pathway) - verify color on actual **(3 linear mtr)**
   e. Supply and Installation of Turf Block Concrete Paver Pathway, includes soil fill & compaction works (see drawing detail) - **175 sqm**

2. **Construction of Perimeter fence at the back of main building office (concrete footing, cyclone wiring, tubular steel, welded rebar, etc. - verify color - see drawing detail) - 14 linear mtr**

3. **Supply, delivery & installation of 1" thk gravel bedding within property line / access road, includes compaction works (see drawing detail) – 320 sqm**

III.A NOTE: All works shall be read in conjuction with the working drawings, any discrepancy shall be timely coordinated with the National Museum of the Philippines-Facilities Management Division.

IV. EXPECTED OUTPUTS

1. The Contractor must provide confirmation of National Museum's building design requirements.
2. The Contractor shall provide all the materials, labor, equipment and services necessary for the construction of the project and other incidental expenses.

3. The Contractor shall secure the property, provide temporary utilities on site, manage their own personnel, dispose and recycle construction waste, monitor schedule and cash flows and maintain daily logbook of activities.
4. Submit for approvals plan that outlines the safety measures that will be implemented to the people not directly related to the construction of the project, the safety and protection of their workers during the construction, prevention and occurence of fire.
5. Furnish the National Museum with a set of the original copy of As-built plans.
6. Abide with the contract including the General Condition and Specification which form part of the contract.
7. The contractor must ensure high standard of workmanship and structurally sound construction methods if found not in compliance to the standard provision as specified in the building code & related laws,he/she must report the same to FMD for proper disposition otherwise, it is covered by the contractor's liability.
8. The Contractor shall ensure that all its staff to be assigned at this project have been well-screened, technically and professional trained, courteous, cooperative, efficient, reliable, trustworthy, well-groomed, physical and mentally fit. No personnel shall be assigned who has not been approved by the FMD.

V. EXPECTED TIME FRAME

The Project's actual construction is expected to be completed in **Seventy-Five (75) Calendar Days.**

VI. CONSTRUCTION SUPERVISION

The project will be implemented under the direct supervision of the National Museum of the Philippines - Facilities Management Division in coordination with NM-ANGONO / RAOD.

VII. THE CONTRACTOR

The National Museum of the Philippines requires the services of a building contractor with legal, technical and financial capability to implement the abovementioned

project. The Bidder will be required to submit at least one (1) similar contract/s awarded comprising of National Heritage Site and completed from Y2017 up to present with an amount of at least Fifty Percent (50%) of the Approved Budget for the Contract (ABC) must have proven relevant experience with proper client references, and with a valid PCAB license Category C (Size Range: Small B) or higher.

VIII. SOURCE OF FUND

Budget is available and should be chargeable against the General Fund under MOOE – Repair and Maintenance – Buildings and Other Structures - Budget Allotment for FY 2021

IX. APPROVED BUDGET FOR CONTRACT

Three Million Five Hundred Thousand and 0/100 Pesos (Php3,500,000.00). Inclusive of all applicable taxes.

X. PROCUREMENT PROCESS

Competitive Bidding - Procurement of services of a building contractor for the abovementioned project shall be in accordance with the provisions of the Government Procurement Reform Act (R.A 9184) and its Revised Implementing Rules and Regulations.

XI. WARRANTY

A one (1) year warranty from the completion of the project of the end-user to ensure the integrity of the project.

XII. LIQUIDATED DAMAGES

When the contractor fails to satisfactorily deliver goods under the contract within the specified delivery schedule, inclusive of duly granted time extensions, if any, the contractor shall be liable for damages for the delay and shall pay the procuring entity liquidated damages, not by way of penalty, an amount equal to 1/10 of 1% of the cost of the delayed contract scheduled for completion for every day of delay until such works are finally delivered and accepted by the procuring entity concerned.

In no case shall the sum of the liquidated damages exceed 10% of the total contract price, in which the procuring entity concerned may rescind the contract and impose appropriate sanctions over and above the liquidated damages.

XIII. PRE-TERMINATION CLAUSE

The contract is effective on the date indicated in the NTP and shall remain in full force for specified Calendar Days or until terminated by either party (National Museum or Contractor) upon prior written notice by either party. Termination process shall follow the prescribed procedure under IRR-A R.A. 9184.

The National Museum reserves the right to pre-terminate the contract after Fifteen (15) calendar days via written notice to the Contractor, if in National Museum's opinion, after due verification of facts, the Contractor is not providing satisfactory services or is not complying with the Terms and Conditions of the Contract. The grounds for the termination of the Contractor by the National Museum include but not limited to the following:

1. Violation(s) in any of the Terms and Conditions of the Contract; and
2. Any other act of omission by the Contractor or its service technicians which is detrimental or prejudicial to the interest of the National Museum, its employee(s), member(s) or public.

Prepared by:

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Project-in-charge / AO5, FMD

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Architect IV, FMD

Noted by:

ENGR. JAINAB AIMEE T. ALTILLERO
Chief Administrative Officer, FMD

Recommending Approval:

Atty. MA. ROSENNE FLORES-AVILA
Deputy Director-General (Administration)

Approved by:

JEREMY R. BARNS, CESO III
Director-General

PAMBANSANG MUSEO NG PILIPINAS
NATIONAL MUSEUM OF THE PHILIPPINES
Old Congress Building, P. Burgos St., Ermita, Manila

PROJECT TITLE AND LOCATION

REPAIRS AND MAINTENANCE OF ANGONO-BINANGONAN PETROGLYPHS SITE MUSEUM & SATELLITE OFFICE

Angono, Rizal



TECHNICAL SPECIFICATION & GENERAL / SPECIAL CONDITIONS OF THE CONTRACT

Prepared by:

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AO5, FMD

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JEREMY R. BARNS, CESO III
Director-General

X. TECHNICAL SPECIFICATIONS

DIVISION 01 GENERAL REQUIREMENTS

1. SCOPE OF WORK

This section shall include the mobilization and demobilization of Contractor's plant, equipment, materials and employee to the site; construction of Engineer's office and facilities; compliance with the contract requirements and maintaining the facilities for the Engineer.

This section shall include the furnishing of labor, materials, transportation, tools, supplies, plant, equipment and appurtenances to complete satisfactorily the construction of the proposed project.

2. MOBILIZATION AND DEMOBILIZATION

The Contractor upon receipt of the Notice-to-Proceed shall immediately mobilize and transport his plant, equipment, materials and employees to the site and demobilize or remove the same at the completion of project and level/ clear the site acceptable to the Engineer and the Owner.

Mobilization and Demobilization are incidental to other items of work and will not be measured for payment.

3. TEMPORARY FACILITIES

3.1 Combined Field office, Living Room/Kitchen, Quarter and Bathroom

During the performance of the contract, the Contractor shall provide and maintain one unit of field office with living room/kitchen, quarter and bathroom within the site of the work at designated location approved by the Procuring Entity's representative at which the Engineer shall be holding office at all times, while the work is in progress. The location, dimensions and layout of such combined field office/quarters shall be subject to the approval of the Engineer and local authorities having jurisdiction thereof. Construction shanties, sheds and temporary facilities provided as required for the Contractor's convenience shall be maintained in good condition and neat appearance including finishes as required by the Engineer.

3.2 Temporary Light and Power

The Contractor shall provide and maintain temporary electrical service including installation of temporary power and lighting within the construction site and facilities constructed thereat. The electrical services shall be adequate in capacity to supply power to construction tools and equipment without over-loading the temporary facilities and shall be made available to supply power, lighting and construction operations of all trades. All temporary equipment and wiring for power and lighting shall be in accordance with the applicable provisions of the local governing codes. At the completion of the construction work all temporary wiring, lighting, equipment and devices shall be removed.

3.3 Temporary Toilets

The Contractor shall provide and maintain in sanitary condition enclosed toilets for the use of all construction personnel located within the contract limits, complete with fixtures, water and sewer connections and all appurtenances. Installation shall be in accordance with all applicable codes and regulations of the local authorities having jurisdiction thereof. Upon completion of the work, temporary toilet and their appurtenances shall be removed.

3.4 Temporary Water Service

The Contractor shall provide and maintain temporary water supply service, complete with necessary connections and appurtenances. Installed water supply lines shall be used as a source of water for construction purposes subject to the approval of the Engineer. The Contractor shall pay the cost of operation, maintenance and restoration of the water system. All temporary water service including equipment and piping shall be removed upon completion of the work and all worn out and damaged parts of the permanent system shall be replaced and restored in first class condition equal to new.

3.5 Security

The Contractor shall provide sufficient security in the construction site to prevent illegal entry or work damaged during nights; holidays and other period when work is not executed; and during working hours. The Contractor shall take ample precautions against fire by keeping away flammable materials, and ensure that such materials are properly handled and stored. Fires shall not be allowed within the area of construction, except when permitted by the Engineer.

3.6 Disposal Area

The proposed location of disposal area shall be at the site designated by the Owner/Engineer. It is the responsibility of the Contractor to disposed off site all construction debris and be considered in the preparation of his proposal.

3.7 Contractor's Key Personnel and Maintenance Staff to be assigned to the Project

a) Key Personnel:

Project Manager (Licensed Civil Engineer)
1 - Licensed Civil/Structural Engineer
1 - Licensed Electrical Engineer
1 - Licensed Architect
1 - Materials/Quantity Engineer
1 - Safety Engineer (Certified)

Payment for the above key personnel are incidental to other items of work, hence, will not be measured and paid separately.

b) Maintenance Staff:

1 - Clerk Typist/Encoder
2 - Security Guards

1 - Utility Man

c) Personnel to be Assigned to Assist the Engineer

The Contractor shall at all times during the duration of the contract provide for the use of the Engineer all equipment, instruments and apparatus, all information and records and qualified chainmen and laborers required by the Engineer for inspecting and measuring the works. Such equipment, instruments and apparatus shall include those listed in this provision.

The Contractor shall at all times during the duration of the contract provide for the use of the Engineer all equipment, instruments and apparatus, all information and records and 3 qualified Civil Engineers, chainmen and laborers required by the Engineer for inspecting and measuring the works.

4.FACILITIES FOR THE ENGINEER

The Contractor shall provide and maintain 2 units Office (with Living Room, Dining/Kitchen, Quarter and bathroom) to include utilities for the Engineer but not limited to the following items:

4.1Combined Field Office and Engineer's Quarters

The Contractor shall provide and maintain on a **rental basis** two (2) units combined field office and quarter (2 units 40 footer portable cabin/trailer type mobile office) including electricity, water, air-conditioning and drainage services as directed by the Engineer. The portable cabin/trailer shall be securely anchored to the ground at all four corners to guard against movement during high winds.

The Contractor shall provide the combined field office and quarter building, before occupancy by the Engineer, with furniture (working tables, chairs, conference tables, filing cabinet, plan racks), access to copying and fax machines, air conditioning unit and toilet facilities as well as communication facilities as specified in Schedule A.

The Contractor shall provide for the field office sufficient and necessary supply for all normal stationary, printing paper, consumable items as specified under Schedule C, all as required by and to the satisfaction of the Engineer.

If the Contractor cannot provide the articles on time, the Engineer shall secure the items and the Contractor shall immediately reimburse the Engineer for the cost thereof.

The combined field office and Engineer's quarter, furniture and fixtures, office equipment and communication facilities shall be ready for occupancy and use by the Engineer within thirty (30) calendar days of the start of contract time. During the period that the building is not yet ready, the Contractor shall provide temporary accommodation to the satisfaction of the Engineer.

The Contractor will be paid for the actual cost duly receipted plus 15% for the temporary accommodation so provided under Item No. A(1)b. Facilities for the Engineer (Maintenance of combined Field Office and Quarters).

The Contractor shall provide the combined field office and quarter throughout the period of the Contract, with 24-hour supply of potable water, electricity and other services.

The Contractor shall be responsible for replacing and/or restoring, as directed, any facility or parts thereof which become damaged from any cause, or become worn out, lost, misplaced or stolen. The Contractor shall also provide stocks of expendable items such as light bulbs and tubes, insecticides, fuel, lubricants and the like.

The Contractor shall pay all bills for water, electricity, and other services.

(1)The field office and quarter, furniture and fixtures, office equipment like air- con units and temporary power equipment etc., microcomputer system shall become the property of the Owner upon their payment.

(2)The Contractor shall be responsible for the maintenance and protection of all facilities (to include the facilities of the Engineer) to be provided during the Contract. He shall provide one (1) utilityman to maintain all the facilities keeping them in good condition. He shall provide minimum of two (2) security guards in 2 shifts, 1 guard per shift to safeguard and secure, day and night, the building, equipment, furnishings and the personal property of the occupants, all as directed and/or approved by the Engineer.

The Contractor, if requested by the Engineer, shall immediately replace assigned personnel for reasons arising from misconduct and/or unsatisfactory performance.

4.2Vehicles for the Engineer

The Contractor shall provide within thirty (30) calendar days after notice to commence work, the vehicles listed in Schedule B for the exclusive use of the Engineer, payment of which shall be on a monthly basis.

The vehicles shall comply in all respects with all relevant Philippine national or local laws, statutes and regulations. All vehicles shall carry or be fitted with the accessories as may be prescribed by laws and have comprehensive insurance. The vehicles on delivery shall be in good running condition, of the latest model and shall be driven by a competent qualified and experienced driver who shall be under the direct order of the Engineer. The Contractor shall maintain the vehicles in first class condition and shall be supplied with appropriate fuel and lubricants at all times. Provide a minimum of 20 liters of fuel per day as well as 4 spare tires.

He shall provide equivalent substitute vehicles when taken out of service for maintenance, repair or any other reason. Unless otherwise specified, the vehicles shall at the end of the contract become the property of the Owner.

4.3 Photographs

The Contractor shall provide record progress photographs (120 photographs per month) taken as, when and where directed by the Engineer at intervals of not more than one month. The photographs shall be sufficient in number and location to record the exact progress of the works. The Contractor shall provide one proof print of each photograph taken, and the negative and three (3) copies, in 3R size and printed on glossy paper, of any of the photographs selected as progress photographs by the Engineer. The photographs retained by the Engineer will become the property of the Owner and the Contractor shall supply approved albums to accommodate them. Two copies are to be signed by the Contractor, one of which will be signed by the Engineer and returned to the Contractor.

4.4 Signboards

The Contractor shall furnish, erect and maintain 2 project identification signs, for as shown on the Drawings. All signs shall be placed at strategic location designated by the Engineer. Upon completion of the work, all signs installed shall be removed from the site.

4.5 General Operation and Maintenance Manual

The Contractor shall produce and supply to the Engineer two bound hard copies and two disk copies (Microsoft Word and Microsoft Excel) of an operation and maintenance manual on the target completion date for the contract.

No separate payment for the Operation and Maintenance Manual as this is deemed to be included as incidental to other items of work.

4.6 As-Built Drawings

The Contractor shall produce and supply to the Engineer two good hard copies of a full set of "As-Built" drawings at A1 size. The Engineer may allow up to 30 days after target completion date for delivery of some of these drawings, but otherwise they shall be due on the completion date. These shall include correctly amended version of all Contract Drawings to freely and accurately describe the As-built condition of all elements of the project within the Contractor's scope of work, to the approval of the Engineer. All drawings shall be clearly marked "AS BUILT".

No separate payment for the As-built Drawings as this is deemed to be included as incidental to other items of work.

5. MISCELLANEOUS ITEMS FOR THE ENGINEER'S QUARTERS

5.1PAYMENT

a) For all work executed or goods, materials, or services supplied by the Contractor under lump sum items, the quantities as determined above shall be paid for at the appropriate contract lump sum unit price as indicated in the Bid Schedule.

b) The quantities determined as provided above for the maintenance of the combined field office, and quarter, the provision of transport for the Engineer, the provision of operation and maintenance of the Engineer's transport and the provision of progress photographs, shall be paid for at the appropriate contract unit price for each of the particular pay item shown in the Bid Schedule.

6. COMPLIANCE WITH CONTRACT REQUIREMENTS

6.1Control of on Site Construction

Prior to the start of any definable feature of the work, the Contractor must perform the necessary inspection to include as follows:

a) Review of Contract Documents to make sure that materials, equipment and products have been tested, submitted and approved.

b) Physical examination of materials and equipment to assure its conformity to the specifications, plans, shop drawings and other data.

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

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

6.2 Pre-construction Meetings

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

6.3 Progress Meetings

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

a) When called upon by the Engineer or the Owner or his representative for the purpose of discussing the execution of work. Contractor's material men or vendors whose presence is necessary or requested must attend progress meetings. Each of such meeting shall be held at the time and place designated by the Engineer or his representative. Decisions and instructions agreed on these meetings shall be binding and conclusive on the contract. Minutes of this meeting shall be recorded and reasonable number of copies shall be furnished to the Contractor for distribution to various materials men and vendors involved.

b) The Contractor may also call for a progress meeting for the purpose of coordinating, expediting and scheduling the work. In such meeting Contractor's material men or vendors, whose presence is necessary or requested are required to attend.

6.4 Progress Reports

The Contractor shall faithfully prepare and submit progress reports to the Engineer every 30 days after the start of the project up to its completion, showing the work completed, work remaining to be done, the status of construction equipment and materials at the site.

6.5 Survey Data

The Contractor shall layout his work from established based lines and bench mark indicated in the drawing and shall be responsible for all measurement in connection therewith. The Contractor shall furnish, at his own expense, all stakes, templates, platforms, equipment, tools, materials and labor as may be required in laying out any part of the work, out of established base lines and bench mark.

It shall be the responsibility of the Contractor to maintain and preserve all stakes and other marks until he is authorized to remove them. If such marks are destroyed by the Contractor through his negligence prior to the authorized removal, they shall be replaced at the expense of the Contractor.

6.6Shop Drawings

The Contractor shall submit and furnish shop drawings and samples accompanied with transmittal forms in accordance with the provision of the Conditions of Contract. The term "Shop Drawings" as used herein shall be understood to include detailed design calculations, construction drawings, lists, graphs, and others.

a) Transmittal forms shall be filled out in type-written or ink with no alterations or interlineations unless initialed and dated before submittal. Shop drawings shall be submitted the same size as the contract drawings when practicable, but in no case it shall exceed dimension of the contract drawings. The Contractor shall make preliminary check of all shop drawings for compliance with the contract documents and he shall stamp each print with statement of compliance with the requirements. The Contractor may authorize his supplier to deal directly with the Engineer with regard to shop drawings, however, ultimate responsibility for accuracy and completeness in the submittal shall remain with the Contractor.

b) The said shop drawing and transmittal shall be submitted at a time sufficiently early, to allow review of the same by the Engineer and to accommodate the rate of construction progress required under the contract. The contractor shall submit print copies of shop drawings with transmittal forms, and copies of brochures with transmittal forms, as required by the Engineer.

c) Any shop drawings and samples, submitted not accompanied by transmittal forms or where all applicable items on the forms are not completed will be returned for re-submittal. The Engineer who will check and evaluate mentioned shop drawings will retain print copy for his file and return the rest to the Contractor with notation. Returned shop drawings marked "No Exceptions Taken" or "Make Corrections Noted", means formal revision of said drawings will not be required. If it is marked "Amend-Resubmit" or "Rejected-Resubmit", the Contractor shall revise said drawing and shall submit revised drawing to the Engineer.

d) The Engineer shall process the submission and indicate the appropriate action on the shop drawings and transmittal forms. Construction of an item shall not commenced before the Engineer has reviewed the pertinent shop drawing and returned it to the Contractor, marked as mentioned above. Revisions indicated on shop drawing shall be considered as changes necessary to meet the requirements of the contract drawings and specifications, and shall not be taken as the basis of claims for extra work. The Contractor shall have no claim for damages or extension of time due to any delay, resulting from having Contractors make the required revisions, unless reviewed by the Engineer was delayed beyond reasonable period of time and unless the Contractor can establish that such delay in revision resulted in delay of the project.

Re-submittal procedure shall follow the same procedure as the initial submittal.

6.7 Construction Photographs

The Contractor shall take photographs during the progress of the work once a month, all taken where directed by the Engineer. At the completion of the project final photographs shall be taken by the Contractor as directed by the Engineer. Two prints of each photograph shall be sent to the Owner and one print to the Engineer. The photographs shall be neatly labeled, dated, and identified in a little box in the lower right hand corner, showing the date of exposure, project name, location and direction of view.

All negatives shall be retained by the Contractor until completion of the work at which time they shall become the property of the Owner.

6.8 Cleaning-up

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

6.9 Documents to be Submitted

The following documents shall be submitted by the Contractor to the Engineer and the Owner prior to final payment and before issuance of final certificate of payment in accordance with the provisions of the conditions of contract.

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

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

END OF SECTION

DIVISION 02 EXISTING CONDITIONS

PART I-GENERAL

1. SITE ASSESSMENT AND SITE SURVEY

General Contractor involved in site assessment and survey must have a thorough review of its scope to be able to delineate the boundary of development. The Supervising Engineer must be familiar with the provision of the latest edition of the National Building Code and the regulations of the local authority concerned in the enforcement of the laws and ordinances.

Coordinate as necessary with other trades concerned to assure proper knowledge of scope of works.

Site assessment and survey shall be conducted using appropriate technologies including the use of standard and agreed –upon procedures.

2. SELECTIVE DEMOLITION

Existing concrete pavements at the line of development and to be affected by foundation works as per Plan shall be demolished as approved by the Supervising/Consulting Engineer.

No other portions which are not included in the scope of works shall be altered, moved or demolished unless with written approval of Consulting Architect/Engineer.

Haul routes shall be designated by the Procuring Entity and Consulting Architect/Engineer.

3. GEOTECHNICAL AND MATERIAL INVESTIGATION

The General Contractor shall be responsible for geotechnical and material investigation as necessary to assess the existing soils, its composition and existing materials for proper coordination of work.

PART II- PRODUCTS

The work shall include the furnishing of all labor, materials, equipment like portable jack hammers, concrete cutters and services necessary for complete assessment, survey, testing, investigation and selective demolition as per Plan. In case of conflict between Plans and these Specifications, the Consulting Architect shall be notified.

PART III-EXECUTION

The work throughout will be executed in quality and most thorough manner known to the satisfaction of Consulting Architect/Engineer.

END OF SECTION

DIVISION 03 SITE WORKS

PART I-GENERAL

The General Contractor shall control the grading in the vicinity of all excavated areas to prevent surface drainage running into excavations. Excavation and filling shall be performed in manner and sequence that will provide proper drainage at all times. Water which accumulates in excavated areas shall be removed by pumping before fill or concrete in placed therein. He shall perform excavation of every type of material encountered within the limits of project to the lines, grades and elevations indicated and as specified herein.

The General Contractor shall protect and maintain existing utility lines or notify authorities concerned for removal or discontinuance of said utilities in accordance with the instructions and requirements of notified parties in the event that it would interfere with the excavation.

Any excess material remaining after completion of the site works shall be disposed of by hauling and spreading in nearby spoil areas designated by the Procuring Entity. Excavated material deposited in spoil areas shall be graded to a uniform surface.

PART II- PRODUCT

1. SITE CLEARING AND GRUBBING

The work shall include the furnishing of all labor, materials, equipment and services necessary for complete clearing of trees not marked for preservation, snags, logs, brush, stump, rubbish and disposal to designated areas.

2. SITE MOVING

2.1 Common Fill – shall be approved site – excavated material free from roots stumps and other perishable or objectionable matter.

2.2 Select Fill – shall be placed where indicated and shall consist of crushed gravel, crushed rock, or a combination thereof. The materials shall be free from adobe vegetable matters and shall be thoroughly tamped after placing.

2.3 Equipments like vibratory compactors and other equipments necessary for complete and proper procedure.

3. EARTHWORK METHODS

3.1 Termite Control

Liquid Termite Concentrate

Liquid Termicide Ready-Mixed Solution

Powder Termicide

4. SHORING AND UNDERPINNING

Adequate bracing, shoring, underpinning, excavation and support shall be provided by the General Contractor. Design and configuration shall be approved by the Consulting Engineer.

PART III-EXECUTION

1. SITE CLEARING AND GRUBBING

The General Contractor shall consult with the Procuring Entity and Consultants prior to begin clearing, and a full understanding is to be reached as to procedure.

Site clearing, as shown in Plans, shall be undertaken to allow the succeeding phase of works to proceed with limited constraints for grading, trench excavation, and other utility preparation.

The work shall consist of clearing and grubbing within the boundary limits. Clearing and grubbing shall be done prior to pipe installations. Existing structure shall be protected against damage.

1.2 Selective Tree and Shrub Removal and Trimming

Trees to be left standing and uninjured shall be designated by special markings that are conducive to preventing injury to the tree. All trees not marked for preservation and all snags, logs, brush, stumps, shrubs, rubbish and similar materials shall be cleared from within the limits of the designated areas.

2. SITE MOVING

2.1 Excavation and Fill

2.1.1 Subgrade Preparation

Sub-grade shall be shaped to line, grade, and cross-section, and compacted as specified. This operation shall include plowing, disking, and any moistening or aerating required to obtain proper compaction. Soft or otherwise unsatisfactory excavated materials or other approved materials as directed in writing. Low areas resulting from removal of unsatisfactory materials or excavation of rock shall be brought up to required grade with satisfactory materials, and entire sub-grade shaped as specified. Elevation of finish sub-grade shall conform to elevation as shown.

Stake out accurately the lines of the building and of the other structures included in the contract, and establish grades therefore, after which secure approval by Consulting Architect and Engineer before any excavation work is commenced.

Erect basic batter boards and basic reference marks at such places where they will not be disturbed during the construction of the foundations.

Footings or foundations which may be affected by the excavation shall be underpinned adequately, or otherwise, protected against settlement and/or against lateral movement.

2.1.2 Excavation

During construction, any excavation shall be kept shaped and drained. Ditches and drains shall be maintained in such a manner as to drain effectively at times. Storage or stockpiling of materials on the sub-grade will not be permitted. Graded areas shall be protected against action of elements prior to acceptance of work. Settlement or washing that may have occurred shall be repaired and grades re-established to the required elevations and slopes immediately prior to installation of paving.

Excavation carried below indicated depths will not be permitted except to remove unsatisfactory material. Unauthorized materials removed below depths indicated shall be replaced at no additional cost to the Procuring Entity.

Excavations shall be to the depths indicated bearing values. Excavations for footings and foundations carried below required depths shall be filled with concrete and bottom of such shall be level. All structural excavations shall extend to sufficient distance from the walls and footings to allow for proper erection and dismantling of forms for installation of service and for inspection. All excavations shall be inspected and approved before pouring any concrete laying underground services or placing select fill materials.

2.1.3 Trenching

Trenches shall be of necessary width for proper laying of pipe, while concrete lining, duct, or cable, and banks shall be nearly vertical as practicable. Trench excavation shall be coordinated to avoid open trenches for prolonged periods. Bottoms of trenches shall be accurately graded to provide uniform bearing and support for each section of pipe on undisturbed soil at every point along its entire length, except for portions of pipe sections where it is necessary to excavate for bell holes and for proper making of pipe joints.

Pile materials suitable for backfilling a sufficient distance from banks or trenches to prevent slides or cave-ins. Excavated materials shall be piled to one side only of trenches and in such a manner as to permit ready access to and use of existing utilities system. Sheathing and shoring shall be done as necessary for protection of work and for safety of personnel.

Backfilling shall be coordinated with testing of utilities. Trenches shall be carefully backfilled with satisfactory materials, free of large clod of earth or stones not over 25mm in size and deposited 0.20m max. layer, loose depth. Care shall be taken not to damage pipe. Trenches and excavation pits improperly backfilled, or where settlement occurs, shall be reopened to depth required for proper compaction, then refilled and compacted, with the surface restored to required grade and compaction.

2.1.4 Rock Removal

Hard material shall be defined as solid ledge rock, any boulder, masonry or concrete except pavements exceeding ½ cubic meter in volume, firmly cemented unstratified mass or conglomerate deposits possessing the characteristics of solid rock shall be removed through systematic drilling and blasting as directed or approved by the Engineer and at the General Contractor's expense.

2.1.5 Dewatering

Excavate in such manner that immediate surrounding will be continually drained. Water shall not be allowed to accumulate in excavations. Keep all excavations dry and protected from the weather. Drained water shall be connected to the nearest storm drainage system.

2.1.6 Backfill

Backfilling can only begin with the construction below finish grade approved, forms removed, underground utilities had been inspected, tested and approved, excavation cleaned of trash and debris. Backfill material shall be free of roots, other organic matters, trash, debris and stones larger than 75 centimeter in any dimension. Place backfill in 0.20 cm. maximum layers loose depth, each layer being thoroughly compacted and rammed by wetting, tamping or rolling.

Satisfactory excavated material required for fill and backfill shall be separately stockpiled as directed. Unsatisfactory and surplus excavated materials not required for fill and backfill shall be disposed of in a designated waste area. Stockpiles of excavated material shall be graded and sloped for proper drainage.

Before placing fill material, the surface upon which it will be placed shall be cleared of all brush roots, vegetable matter and debris, scarified and thoroughly wetted to ensure good bonding between the ground.

2.1.7 Compaction

Compaction shall be by rolling with approved tamping rollers or other approved equipment well –suited to the particular soil being compacted. Materials shall be moistened or aerated as necessary to provide moisture content that will facilitate obtaining the specified compaction with the equipment utilized. Each layer shall be compacted to not less than 95% maximum dry density.

2.2 Grading

Cutting, filling and grading will be done to bring all areas of respective surfacing as fixed by the finished grade. Site grading shall conform to the lines and grades indicated by the finish contours on the Plans. Where topsoil, pavement, aggregate surfacing and other items are shown, rough grade shall be finished to such depth below finish grade as necessary to accommodate these items. All areas where structures are to be built on fill, shall be stripped to such depth as necessary to remove turf, roots, organic matter and other objectionable materials.

3. EARTHWORK METHODS

3.1 Soil Treatment

3.1.1 Termite Control

The General Contractor shall termite-proof the project in applicable termite controls as approved by the Consulting Architect/Engineer. Termite control chemicals or toxicants shall be able to immediately exterminate termites or create barriers to discourage entry of subterranean termites into the building areas. The General Contractor shall give in Service guarantee covering the treatment of termite infestation without

extra cost to the Procuring Entity if any infestation of recurrence of infestation occurs during the guarantee period of one year.

At the time soil poisoning is to be applied, the soil to be treated shall be in friable condition with low moisture content so as to allow uniform distribution of the toxicant agents.

Treatment of the soil on the exterior sides of the foundation walls, grade beams and similar structures shall be done prior to final grading and planting or landscaping work to avoid disturbance of the toxicant barriers by such operations.

Areas to be covered by concrete slab shall be treated before placement of granular fill after it has been compacted and set to required elevation. Additional treatment shall be applied in critical areas such as utility openings for pipes, conduits and ducts, along the exterior perimeter of the slab and under expansion joint.

Prior to landscaping of the lawn, saturate the building perimeter of about 3.0m wide with soil poison working solution. Earth fill shall be treated thoroughly with poison working solution as soon as fill is packed and levelled. Every square area shall be drenched with solution

3.1.2 Rodent Control Traps

Enclosed hollow spaces between ceiling and double sidings or partitions shall be rat proof in accordance with DOH requirements.

Hollow spaces between ceilings shall be rendered rat-proof by laying continuous strips of galvanized iron sheet or 10mm wire mesh, about 25cm wide and centered along floor plates or sills of partitions and exterior walls.

The rat proofing strips shall be sandwiched between floor joists/plates and sills of partitions of sidings. The strips shall be nailed to the top of the joists as well as to underside of sills and floor boards.

All exterior openings between adjoining floor joist and girders or beam that might give rats direct access into the hollow space inside shall when not closed by fascia board or the like, be covered with strips of the same rat proofing material of sufficient size to close entirely the opening in question.

4. SHORING AND UNDERPINNING

Shoring and underpinning of all excavations are necessary to protect workers, side banks, adjacent paving, structures and utilities. Shoring, bracing and sheathing shall be removed as excavations are backfilled in a manner to prevent caving or uneven ground settlements

The bracing and shoring systems required to provide temporary support of a structure shall be designed to support the dead, live, soil, earthquake and wind loads that maybe imposed on the structure during construction with standards and engineering principles.

END OF SECTION

DIVISION 04 CONCRETE

PART I-GENERAL

1. CONCRETE FORMWORKS

Design, erect, support, brace, and maintain form work so it will produce correctly aligned concrete and safety support vertical and lateral loads which might be applied until such loads can be supported safety by the concrete structure.

Construct forms to the exact sizes, shapes, lines and dimensions as required to obtain accurate alignment, location, grades, and level and plumb work in the finish structure.

2. CONCRETE REINFORCEMENTS

Steel reinforcement shall be stored above the surface of the ground upon platforms, skid or other supports and shall be protected as far as practicable from mechanical injury and surface deterioration caused by exposure to conditions producing rust. When placed in the worked, reinforcement shall be free from dirt, detrimental rust, loose scale, paint, grease, oil, or other foreign materials. Reinforcement shall be free from injurious defects such as cracks and laminations. Rust, surface seams, surface irregularities or mill scale will not be cause for rejection, provided the minimum dimension, and cross sectional area and tensile properties of the material meets the physical requirements for the size and grade of steel specified.

3. CAST-IN-PLACE AND PRE-CAST CONCRETE

All cements shall be stored, immediately upon delivery at the Site, in weatherproof building, which will protect the cement from dampness. The floor shall be raised from the ground. The buildings shall be placed in locations approved by the Supervising/Consulting Engineer. Provisions for storage shall be ample, and the shipments of cement as received shall be separately stored in such a manner as to allow 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 a sufficient quantity of cement to allow sampling at least twelve 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 shortage when wrested is ordered by the Supervising/Consulting Engineer. At the time of use, all cements shall be free of lumps.

The handling and storing of concrete aggregates shall be such as to prevent segregation or the inclusion of foreign materials. The Supervising/Consulting Engineer may require that aggregates be stored on separate platforms at satisfactory locations.

In order to secure greater uniformity of concrete mix, the Supervising/Consulting Engineer 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 sufficiently remote from each other to prevent the material at the edges of the piles from becoming intermixed.

PART II- PRODUCTS

1. CONCRETE FORMWORKS

Use plywood, metal, phenolic, or surfaced lumber form for all exposed concrete work, 1/4" thick minimum. Forms for surfaces exposed or unexposed to view and requires a standard finish shall be plywood or metal. For surfaces requiring special finishes, phenolic or plywood not less than 12mm shall be used. Surfaces of steel forms shall be free from irregularities.

2. CONCRETE REINFORCEMENTS

2.1 Reinforcing Steel

The reinforcing steel bars shall be as shown in Plans. The sizes shall be but not limited to the following: 10 mm Ø, 12 mm Ø, 16 mm Ø, 25 mm Ø, 28 mm Ø. Verify Plans for Reinforcing Steel Bar schedule.

2.2 Tie Wires

Tie wires to be used for steel reinforcements shall be Ga 16 Galvanized Iron conforming to ASTM A 641. Spacing and length shall be as shown in Plans

3. CAST-IN-PLACE CONCRETE

3.1 Portland Cement

All materials and workmanship shall conform to the latest building code of American Concrete Institute (ACI-318).

Cement shall conform to the requirements of the following cited Specifications for the specified or permitted.

Table 1: Types of Cement

Type	Specifications	
	Portland Cement	AASHTO M 85 (ASTM C 150)
	Blended Hydraulic Cement	AASHTO M 240 (ASTM C 595)
	Masonry Cement	AASHTO M 150-74 (ASTM C 91)

When Types IV and V (AASHTO M 85), P and PA (AASHTO M 150) cements are used, proper recognition shall be given to the effects of slower strength gain on concrete proportioning and construction practices. Types S and SA cements will be permitted only when blended with Portland Cement in proportions approved by the Supervising/Consulting Engineer.

Unless otherwise permitted by the Supervising/Consulting Engineer, the product of only one mill of any one brand and type of Portland Cement shall be used on the project.

The General Contractor shall provide suitable means of storing and protecting the cement against dampness. Cement which, for any reason, has become partially set or which contains lumps of caked cement will be rejected. Cement salvaged from discarded or used bags shall not be used.

3.2 Fine Aggregates

It shall consist of natural sand, stone screenings or other inert materials with similar characteristic, or combinations thereof, having hard, strong and durable particles approved by the Engineer. Fine aggregate from different sources of supply shall not be mixed or stored in the same pile nor used alternately in the same class of concrete without the approval of the Engineer.

It shall not contain more than three mass percent of material passing the 0.075 mm (No. 200 sieve) by washing nor more than one mass percent each of clay lumps or shale. The use of beach sand will not be allowed without the approval of the Supervising/Consulting Engineer.

If the fine aggregate is subjected to five cycles of the sodium sulfate soundness test, the weighted loss shall not exceed 10 mass percent.

The fine aggregate shall be free from injurious amounts of organic impurities and if a color darker than the standard is produced, it shall be rejected. However, when tested for the effect of organic impurities of strength of mortar by AASHTO T 71, the fine aggregate may be used if the relative strength at 7 and 28 days is not less than 95 mass percent.

The fine aggregates shall be well graded from coarse to fine and shall conform to Table 2.

Table 2.Grading Requirements for Fine Aggregates

Sieve Designation	Mass Percent Passing
9.5 mm (3/8 in)	100
4.75 mm (No. 4)	95 – 100
1.18 mm (No. 16)	45 - 80
0.300 mm (No. 50)	5-30
0.150 mm (No. 100)	0 - 10

3.3 Coarse Aggregates

It shall consist of crushed stone, gravel, blast furnace slag, or other approved inert materials of similar characteristics, or combinations thereof, having hard, strong, durable pieces and free from any adherent coatings.

It shall contain no more than one mass percent of material passing the 0.075mm (No. 200) sieve, not more than 0.25 mass percent of clay lumps, nor more than 3.5 mass percent of soft fragments. If the coarse

aggregate is subjected to five cycles of the sodium sulfate soundness test, the weighted loss shall not exceed 12 mass percent.

It shall have a mass percent of wear not exceeding 40 when tested by AASHTO T 96.

If slag is used, its density shall not be less than 1120kg/m3 (70 lbs/cu ft.) The gradation of the coarse aggregate shall conform to Table 3. Only one grading specification shall be used from any source.

Table 3. Grading Requirements for Coarse Aggregates

Standard (mm)	Alternate US Standard	Class A	Class B	Class C	Class D	Class Seal
63	2 – ½"					
50	2"	100	100			
37.5	1 – ½"	95 - 100	-			100
25	1"	-	35 - 70	-	100	95 – 100
19.0	¾"	35 - 70	-	100	-	25 – 60
12.5	½"	-	10 - 30	90 - 100	-	25 – 60
9.5	3/8"	10 - 30	-	40 - 70	20 - 55	-
4.75	No. 4	0 - 5	0 - 5	0 - 15	0 - 10	0 - 10

" The measured cement content shall be within plus (+) or minus (-) 2 mass percent of the design cement content.

3.4 Water

Water used in mixing, curing, or other designated applications shall be reasonably clean and free of oil, salt, acid, alkali, grass or other substances injurious to the finished product. Water will be tested in accordance with and shall meet the requirements of Item 714, Water. Water which is drinkable may be used without test. Where the source of water is shallow, the intake shall be so enclosed as to exclude silt, mud, grass, or other foreign materials.

4. PRE-CAST CONCRETE

4.1 Structural Pre- stressed Concrete

4.1 Concrete Joists

Concrete joists shall be of two types:

3/8 mm diameter 7-wire strand grade 270 ksi

4.2 Portland Cement

Portland cement shall comply with ASTM C150, type I

4.3 Reinforcement

Reinforcements shall be 10mm welded wire mesh matting spaced at 0.25 m x 6m and Ga. 16 GI Tie wires. Provide 10mm diameter dowel bars (L/4) spaced at 0.60m

4.4 Aggregates

Provide clean, sharp, well graded aggregate free from injurious amounts of dust, lumps shale, alkali, surface coatings and organic matter and complying with ASTM C144.

4.5 Water

Provide water, free from deleterious amounts of acids, alkalis, and organic materials.

PART III-EXECUTION

1. CONCRETE FORMWORKS

Concrete forms shall be mortar-tight, true to the dimensions, lines and grades of the structure and with sufficient strength, rigidity, shape and surface smoothness as to leave the finished works true to the dimension shown on the Plans or required by the Engineer and the surface finish as specified. The General Contractor shall be responsible for the adequacy of forms and form support. Wire ties shall not be used where concrete surface will be exposed to weathering and where discoloration will be exposed. All form work shall be provided with adequate clean-out openings to permit inspection and easy cleaning.

The inside surfaces of form shall be cleaned of all dirt, mortar and foreign material. Forms which will later be removed shall be thoroughly coated with non-staining type mineral form oil prior to use. The form oil shall be of commercial quality form oil or other approved coating which will permit the ready release of the forms and will not discolor the concrete.

Concrete shall not be deposited in the forms until all work in connection with constructing the forms has been completed, all inspected and approved said forms and materials. Such work shall include the removal of all dirt, chips, sawdust and other foreign material from the forms.

The rate of depositing concrete in forms shall be such to prevent bulging of the forms or form panels in excess of the deflections permitted by this Specifications. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete, and shall be maintained rigidly in correct position

Forms and falsework shall not be removed without the consent of the Supervising/Consulting Engineer. The Engineer's consent shall not relieve the General Contractor of responsibility for the safety of the work.

Blocks and bracing shall be removed at the time the forms are removed and in no case shall any portion of the wood forms be left in the concrete.

Falsework removal for continuous or cantilevered structures shall be as directed by the Supervising/Consulting Engineer or shall be such that the structure is gradually subjected to its working stress.

When concrete strength tests are used for removal of forms and supports, such removal should not begin until the concrete has attained the percentage of the specified design strength shown in the table below:

Table 4. Requirements for Removal of Forms

Element	Minimum Time
Foundation	24 Hrs.
Suspended slab except when additional loads are imposed	8 Days
Walls	18 Hrs.
Beams	14 Days

Forms and falsework shall not be released from under concrete without first determining if the concrete has gained adequate strength without regard to the time element. In the absence of strength determination, the forms and falsework are to remain in place until removal is permitted by the Engineer.

1.1 Tolerances and variations

The General Contractor shall set and maintain concrete forms to ensure that after removal of forms and prior to patching and finishing, no portion of concrete work will exceed any of the tolerances specified. Variations in floor levels shall be measured before removal of supporting shore. The General Contractor shall be responsible for variations due to deflection. The specified variation for one element of the structure will not be applicable when it will permit another element of the structure to exceed its variations.

1.2 Architectural Cast-in Place Concrete Forming

To facilitate finishing, forms used on ornamental work, railing, parapets and exposed vertical surfaces shall be removed in not less than 12 or more than 48 hours, depending upon the weather condition of concrete in columns, forms shall always be removed from them before the removal of shoring from beneath beams and girders.

2. CONCRETE REINFORCEMENTS

2.1 Reinforcing Steel

Reinforcing steel shall meet the requirements of Item 710, Reinforcing Steel and Wire Rope, and conform to ASTM 615 Grade 33 for diameter 10 and larger bars.

In general, the latest edition of ACI-315, manual of Standard Practice Detailing of Reinforced Concrete Structures shall be adhered to unless otherwise shown or noted.

2.1.1 Order List

Before materials are ordered, all order lists and bending diagrams shall be furnished by the General Contractor, for approval of the Consulting Engineer. The approved of order lists and bending diagrams by the Engineer shall in no way relieve the Contractor of responsibility for the correctness of such lists and diagrams. Any expense incident to the revisions of materials furnished in accordance with such lists and diagrams to make them comply with the Plans shall be borne by the Contractor.

2.1.3 Placing and Fastening

Steel reinforcement shall be provided as indicated, together with all necessary wire ties, chairs, spacers, supports and other devices necessary to install and secure the reinforcement properly. All reinforcement, when placed, shall be free from loose, flaky rust and scale, oil grease, clay, and other coating and foreign substances that would reduce or destroy its bond with concrete. Reinforcement shall be placed accurately and secured in place by use of metal or concrete supports, spacers and ties. Such supports shall be of sufficient strength to maintain the reinforcement in place throughout the concreting operations. The supports shall be used in such manner that they will not be exposed or contribute in any way to the discoloration or deterioration of the concrete.

All steel reinforcement shall be accurately placed in the position shown on the Plans 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 300 mm in each directions, in which case, alternate intersections shall be tied. Ties shall be fastened on the inside.

Distance from the forms shall be maintained by means of stays, blocks, ties, hangers, or other approved supports, so that it does not vary from the position indicated on the Plans by more than 6 mm. Blocks for holding reinforcement from contact with the forms shall be precast mortar blocks of approved shapes and dimensions. Layers of bars shall be separated by precast mortar blocks or by other equally suitable devices. The use of pebbles, pieces of broken stone or brick, metal pipe and wooden blocks shall not be permitted. The minimum distance between bars shall be 40 mm. Reinforcement of any member shall be placed, inspected and approved by the Consulting Engineer before the concrete begins. Concrete placed in violation of this provision may be rejected and removal may be required.

The reinforcement shall be placed and secured by concrete or metal chair spacers. The clear distance between parallel bars shall be minimum of 1 ½ times the diameter of the bar. In no case shall the clear distance between the bars except in the columns and between multiple layers of bars in beams be less than 2.5 centimeters nor less than 1 1/3 times the maximum size of the coarse aggregates. Where bars are used in two or more layers, the bars in the upper layers shall be placed directly above those in the lower layers at a minimum clear distance of 2.5 centimeters. The clear distance between longitudinal bars in columns shall not be less than 1 ½ times the bar diameter, or 1 ½ times the maximum size of the coarse aggregate.

Vertical staples 10 millimeters in diameter spaced not more than 1.5 meters both ways shall connect top and bottom bars of all slab reinforcement.

Bends for stirrups and ties shall be made around a pin having a diameter of not less that six times the diameter of the bar, except that for bars larger than 20 millimeters, the pin shall not be less than eight times the diameter of the bar, all bars shall be bent cold.

All bars at the free end of a cantilever must be hooked.

All free ends of cantilever floor slabs shall have two longitudinal bars placed one above the other and spaced as far apart as possible to serve as a longitudinal stiffener to ensure a truly straight horizontal line.

All openings in slabs and concrete walls shall have diagonal reinforcements at the corners with sizes and lengths as shown in Plans.

2.1.4 Embedded Items

Do not embed piping, other than electrical conduit, in structural concrete unless reflected in Plans or approved by the Consulting Engineer. Provide necessary support and reinforcements as shown on Plans.

Locate conduit as shown in Plans to maintain maximum strength of the concrete.

Increase the thickness of the concrete if the outside diameter of the conduit exceeds 30% of the thickness of the concrete.

All required flashing, reglets, seals, masonry ties, anchors, bolts, inserts, wood locks, nailing strips, ground, wire hangers, sleeves, drains, guard angles, inserts for elevator guides, provisions for floor hinges and other required items in the concrete, accurately secured so they will not be displaced, and in the precise locations needed. All sub-contractors whose work is related to the concrete supported by it shall be given ample notice and opportunity to introduce or furnish embedded item before concrete is placed. All ferrous metal sleeves, inserts, anchors and other embedded ferrous items exposed to weather or where rust would impair the appearance of finish or structure shall be galvanized.

2.1.5 Splicing

All reinforcement shall be furnished in the full lengths indicated on the Plans. Splicing of bars, except where shown on the Plans will not be permitted without the written approval of the Consulting Engineer. Splices shall be securely wired together & shall lap in accordance with table. 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 Plans.

Table 7: Splices

For Tension

TABLE OF LAP SPLICE (FC' = 4000PSI) GR. 60

BAR Ø	TYPE A	TYPE B	ANCHORAGE LENGTH
16 MM	0.61 M	0.80 M	0.35 M (Hook)
20 MM	0.76 M	1.00 M	0.40 M (Hook)
25 MM	1.20 M	1.52 M	0.50 M (Hook)
28 MM	1.35 M	1.70 M	0.55 M (Hook)

32 MM 1.55 M 1.95 M 0.60 M (Hook)

TABLE OF LAP SPLICE (FC' = 2500PSI) GR. 33

BAR Ø	TYPE A	TYPE B	ANCHORAGE LENGTH
10 MM	0.30 M	0.40 M	0.24 M (Hook)
12 MM	0.32 M	0.41 M	0.30 M (Hook)

For Compression

TABLE OF LAP SPLICE (FC' = 4000PSI) GR. 60

BAR Ø	TYPE A	TYPE B	ANCHORAGE LENGTH
16 MM	0.50 M	0.60 M	0.35 M (Hook)
20 MM	0.60 M	0.75 M	0.40 M (Hook)
25 MM	0.75 M	0.95 M	0.50 M (Hook)
28 MM	0.85 M	1.05 M	0.55 M (Hook)
32 MM	0.95 M	1.20 M	0.65 M (Hook)

TABLE OF LAP SPLICE (FC' = 2500PSI) GR. 33

BAR Ø	TYPE A	TYPE B	ANCHORAGE LENGTH
10 MM	0.25 M	0.30 M	0.15 M (Hook)
12 MM	0.26 M	0.33 M	0.20 M (Hook)

In tapped 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 minimum clear distance of one and one-third (1 1/3) the maximum size of coarse aggregate between the splice and the nearest adjacent bar. Welding of reinforcing steel shall be done only if detailed on the Plans or if authorized by the Consulting Engineer in writing. Spiral reinforcement shall be spliced by lapping at least one and a half turns or by butt welding unless otherwise shown on the Plans.

2.2 Tie wires

Clean all reinforcement by removing mud, oil or other materials before tying.

3. CAST-IN-PLACE CONCRETE

3.1 Structural Concrete

3.1.1 Strength

All concrete shall develop a min. compressive strength at the end of twenty eight (28) days w/ corresponding maximum aggregate and slumps as follows:

Table 8: Maximum Aggregate and Slump

Location	28 days Strength	Max.aggregate	Max. slump
All others including suspended slabs	3000 psi	¾ in. (19mm)	4 in. (100 mm)
Columns, R.C. walls	3000 psi	¾ in. (19mm)	4 in. (100 mm)
Beams, Girders	3000 psi	¾ in. (19mm)	4 in. (100 mm)

Lintel Beams/Stiffener Columns	3000 psi	¾ in. (19mm)	4 in. (100 mm)

3.1.2 Usage

Five classes of concrete are provided for in this item, namely: A, B, C, P and Seal. Each class shall be used in that part of the structure as called for on the Plans. The classes of concrete will generally be used as follows:

Class A – All superstructures and heavily reinforced substructures. The important parts of the structure included are slabs, beams, girders, columns, arch ribs, box culverts, reinforced abutments, retaining walls, and reinforced footings.

Class B – Footings, pedestals, massive pier shafts, pipe bedding, and gravity walls, unreinforced or with only a small amount of reinforcement.

Class C – Thin reinforced sections, precast R.C. piles and cribbing and for filler in steel grid floors.

Class P – Pre-stressed concrete structures and members.

Seal – Concrete deposited in water.

3.1.3 Sampling and Testing of Structural Concrete

As work progresses, at least one (1) sample consisting of three (3) concrete cylinder test specimens, 150mm x 300mm (6 "x12") shall be taken from each seventy five (75) cubic meter of each class of concrete or fraction thereof placed each day.

Compliance with the requirements of this section shall be determined in accordance with the following standard methods of AASHTO:

Table 9.AASHTO Standard Methods

Sampling of fresh concrete	T 141
Weight per cubic meter and air content (gravi-metric) of concrete	T 121
Sieve analysis of fine and coarse aggregates	T 27
Slump of Portland Cement Concrete	T 119
Specific gravity and absorption of fine aggregate	T 84
Test for strength shall be made in accordance with the following:	
Making and curing concrete compressive and flexural test	
Specimens in the field	T 23
Compressive strength of molded concrete cylinders	T 22

3.1.4 Proportioning and Strength of Structural Concrete

The concrete materials shall be proportioned in accordance with the requirements for each class of concrete, using the absolute method as outlined in the American Concrete Institute (ACI) Standard 211.1. "Recommended Practice for Selecting proportions for Normal and Heavyweight Concrete". Other methods of proportioning may be employed in the mix design with prior approval of the Engineer. The mix shall either be designed or approved by the Consulting Engineer. A change in the source of materials during the progress of work may necessitate a new mix design. The strength requirements for each class of concrete shall be as specified in Table 10.

3.1.5 Consistency

Concrete shall have a consistency such that it will be workable in the required position. It shall be of such a consistency that it will flow around reinforcing steel but individual particles of the coarse aggregate when isolated shall show a coating of mortar containing its proportionate amount of sand. The consistency of concrete shall be gauged by the ability of the equipment to properly place it and not by difficulty in mixing and transporting. The quantity of mixing water shall be determined by the Consulting Engineer and shall not be varied without his consent. Concrete as dry as it is practical to place with the equipment specified shall be used.

3.1.6 Mixing and Delivery

Concrete may be mixed at the site of the construction, at a central point or by a combination of central point and truck mixing or by a combination of central point mixing and truck agitating. Mixing and delivery of concrete shall be in accordance with the appropriate requirement of AASHTO M 157 except as modified in the following paragraphs of this section, for truck mixing or a combination of central point and truck mixing or truck agitating. Delivery of concrete shall be regulated so that placing is at a continuous rate unless delayed by placing operations. The intervals between delivery of batches shall not be so long as to allow the concrete in place to harden partially, and in no case shall such an interval exceed 30 minutes.

In exceptional cases and when volumetric measurements are authorized, for small project requiring less than 75 cubic meters per day of pouring, the weight proportions shall be converted to equivalent volumetric proportions. In such cases, suitable allowance shall be made for variations in the moisture condition of the aggregates, including the bulking effect in the fine aggregate. Batching and mixing shall be in accordance with ASTM C 685, Section 6 through 9.

3.1.7 Mixing Concrete: General

Concrete shall be thoroughly mixed in a mixer of an approved size and type that will ensure a uniform distribution of the materials throughout the mass.

All concrete shall be mixed in mechanically operated mixers. Mixing plant and equipment for transporting and placing concrete shall be arranged with an ample auxiliary installation to provide minimum supply of concrete in case of breakdown of machinery or in case the normal supply of concrete is disrupted. The auxiliary supply of concrete shall be sufficient to complete the casting of a section up to a construction joint that will meet the approval of the Consulting Engineer.

Concrete mixers may be of the revolving drum or the revolving blade type and the mixing drum or blades shall be operated uniformly at the mixing speed recommended by the manufacturer. The pick-up and throw-over blades of mixers shall be restored or replaced when any part or section is worn 20mm or more below the original height of the manufacturer's design. The first batch of concrete materials placed in the mixer shall contain a sufficient excess of cement, sand and water to coat inside the drum without reducing the required mortar content of the mix.

When the aggregate contains more water than the quantity necessary to produce a saturated surface dry condition, representative samples shall be taken and the moisture content determined for each kind of aggregate.

The batch shall be so charged into the mixer that some water will enter in advance of cement and aggregate. All water shall be in the drum by the end of the first quarter of the specified mixing time. Cement shall be batched and charged into the mixer so that it will not result in loss of cement due to the effect of wind, hoppers, or other conditions which reduce or vary the required quantity of cement in the concrete mixture.

The entire content of a batch mixer shall be removed from the drum before materials for a succeeding batch are placed therein. The materials composting a batch except water shall be deposited simultaneously into the mixer.

All concrete shall be mixed for a period of not less than 1 – ½ minutes after all materials, including water, are in the mixer. During the period of mixing, the mixer shall operate at the speed for which it has been designed. When mixing is to cease for a period of one hour or more, the mixer shall be thoroughly cleaned. Mixers and agitators which have an accumulation of hard concrete or mortar shall not be used.

3.1.8 Conveying

Perform concrete placing at such a rate that concrete which is being integrated with fresh concrete is still plastic.

Deposit concrete in its final position without segregation, re handling, or flowing. Place concrete with buggies, buckets or wheelbarrows. No chutes shall be allowed except to transfer concrete from the mixer to the buggies and shall not exceed six meters in total length.

Do not place concrete with a free fall of more than 1-½ meters, except when approved sheet metal conduits, pipes or elephant trunks are employed. These conveyers, when used, shall be kept full of concrete and the ends kept buried in the newly placed concrete as pouring progresses.

Do not use concrete which becomes non- plastic or unworkable, or does not meet required quality control limits, or has been contaminated with foreign materials remove rejected concrete from the job site.

3.1.9 Placing Concrete

Deposit concrete in horizontal layers not deeper than 60 centimeters, and avoid inclined construction joints.

Deposit concrete in its final position within three hours from the time of mixing, after which it will be rejected.

Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, unit the placing of a panel or a section is completed.

Bring slab surfaces to the correct level with a straightedge, and then strike off.

Use bull floats to smooth the surface, leaving the surface free from bumps and hollows.

Do not sprinkle water on the plastic surface. Do not disturb the slab surface prior to start of finishing operations.

3.1.10 Consolidation

Consolidate each layer of concrete immediately after placing; by use of concrete vibrators supplemented by hand spading, rodding, or tamping.

Do not allow pouring without the use of vibrators. Avoid segregation due to over vibration. Do not use vibrators to transport or spread concrete inside the forms.

Stop vibration when mixture ceases to decrease in volume. When possible, concreting shall be continuous until the section is complete.

3.1.11 Construction Joints

Construction joints shall be made only where shown on the Plans or called for in the pouring schedule, unless otherwise approved by the Supervising/Consulting Engineer. Shear keys or reinforcement shall be used, unless otherwise specified, to transmit shear or to bond the two sections together.

Before depositing new concrete on or against concrete which has hardened, the forms shall be retightened. The surface of the hardened concrete shall be roughened as required by the Engineer, in a manner that will not leave loose particles of aggregate or damage concrete at the surface.

The placing of concrete shall be carried continuously from joint to joint. The face edges of all joints which are exposed to view shall be carefully finished true to line and elevation.

3.2 Architectural Concrete

Mouldings, Trims, shoes and other architectural concrete shown in Plans shall have the same concrete mix design as structural concrete. Design, configuration and reinforcements shall be as shown in Plans.

3.3 Finishing Concrete

3.3.1 Ordinary Finish

Immediately following the removal of forms, all formwork and irregular protection shall be removed from all surfaces except from those which are not to be exposed or are not to be waterproofed. Complete repair on concrete imperfections within 24 hours after removal of forms. Neatly remove pins from exposed surfaces. On all surfaces the cavities produced by form ties and all other holes, honeycomb spots, broken corners or edges and other defects shall be thoroughly cleaned, and having been kept saturated with water and made true with a mortar and fine aggregate mixed in the proportions used in the grade of concrete

being finished. Concrete that is damaged or honeycombed must be removed to reach concrete and replaced with the dry-pack mortar, or concrete as hereinafter specified. Where large bulges and abrupt irregularities protrude, the protrusions shall be removed by grinding. Use dry-pack filling for holes whose width is less than its depth, for holes left by removal of fasteners from the ends of form tie-rods, for grout and pipe recesses, and for narrow slots cut for repairing of cracks. Do not use dry pack for filling behind reinforcements or for filling holes that extend completely through the concrete.

Use motor filling placed under pressure by a motor gun for holes too wide for dry-pack filling and too shallow for concrete filling and not deeper than the far side of the reinforcement nearest to the surface.

Use concrete filling for holes extending entirely through the concrete, for holes greater in area than 1,000 square centimeters and deeper than 10 centimeters, and for holes, which extend beyond the reinforcements.

Mortar to be used shall not be more than one (1) hour old. All construction and expansion joints in the completed work shall be left carefully tooled and free of all mortar and concrete. The joint filler shall be left exposed for its full length, with clean and true edges.

All concrete shall be given Class 1, Ordinary Finish and additionally any further finish as specified. The resulting surfaces shall be true and uniform. All repaired surfaces, the appearance of which is not satisfactory to the Engineer, shall be "rubbed" as specified below.

3.3.2 Rubbed Finish

After removal of forms, the rubbing of concrete shall be started as soon as its condition will permit. Immediately before starting this work, the concrete shall be kept thoroughly saturated with water for a minimum period of three hours. Sufficient time shall have elapsed before the wetting down to allow the mortar used to thoroughly set. The mortar shall be composed of cement and fine sand mixed in the proportions used in the grade of concrete being finished. Rubbing shall be continued until all form marks, protections and irregularities have been removed, all voids have been filled, and a uniform surface has been obtained.

Unless otherwise specified, the following surfaces shall be given a Class 2, Rubbed Finish.

The exposed faces of piers, abutments, wingwalls and retaining walls.

The outside faces of girders, T-beams, slabs, columns, brackets, curbs, headwalls, railings, arch rings, spandrel walls and parapets.

3.4 Specialty Placed Concrete

Ready mixed concrete defined in this specification as concrete poured regularly by a commercial establishment and delivered to the purchaser in a plastic state. Subject to approval of the Supervising/Consulting Engineer, ready mixed concrete maybe used provided that:

The plant has sufficient capacity and transportation equipment to deliver the concrete at rate desired,

The plant meets the requirements specified herein before for equipment, measurement of materials, and mixing, except as modified herein. The cement, aggregates, water and admixtures shall conform to all applicable requirements of this specification.

Ready mixed concrete not specified otherwise hereinafter shall be mixed and delivered by means of truck mixing, combination central plant and truck mixing or central plant mixing as directed and approved by the Engineer.

3.5 Water Concrete Curing

All concrete shall be kept moist for a minimum of seven consecutive days immediately after pouring by the use of wet burlap, fog spraying, curing compounds or other approved methods.

Waterproof kraft paper or polyethylene-coated waterproof paper for concrete curing shall be of commercial quality.

Burlap, plain or polyethylene coated burlap shall be of commercial quality

4. PRE-CAST CONCRETE

4.1 Structural Pre-stressed Concrete

4.1.1 Installation

Installation for floor system shall be as recommended by the Contractor or Manufacturer and as specified herein.

4.1.2 Shoring

Shoring shall be provided by the Contractor. Concrete joist shall rest firmly before pouring of concrete topping. Shoring members shall be capable of supporting the dead weight of concrete joist and concrete topping. For c-joist more than 5m span, quarter spacing of shoring is required. For concrete joist 3.00-5.00 m span, mid span shoring is required. For concrete joist less than 3.00 m span, no shoring is required.

4.1.3 Steel forms

Removable steel forms, steel stiffeners and other wood forms as required shall be removed as recommended by the Engineer after pouring of concrete topping. However, shoring of the concrete joist must remain in place for not less than seven (7) days.

4.1.4 Pointing and Cleaning

After removal of forms, all damaged portions shall be pointed and repaired. Excess mortar shall be removed and care shall be taken to prevent damage while on the curing period.

END OF SECTION

DIVISION 07 WOOD, PLASTICS, AND COMPOSITES

PART I-GENERAL

Lumber of the different species herein specified for the various parts of the structure shall be well-seasoned, sawn straight, sun dried or kiln dried and free from defects such as loose and unsound knots, pitch pockets, sapwood, cracks and other imperfections impairing its strength, durability and appearance.

Stress grade lumber is seasoned, close grained and high quality lumber of the specified specie, free from defects and suitable for sustaining heavy load.

Stress grade lumber shall be used for wooden structural members subject to heavy loads, and for sub-floor framing embedded or in contact with concrete and masonry.

Select grade lumber of the specified specie is generally of high quality of good appearance, without imperfections, and suitable for use without waste due to defects and suitable also for natural finish. Select grade lumber shall be used for fascia and base boards, trims, moulding, mill work, shelves, doors, frame of openings as specified and shown in Plans.

Common grade lumber has minimum tight medium knot larger than 25mm in diameter, with minimal imperfections, without sapwood, without decay, insect holes, and suitable for use with some waste due to minor defects and suitable also for paint finish. Common grade lumber shall be used for light framework, and nailers.

Dressed lumber for exterior and interior finishing for doors and windows and millwork shall be kiln-dried having no moisture content in excess of 14 percent at the time of its installation.

Any lumber equally good for the purpose extended may be substituted for the specific kind subject to the prior approval of the Consulting Architect/Engineer. Provided that the substitution shall be of equal or better specie acceptable to the Supervising/Consulting Architect/Engineer.

In case of substitution with better specie, no additional cost therefore shall be allowed to the General Contractor.

All lumber shall be surfaced four sides. All cutting, framing and fitting necessary for accommodation of other work shall be provided. All nails, spikes, screws, bolts, clips, anchors, shapes and any other rough hardware, necessary for the completion of the work, shall be provided.

STORAGE AND PROTECTION OF MATERIALS

Lumber and other materials shall be protected from dampness during and after delivery at the site.

Materials shall be delivered well in advance of actual need and in adequate quantity to preclude delay in the work.

Lumber shall be piled in orderly stack at least 15.0 cm. above the ground and at sheltered place where it will be of least obstruction to work.

Lumber and woodwork shall be covered and protected from the elements until used.

Building shall be thoroughly dry before the finish is placed in them.

Exterior and interior finish shall be dressed and smooth. Finishing woodwork shall be hand smoothed and sanded at the site as necessary to produce the proper finish.

Where practicable, millwork shall be fabricated in the shop, doweled and mortised and tenoned together, backed up and glued machine and hand sanded to a smooth surface, and delivered to the site, ready to be secured in place.

PART II- PRODUCTS

1. CABINETRY

2. Hardware

Drawer guides shall be heavy duty, full over travel-extension, ball bearing type.

Concealed Hinges shall be full overlay, self-closing.

Pulls shall be solid stainless steel pulls, fastened from back with two screws. Provide longer pulls for drawers more than 24 ".

2. CEILINGS

2.1 Fiber Cement Board

Fiber Cement board to be used in ceilings shall be of good grade and shall be 6 mm and 12 mm thick as shown on Plans, tempered or oil impregnated for moisture/water resistance.

Texture shall be subject to the approval of Consulting Architect/Engineer.

3. FASTENERS

Nails of adequate size shall be steel wire, diamond-pointed, ribbed shank and bright finish. Nails shall not be driven close together than one half their lengths unless driven in bored holes or closer to the edge of the timber than one quarter their length. Nails shall penetrate by at least half their length into the timber farthest from the head. End distance, edge distance and spacing of nails shall be such as to avoid splitting of wood.

Screw of adequate size shall be cadmium or brass plated steel with slotted head.

Lag screw of adequate size, for anchoring heavy timber framing in concrete or masonry, shall be galvanized steel. Lag screw shall be set into pre-bored lead holes and not driven. The lead hole for the shank shall have the same diameter as the shank and the same length as the threaded portion.

Bolts and nuts shall be of steel having a yield point of not less than 245 Mpa. Bolts shall have square heads and provided with standard flat steel washers and hexagonal nuts. Bolts shall be set into drill holes suitably sized enough for snug fit. All nuts shall be accessible for servicing by wrenches. Length of the bolts shall be enough to extend through the nut and an allowance for nut tightening.

Threads shall conform to American coarse thread series. The threaded portion shall be long enough such that the nut can be tightened against the bolted members without any need for blocking.

Wrought iron straps or angles, when required in conjunction with bolts or lag screws to provide proper anchorage shall be of the shape and size shown on plans.

All materials to be incorporated in the wood, plastics and composites shall be of approved quality as specified. Before using, all materials shall have been inspected and accepted by the Consulting Architect/Engineer.

4. MILL WORKS

Mill works such as fascia, trims, casings and mouldings shall be sound, plumb, properly treated or finished, and adequately seasoned. Design and Configurations shall be approved by the Consulting Architect.

5. WOOD TREATMENT

Lumber, plywood and plyboard specified and treated with approved wood preservative shall be pressure treated with water borne preservative as wolman salt, boliden salt or tanalith H-R.

Pressure treatment shall meet the standards set by the American Wood Preservers Association per publication C 2-77, or Philippine Trade Standards PTS 243-02.00 as to penetration and amount of chemicals retained in the treated lumber.

Pressure treated lumber shall be accompanied by a certification of pressure treatment from the wood preserving plant as to the pressure treatment, sizes and quantity of wood treated.

Notwithstanding the presentation of said certification, the supervising Architect/Engineer may require physical inspection and undertake borings to ascertain penetration of preservative into the wood.

PART III-EXECUTION

1. FINISH CARPENTRY

Finished carpentry covers work on ceiling boards, cabinets, fabricated woodwork, millwork and trims.

Joints of framing shall be tenoned, mortised or doweled where suitable, closely fitted and secured with water resistant rein glue. Exterior joints shall be mitered and interior angles coped.

Panels shall be fitted to allow for construction or expansion and ensure that the panels remain in place without warping, splitting and opening of joints.

Exposed edges of plywood shall be provided with select grade hardwood strips, rabbeted as necessary, glued in place and secured with finishing nails. To prevent splitting, hardwood for trims shall be drilled before fastening with nails or screws.

Fabricated woodwork shall be done preferably at the shop. It shall be done true to details and profiles indicated on the Plans.

Where set against concrete or masonry, woodwork shall be installed after curing is completed.

Exposed wood surfaces shall be free from disfiguring defects such as raised grains, stains, uneven planning, sanding, tool marks and scratches.

Exposed surfaces shall be machine or hand sanded to an even smooth surface, ready for finish.

END OF SECTION

DIVISION 10 FINISHES

PART I-GENERAL

1. PORTLAND CEMENT PLASTERING

Cement and lime shall be stored off the ground under watertight cover, and away from damp walls and surfaces until ready for use. Damaged or deteriorated materials shall be removed from the premises immediately. Manufactured materials shall be delivered in the original unbroken packages or containers that are labeled plainly with the manufacturer's names and brand. Container for tiles shall be grade-sealed. Materials shall be handled in a manner that will prevent the intrusion of deleterious materials that will affect its quality and appearance.

2. TILEWORKS

Slabs/Tiles found damaged, which in the opinion of the Consulting Architect/Engineer, may affect the appearance or aesthetic of the floor system, shall not be used in the work.

3. PAINTING AND COATING

All material to be used under this item shall be stored in a single place and such place shall be kept neat and clean at all time. Necessary precaution to avoid fire must be observed by removing oily rags, waste, etc. at the end of the daily work.

All cloths and cotton waste which constitute fire hazards shall be placed in metal containers or destroyed at the end of daily works. Upon completion of daily work, all staging, scaffolding and paint containers shall be removed. Paint drips, oil, or stains on adjacent surfaces shall be removed and the entire job left clean and acceptable to the Consulting Architect.

3.1 Paint Schedule

Table 8. Paint Schedule

Exterior Finishes	
a) Plain cement plastered finish to be painted	3 coats Acrylic base masonry paint
b) Concrete exposed aggregate and/or tool finish	1 coat water repellant
c) Ferrous metal	1 coat primer and 2 coats enamel paint
d) Galvanized metal	1 coat zinc chromate primer and 2 coats Portland cement paint
e) Wood painted finish	3 coats oil based paint
f) Wood varnished finish	Varnish water repellent
Interior Finishes	

a) Plain cement plastered finish to be painted — 3 coats Acrylic base masonry paint

b) Concrete exposed aggregate and/or tool Surface — Clean finish

c) Ferrous metal — 1 coat primer and 2 coats enamel paint

d) Woodwork sea-mist — 3 coats of 3 parts thinner 1 part lacquer

e) Wood varnish — 1st coat, of one part sanding sealer to one part solvent 2nd coat of 2/3 sanding sealer

f) Wood painted finish — to 1/3 solvent

g) Ceiling boards textured finish — 3 coats of oil base paint to dry then 1 coat oil based paint allow patch surfaces unevenness and apply textured paint coat

3.2 Application

Paints and coatings shall be applied to:

All Existing and Proposed Exterior and Interior Walls

All Existing Concrete Mouldings, Logo, Seals, Corbels, Decorative Columns

All Existing soffit and Proposed Fiber Cement Board Ceiling

All Existing Steel Grille Doors and Windows

All Exposed plumbing, electrical, mechanical items as necessary

All Wooden Panel doors, Cabinets, Jambs, Baseboards, Casings, mouldings and other exposed wood works

Fences, Gates and Columns

All Exposed Surfaces as necessary

PART II- PRODUCTS

1. PORTLAND CEMENT PLASTERING

Portland cement

Portland cement shall conform with comply with ASTM C150, type I

Fine Aggregates

Fine aggregates shall be clean, washed sharp, river sand and free from dirt, clay, organic matter or other deleterious substances. Sand derived from crushed gravel or stone may be used with the Consulting Engineer's approval but in no case shall such sand be derived from stone unsuitable for use as coarse aggregates.

2. TILEWORKS

2.1 Ceramic/Porcelain Tiling

It shall be of the standard good quality grade, gloss smooth or rough finish; color, texture and size code should be strictly adhered as shown in the Plans and approved by the Consulting Architect.

Floor Tiles

Tiles shall be standard grade, rustic tiles, ceramic/porcelain, and 6 mm thick. Sizes shall be 0.60x0.60m and 0.30x0.30m.

The surface, color, type and pattern shall be as specified in the Plans or as approved by the Consulting Architect.

Wall Tiles

Tiles shall be standard grade, polished, ceramic/porcelain, and 6 mm thick. Sizes shall be 0.60x0.60m and 0.30x0.30m.

The surface, color, type and pattern shall be as specified in the Plans or as approved by the Consulting Architect.

2.2 Granite Tiling

Provide granite cut size tile 25 mm, 0.60 m width, length to verify at site for slab on counter at toilets and pantry, with all tiles of uniform grain and pattern.

2.3 Tile Adhesive

Tile adhesive (tile bonding agent) shall be used as the dry set mortar to install tiles on walls and floors employing the thin-set method conforming to ANSI A108.1b.

2.4 Mortar Bed

2.4.1 Portland cement

Portland cement shall conform with comply with ASTM C150, type I

2.4.2 Fine Aggregates

Fine aggregates shall be clean, washed sharp, river sand and free from dirt, clay, organic matter or other deleterious substances. Sand derived from crushed gravel or stone may be used with the Engineer's approval but in no case shall such sand be derived from stone unsuitable for use as coarse aggregates.

3. PAINTING AND COATING

3.1 Glazing Putty

Putty shall be an alkyd type product for filling minor surface unevenness.

3.2 Concrete Neutralizer

Concrete neutralizer shall be first grade quality concentrate diluted with clean water and applied as surface conditioner of new interior and exterior walls thus improving paint adhesion and durability.

3.3 Silicone Water Repellant

Silicone water repellant shall be transparent water shield especially formulated to repel rain and moisture on exterior masonry surfaces.

3.4 Patching Compound

Patching compound shall be fine powder type material like calciumine that can be mixed into putty consistency, with oil base primers and paints to fill minor surface dents and imperfections.

3.5 Tinting Colors

Tinting color shall be first grade quality, pigment ground in alkyd resin that disperses and mixes easily with paint to produce the color desired. Use the same brand of paint and tinting color to effect good paint body.

3.6 Wood filler

Wood paste filler shall be quality filler ready mixed in can for filling and sealing open grains of interior wood. It shall produce a level finish for succeeding coats of paint, varnish, or lacquer and other related products.

3.7 Wood Stain

Wood stain shall contain colored pigments and oil which penetrate the wood and provide a rich and lasting protective stain.

3.8 Wood Putty

Putty shall be oil based type for alkyd enamel top coating and two-component type for polyurethane top coating

3.9 Sanding sealer

Sanding sealer shall be quality sealer for wood sufaces that provides a non-absorbent base for color treatment which are applied on it. It shall exhibit good hold out and sealing properties, fast drying and easy to smooth by sandpaper.

3.10 Varnish

Varnish shall be homogeneous solution of resin, drying oil, drier and solvent. It shall be extremely durable clear coating, highly resistant to wear and tear without cracking, peeling, whitening, spotting, etc. with minimum loss of gloss for a maximum period of time.

3.11 Lacquer

Lacquer shall be any type of organic coating that dries rapidly and solely by evaporation of the solvent. Typical solvent are acetates, alcohols and ketones. Although lacquers were generally based on intrecellulose, manufacturers currently use, vinyl resins, plasticizers and reacted drying oils to improve adhesion and elasticity.

3.12 Clear polyurethane

Coating shall be two component thermosetting type.

3.13 Sandpaper

Shall be waterproof type

PART III-EXECUTION

1. PORTLAND CEMENT PLASTERING

1.1 Mixture

Mortar mixture for brown coat shall be freshly prepared and uniformly mixed in the proportion by volume of one (1) part Portland Cement, three (3) parts sand and one fourth (1/4) part hydrated lime.

Finish coat shall be pure Portland cement properly graded conforming to the requirements of Item 700, Hydraulic Cement and mixed with water to approved consistency and plasticity.

1.2 Surface Preparation

After removal of formworks reinforced concrete surfaces shall be roughened to improve adhesion of cement plaster.

Surfaces to receive cement plaster shall be cleaned of all projections, dust, loose particles, grease and bond breakers. Before any application of brown coat is commenced all surfaces that are to be plastered shall be wetted thoroughly with clean water to produce a uniformly moist condition.

1.3 Application

Brown coat mortar mix shall be applied with sufficient pressure starting from the lower portion of the surface to fill the grooved and to prevent air pockets in the reinforced concrete/ masonry work and avoid mortar mix drooping. The brown coat shall be lightly broomed/ or scratch before surface had properly set and allowed to cure.

Finish coat shall not be applied until after the brown coat has seasoned for seven days and corrective measures had been done by the General Contractor on surfaces that are defective. Just before the

application of the finish coat, the brown coat surface shall be evenly moistened with potable water. Finish coat shall be floated first to a true and even surface, then trowel in a manner that will force the mixture to penetrate into the brown coat. Surfaces applied with finish coat shall then be smooth with paper in a circular motion to remove trowel marks, checks and blemishes. All cement plaster finish shall be 10 mm. thick minimum, on vertical concrete and/ or masonry walls.

Cement plaster shall not be applied directly to:

Concrete or masonry surface that had been coated with bituminous compound and,

Surfaces that had been painted or previously plastered.

1.4 Workmanship

Cement plaster finish shall be true to details and plumbed. Finish surface shall have no visible junction marks where one (1) day's work adjoins the other. Where directed by the Supervising/Consulting Engineer or shown on the Plans vertical and horizontal groove joints shall be 25 mm wide and 10 mm deep.

2. TILEWORKS

2.1 Ceramic/Porcelain Tiling

The work consist of furnishing all materials, labor and performing all operations in connection with tile finishing of floors and walls, complete including mortar beds for the tile. Tile work shall not be started until roughing-ins for plumbing and electrical work has been completed and tested. The work of all other trades in the area where the work is to be done shall be protected from damage in a workmanship manner as directed by the Engineer.

2.1.1 Mortar for Tiles

A scratch coat for wall tile shall be approved tile adhesive. Scratch coat shall have a minimum thickness of 9 mm. The buttering mortar for setting wall tiles and mortar setting bed for floor tiles shall have the same material as that of scratch coat.

2.1.2 Floor Tiling

2.1.2.1 Preparation of Surfaces

Before tile is applied with a dry-set mortar bed, the structural floor shall be tested for levelness or uniformity of slope by flooding it with water. Areas with water ponds shall be filled, leveled and retested before the setting bed is applied. The slab shall be soaked thoroughly with clean water on the day before the setting bed is applied. Immediately preceding the application of the setting bed, the slab shall again be wetted thoroughly but no free water shall be permitted to remain on the surface. A skim coat of tile adhesive shall then be applied not more than 1.5 mm thick. The mortar shall be spread until its surface is true and even, and thoroughly compacted, either level or sloped uniformly for drainage, where required. A setting bed, as far as can be covered with the tile before the mortar shall have reached its initial set, must be placed in one(1) operation, but in the event that more setting mortar has been placed than can be covered, the unfinished portion shall be removed and cut back to a clean leveled edge.

2.1.3 Installation

2.1.3.1 Floor Tile

Determine and mark lay-out of ceramic tiles as to joint location, position of trims and fixtures so as to minimize cutting less than one half size of the tile.

2.1.3.1.1 Limits of tile

Extend tile into recess and under equipment and fixtures to form a complete covering without interruptions.

Terminate tile neatly at obstructions, edges, and corners, without disruption of pattern or joint alignment.

2.1.3.1.2 Joining pattern

Lay tile in grid pattern unless otherwise indicated on the Plans or directed by the Consulting Architect.

Align joints when adjoining tiles on floor, base, trim, and walls are the same size.

All tiles shall be soaked in clean water to a minimum of one (1) hour before they are installed. Absorptive mounted tile shall be damped by placing tile on a wetted cloth in a shallow pan before installing. Before the initial set has taken place in the setting bed, a skim of tile adhesive .75 mm to 1.5 mm thick, shall be trowelled or brushed over the setting. The tiles shall then be pressed firmly upon the setting bed, and carefully tapped into the mortar until true and even with the place of the finished floor base. Tapping and leveling shall be completed within one (1) hour after placing tiles. Borders and defined lines shall be laid before the field or body of the floor. Where floor drain is provided, the floor shall be sloped properly to the drains. Cutting of tiles, where necessary, shall be done along the outer edges of tile against trim, base, thresholds, pipes, built-in fixtures, and similar surfaces and shall be geared and joined carefully. Tiles shall be secured firmly in place, and loose tiles or tiles sounding hollow shall be removed and replaced to the satisfaction of the Consulting Architect. All lines shall be kept straight, parallel and true and all finished surface brought to true and even planes.

2.1.3.2 Wall Tile and Baseboards

Ceramic tiles shall be soaked in clean water prior to installation for a minimum of one hour.

Determine and mark lay-out of ceramic tiles as to joint location, position of trims and fixtures so as to minimize cutting by less than one half the size of the tile.

Thoroughly dampen the surface of wall but not to saturate the surface.

Apply a bond coat mix with consistency of cream paste 1.5mm thick to the wall surface or to the back of the tile to be laid.

Lay the tiles true to profile then exert pressure and tamp tile surface before the bond coat mix has initially set.

Continue the next full tile to be laid and pressed firmly upon the setting bed tamped until flush and in place of other tiles.

Intersections and returns shall be formed accurately using the appropriate trim

All lines shall be kept straight and true to profiles, plumbed and internal corners rounded using the appropriate trim.

2.1.3.2.1 Jointing

Joints shall be parallel and uniform in width, plumb, level and in alignment. End joints in broken-joint shall be made, as far as practicable, on the center line of the adjoining tiles. Joint widths shall be uniform and measured to accommodate the tiles in the given spaces with a minimum cutting.

2.1.4 Grouting

Grouting shall be done as soon as the mortar beds have sufficiently set. All cement shall be Portland cement, colored or white, as required. Where light colored mortar is required in joints, a mixture of white cement and nonfading mineral oxide shall be used to produce the desired colors. The quantity of mineral oxides shall not exceed 10% of the volume of cement in any case.

2.1.5 Cleaning

Upon completion of grouting, the tile shall be thoroughly cleaned and maintained in this condition until completion of the contract.

Apply a protective coat of neutral cleanser solution diluted with water in the proportion of 1:4 or one liter cleanser concentrate to one gallon of water.

In addition, cover tile flooring with heavy duty non-staining construction paper, taped in place.

Just before final acceptance of the work, remove paper and rinse the protective coat of neutral cleanser from the tile surface.

Do not let the protective paper get torn or removed

2.2 Granite Tiling

2.2.1 Setting Materials

Provide a mortar system of Portland cement, sand and water.

2.2.2 Others Materials

Provide other materials, not specifically described, but required for a complete and proper installation, as selected by the Contractor, subject to the approval of the Consulting Architect.

2.2.3 Surface Conditions

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

2.2.4 Installation

2.2.4.1 Floor Tiles and Counter Slabs

Measure mortar materials in approved containers. Mix all materials in proportions by volume. Water and aggregates shall be introduced and mixed gradually to ensure a uniform distribution. Set mortar beds in a volume proportion of one part Portland cement, four parts dry sand and ½ part lime.

Mortar setting beds shall be a minimum thickness of 25 millimeters.

Apply a coat of tile adhesive, one to two millimeters thick over the setting bed. Press tiles and slab firmly on the bed, keeping lines straight, parallel and true.

2.2.4.2 Pointing

Pointing material shall be polyurethane or polyester resin of best quality standard.

2.2.4.3 Sanding

Flooring shall be sanded with an approved equipment intended to provide smooth, even, uniform finish without burns. Final finished flooring shall be applied with heavy duty abrasion resistant wax to provide a lasting mirror like finish

2.2.4.4 Cleaning

Clean surrounding areas of slabs, tiles, and debris.

3. PAINTING AND COATING

The Contractor prior to commencement of the painting, varnishing and related work shall examine the surfaces to be applied in order not to jeopardize the quality and appearances of the painting varnishing and related works.

3.1 Surface Preparation

All surfaces shall be in proper condition to receive the finish. Woodworks shall be hand-sanded smooth and dusted clean. All knot-holes pitch pockets or sappy portions shall be sealed with natural wood filler. Nail holes, cracks or defects shall be carefully puttied after the first coat, matching the color of paint.

Interior woodworks shall be sandpapered between coats. Cracks holes of imperfections in plaster shall be filled with patching compound and smoothed off to match adjoining surfaces.

Concrete and masonry surfaces shall be coated with concrete neutralizer and allowed to dry before any painting primer coat is applied. When surface is dried apply first coating. Hairline cracks and unevenness shall be patched and sealed with approved putty or patching compound. After all defects are corrected apply the finish coats as specified on the Plans. Color samples to be approved by the Consulting Architect.

Metal shall be clean, dry and free from mill scale and rust. Remove all grease and oils from surfaces. Wash unprimed galvanized metal with etching solution and allow it to dry. Where required to prime coat surface with red lead primer same shall be approved by the Engineer.

In addition the General Contractor shall undertake the following:

Voids, cracks, nick etc. will be repaired with proper patching material and finished flushed with surrounding surfaces.

Marred or damaged shop coats on metal shall be spot primed with appropriate metal primer.

Painting and varnishing works shall not be commenced when it is too hot or cold.

Allow appropriate ventilation during application and drying period.

All hardware will be fitted and removed or protected prior to painting and varnishing works.

3.2 Mixing and Thinning

At the time of application paint shall show no sign of deterioration. Paint shall be thoroughly stirred, strained and kept at a uniform consistency during application. Paints of different manufacture shall not be mixed together. When thinning is necessary, this may be done immediately prior to application in accordance with the manufacturer's directions, but not in excess of 1 pint of suitable thinner per gallon of the paint.

3.3 Workmanship in General

All paints shall be evenly applied. Coats shall be of proper consistency and well brushed out so as to show a minimum of brush marks.

All coats shall be thoroughly dry before the succeeding coat is applied.

Where surfaces are not fully covered or cannot be satisfactorily finished in the number of coats specified such preparatory coats and subsequent coats as may be required shall be applied to attain the desired evenness of surface without extra cost to the Procuring Entity.

Where surface is not in proper condition to receive the coat the Consulting Architect shall be notified immediately. Work on the questioned portion(s) shall not start until clearance be proceed is ordered by the Consulting Architect.

Hardware, lighting fixture and other similar items shall be removed or protected during the painting varnishing and related work operations and re-installed after completion of the work.

3.4 Application

3.4.1 Brush application

Paints when applied by brush shall become non-fluid, thick enough to lay down as adequate film of wet paint. Brush marks shall flawed out after application of paint.

Brush out and work the brush coats onto the surface in an even film.

Cloudiness, spotting, holidays, laps, brush, marks, runs, sags, ropiness, and other surface imperfections will not be acceptable.

3.4.2 Spray application

Paints made for application by roller must be similar to brushing paint. It must be non-sticky when thinned to spraying viscosity so that it will break up easily droplets.

Paint is atomized by high pressure pumping rather than broken up by the large volume of air mixed with it. This procedure changes the required properties of the paint.

Except as specifically otherwise approved by the Consulting Architect, confine spray application to metal framework and similar surfaces where hand brushwork would be inferior.

Where spray application is used, apply each coat to provide the hiding equivalent of brush coats.

Do not double back with spray equipment to build up thickness of two coats in one pass.

For complete work, match the approved samples as to texture, color, and coverage, Remove, refinish, or repaint work not in compliance with the specified requirements.

3.5 Touch-up and Finishing

Touch up shop-applied prime coats which have been damaged, and touchup bare areas prior to start or finish coats application.

Slightly vary the color of succeeding coats.

Do not apply additional coats until the completed coat has been inspected and approved.

Only the inspected and approved coats of paint will be considered in determining the number coats applied.

Sand and dust between coats to remove defects visible to the unaided eye from a distance of five feet.

On removable panels and hinged panels, paint the backsides to match the exposed sides.

3.6 Drying

Allow sufficient drying time coats, modifying the period as recommended by the material manufacturer to suit adverse weather conditions.

Consider oil-base and oleo-resinous solvent type paint as dry for re-coating when the paint feels, firm, does not deform or feel sticky under moderate pressure of the thumb, and when the application of another coat of paint does not cause lifting or less of adhesion of the undercoat.

3.7 Miscellaneous surfaces and procedures

3.7.1 Exposed mechanical items

Finish electric panels, access, conduits, pipes, ducts, grilles, registers, vents, and items of similar nature to match the adjacent wall and ceiling surfaces, or as directed.

3.7.2 Hardware

Paint prime coated hardware to match adjacent surfaces;

Paint metal portions of head seals, jamb seals, and astragal seals to match the color of the doorframe unless otherwise directed by the Architect.

3.7.3 Wet areas

In toilet rooms and contiguous areas, add an approved fungicide to paints.

For oil based paints, use 1-% phenol mercuric or 4% pentachlorophenol.

For water emulsion and glue size surfaces, use 4% sodium pentachlorophenol.

Exposed vents: Apply two coats of heat resistant paint approved by the Architect.

4. SUSPENDED CEILING ASSEMBLY

All materials and workmanship shall be the best of their respective kinds, fabricated to true, plumb and straight lines. All ferrous metals shall have a rust-inhibitive finish of approved paint.

When fastening to in-place construction, provide anchorage devices and fittings to properly secure ceiling assembly to in-place construction. Examples of such devices include threaded fittings (for concrete inserts), toggle bolts and through-bolts.

END OF SECTION

DIVISION 16 ELECTRICAL

PART I-GENERAL

This Item shall consist of the furnishing and installation of the complete conduit work consisting of electrical conduits; conduit boxes such as junction boxes, utility boxes, octagonal and square boxes; conduit fittings such as couplings, locknuts and bushing and other electrical materials needed to complete the conduit roughing-in works. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

All works shall comply with the provision of the latest edition of the Philippine Electrical Code, the regulations of the local authority concerned in the enforcement of the electrical laws and ordinances and with the rules and regulations of the utility company.

Coordinate as necessary with other trades to assure proper adequate provision in the work of those trades for interface of the work of this section.

Coordinate the installation of electrical items with the schedule for work of other trades to prevent unnecessary delays in the total work.

Where lighting fixtures and other electrical items are shown in conflict with locations of structural members or other equipment, provide required support and wiring to clear the encroachment.

Data indicated on the Plans and in these Specifications are exact as could be secured, but their absolute accuracy is not warranted. The exact locations, distances, levels, and other conditions will governed by actual construction and the Drawings and Specifications should be used only for guidance in such regard.

Where outlets are not specifically located on the Drawings, locate as determined in the field by the Architect. Where outlets are installed without such specific direction, relocate as directed by the Architect and at no additional cost to the Owner.

Verify all measurements at the building. No extra compensation will be allowed because of differences between work shown on the Plans and actual measurements at the site of construction.

Branch circuit wiring and arrangement of home runs have been designed for maximum economy consistent with adequate sizing for voltage drops and other considerations. Install the wiring with circuits arranges exactly as shown on the Drawings, except as otherwise approved in advance by the Architect.

The Electrical Drawings are Diagrammatic, but are required to be followed as closely as actual construction and work of other trades will permit. Deviations shall be without additional cost to the Procuring Entity.

1. IDENTIFICATION

Identify all panel boards, cabinets, safety switches, and other apparatus used for operation and control of circuits, appliances, and equipment.

Provide plastic laminate nameplates, black face with white core letters, showing proper and completion identification.

2. TEST AND GUARANTEE

All installation shall be completed on or before final acceptance of the project including the tests and commissioning. Equipment shall be demonstrated to operate in accordance with the requirements of this specification. The Contractor shall furnish all instruments, tools and personnel required for the tests. As an exception to requirements that may be stated elsewhere in the contract agreement, the Engineer shall be given five (5) working days notice prior to each test. All defects disclosed as a result of such test that are due to the Contractor and shall be remedied to the satisfaction of the Engineer.

Upon completion of the electrical construction work, the Contractor shall provide all test equipment and personnel and to submit written copies of all test results. The Contractor shall guarantee the electrical installation are done and in accordance with the approved Plans and Specifications. The Contractor shall guarantee that the electrical system are free from all grounds from all defective workmanship and materials and will remain so for a period of one year from date and acceptance of works. Any defect shall be remedied by the Contractor at his own expense.

Upon completion of the work of this Section, thoroughly clean all exposed portions of the electrical installation, removing all trades of soil, labels, grease, oil, and other foreign material, and using only the type cleaner recommended by the manufacturer of the item being cleaned.

After the installation is completed, the contractor shall conduct test as required and an operating test for approval. Equipment shall be demonstrated to operate in accordance with the requirement of this specification. Test shall be performed in the presence of the owner or their authorize representatives. The contractor shall furnish all instruments required for the test and shall furnish the owners/ representative all catalogs/ manuals of equipment tested. All defects disclosed as result such test shall be remedied by and at the expense of the contractor.

Make written notice to the Consulting Architect adequately in advance of each of the following stages of construction:

In the underground condition prior to placing concrete floor slab when all associate electrical work is in place.

When all rough-in is complete, but not covered;

At completion of the work of this section.

When material and/or workmanship is found to not comply with the specified requirements, within three days after receipt of notice such non-compliance remove the non complying items from the job site and replace them with items complying with the specified requirements, all at no additional cost to the owner.

In the Architect's presence:

Test all parts off the electrical system proves that all such items provided under this section function electrically in the required manner.

Immediately submit to the Consulting Architect a report of maximum and minimum voltages and a copy the recording voltmeter chart.

Also measure voltages between phases and between phase wires and neutrals, and report these voltages to the Architect.

The electrical system installation furnished under this contract shall be guaranteed for a period of one year from date of acceptance thereof against defective materials, equipments and workmanship. Upon the receipt of noticed from the architect of the failure of any part or parts of this installation or equipments parts shall be replaced promptly with new parts at the expense of the contractor and in a manner satisfactory to the owner.

2.1 Devices Subject to Manual Operation

Each device subject to manual operation shall be tested five (5) times demonstrating satisfactory operation each time.

2.2 Test On 600 Volts Wiring

Test of all 600 volts wiring to verify that no circuits or accidental grounds exist. Perform insulation resistance test on all wiring using an instrument which apply a voltage of approximately 500 volts to provide a direct reading of resistance; minimum resistance shall be 250,000 ohms that the resistance to ground is not excessive. Test each ground rod for resistance to ground before making any connections to the rod, then tie entire grounding system together and test for resistance to ground. Make resistance measurements in normally dry weather condition, not less than 48 hours after rainfall. Submit written results of each test to the Engineer and indicate the locations of the rod as well as the resistance and soil conditions at the time of the measurements were made.

2.3 Standards

The materials to be furnished under these specifications shall be the "STANDARD". Products or manufacturers regularly engaged in the production of such equipment, materials, devices, and shall be the manufacturers latest standard design that complies with the standard approving authority such as; JIS-JAPAN ELECTRICAL STANDARD, UL- AMERICAN STANDARD, IEC-EUROPEAN ELECTRICAL STANDARD and PS-PHILIPPINE STANDARD.

PART II- PRODUCTS

All materials shall be brand new and shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the Philippine Standard Agency (PSA) mark. The electrical materials to be used shall be of the standard products of the manufacturers regularly engaged in the production of equipment and materials required for this project and shall be the manufacturer's latest standard design that complies with the specification requirements. The Contractor shall submit for approval a complete description of all materials and equipment to be used before commencing the work. The descriptions shall include catalogue numbers, illustrations, diagrams, dimensional data, etc., as required to describe fully the materials.

1. CONDUITS

Rigid Steel Conduit shall be electrical metal tubing (EMT) conduit, hot dip galvanized, conforming to ANSI Standard C80.1, or "American Standard Specifications for Steel Conduit, zinc coated" unless shown otherwise in the Plans. The conduit fittings and covers shall be galvanized, threaded, or cadmium plated, grey iron or malleable iron castings. Composite rubber gasket shall be provided in all openings requiring covers. Outlets and pull boxes shall be of the sizes and types shown in the Plan.

Rigid uPVC Conduit shall be NEMA TC2, type EPC-PVC and shall be schedule 40. Enamel coated steel conduits and conduits with rough inner surfaces are not acceptable.

2. CONDUIT BOXES AND FITTINGS

All conduit boxes and fittings shall be Code gauge steel and galvanized. Outlet boxes and fittings shall be galvanized pressed steel of standard make. In general, outlet boxes shall be at least 100 mm. square or octagonal, 53 mm. deep and 16 mm. minimum gauge.

Pull boxes shall be of 4"x 4" uPVC for 20mm diameter and 25mm diameter conduit if required. Larger sizes than 4"x4" boxes shall be made galvanized metal box gauge 18 minimum fitted with screws and metal cover. The feeders/ wires passing through this pull shall be tagged to indicate circuit, panel numbers, or other necessary electrical characteristics/ designations.

3. LIGHTING FIXTURES

All lighting fixtures and lamps of type and sizes as specified and listed on the Lighting Fixture Schedule and shall be furnished and installed complete. Color characteristics shall be approved by Consulting Architect/Engineer.

All Fluorescent lamps shall be 25 watts, T8 medium bi pin dust proof recessed type, cool white color characteristics.

Cove lighting shall be 2.4 watts/meter high power rope light.

LED downlights shall be 4 watts recessed type with 6" square frosted glass cover/case and 8" x 8" 20 watts square. Location shall be as shown on Plans.

LED spotlight 5 Watts Retractable.

Emergency lighting shall be 6 watts LED light, maintenance free, long life, pure lead acid battery with complete automatic battery charger. Provide 90 minutes of emergency operation.

Lighting for Stairs shall be 2.4 watts/meter high power rope light.

Provide units having an attached pull box, and with UL label. Provide local label in addition if so required by governmental agencies having jurisdiction.

Fixtures are designated by letters and illustrations shall be indicative of the general type desired and shall not restrict selection to fixtures of any particular manufacturer. Fixtures of similar design and equivalent

light distribution and brightness characteristics having equal finish and quality may be acceptable but subject to the approval of the Consulting Engineer/Architect.

4. GROUNDING SYSTEM

All materials to be used shall conform to the Bureau of Product Standards (BPS) specifications.

5. WIRES AND WIRING DEVICES.

Wires and cables shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the PSA mark unless specified or indicated otherwise, all power and lighting conductor shall be insulated for 600 Volts. All wires shall be copper, soft drawn and annealed, smooth and cylindrical form and shall be centrally located inside the insulation. All wiring devices shall be standard product of reputable electrical manufacturers. Wall switches shall be rated at least 10A, 250 Volts and shall be spring operated, flush, tumbler type. Duplex convenience receptacles shall be rated at least 15A, 250 Volts, flush, parallel slot single heavy duty receptacles shall be rated at least 20 A, 250 Volts, wire, flush, polarize type.

Conductors in conduits shall be moisture and heat-resistant rubber or thermoplastic insulated. In dry locations, wires and cables shall be type THW for sizes 8 mm. and smaller and type THW or THHN for sizes 14 sq. mm. and larger. In damp or wet locations as defined by the Philippine Electric Code, wires and cables shall be type THW. All conductors shall have 600 volts insulation unless otherwise specified in the drawings. Wire shall be stranded copper for 5.5 mm. diameter and larger sizes. Wires for the telephone and signaling systems shall be twisted telephone wires, thermoplastic insulated. The number and sizes shall be as specified in the Plans.

Each outlet in the wirings shall be provided with an outlet box suit the conditions encountered. Boxes shall be of uPVC; shall have a sufficient volume to accommodate the number of conductors entering the box in accordance with the requirements of the Philippine Electrical Code. Location of outlets shown on the drawing is approximate; the contractor shall study the building plans in relation to the spaces and equipments surrounding each outlet so that the outlets are symmetrically located according to room layout. Boxes shall be installed in concealed location, weatherproofed outlets covers shall be installed for outdoor locations. Convenience outlet shall be duplex type 1- 20 A, 220V 2 wires. Special purpose outlets shall be 1-30 A, 380V and 1 – 40A 380V 3 wires configuration. For hallways, lobby and offices referred to detail drawings.

Proposed lighting circuit homeruns shall be 3.5 mm^2 THHN stranded and laid from panel to load as indicated in the plan. This is a spare load for future used (flood lighting and landscaping lighting).

6. POWER LOAD CENTER, SWITCHGEAR AND PANELBOARDS

This Item shall consist of the furnishing and installation of the power load center unit substation or low voltage switchgear and distribution panel boards at the location shown or the approved Plans complete with transformer, circuit breakers, cabinets and all accessories, completely wired and ready for service.

All materials shall be brand new and shall be of the approved type. It shall conform with the requirements of the Philippine Electrical Code and shall bear the Philippine Standard Agency (PSA) mark.

The service entrance shall be installed in concrete encasement, these includes power, communication and television. There is no definite location layout of the building service entrance on the plan. The contractor shall coordinate with the owner representative for the actual location.

6.1 Power Load Center Unit Substation

The Contractor shall furnish and install as indoor-type Power Load center Unit Substation at the location shown on the approved Plans if required. It shall be totally metal-enclosed, dead front and shall consist of the following coordinated component parts:

6.2 High Voltage primary Section

High voltage primary incoming line section consisting of the following parts and related accessories:

One (1) Air-filled interrupter Switch, 2-position (open-close) installed in a suitable air filled metal enclosure and shall have sufficient interrupting capacity to carry the electrical load. It shall be provided with key interlock with the cubicle for the power fuses to prevent access to the fuses unless the switch is open.

Three (3) power fuses mounted in separate compartments within the switch housing and accessible by a hinged door.

One (1) set of high voltage potheads or 3-conductor cables or three single conductor cables.

Lighting arresters shall be installed at the high voltage cubicle if required. Items (a) and (b) above could be substituted with a power circuit breaker with the correct rating and capacity.

6.3 Transformer Section

The transformer section shall consist of a power transformer with ratings and capacities as shown on the Plans. It shall be oil liquid-filled non-flammable type and designed in accordance with the latest applicable standards.

The transformers shall be provided with four (4 approximately 2 ½ % rated KVA taps on the primary windings in most cases one (1) above and three (3) below rated primary voltage and shall be changed by means of externally gang-operated manual tap changer only when the transformer is deenergized. Tap changing under load is acceptable if transformer has been so designed. The following accessories shall be provided with the transformer, namely: drain pad, top filter press connection, lifting lugs, diagrammatic nameplate, relief valve, thermometer and other necessary related accessories.

The high voltage and low voltage bushings and transition flange shall be properly coordinated for field connection to the incoming line section and low voltage switchboard section, respectively.

6.4 Low-Voltage Switchboard Section

The low-voltage switchboard shall be standard modular-unitized units, metal-built, dead front, safety type construction and shall consist of the following:

6.5 Switchboard Housing

The housing shall be heavy gauge steel sheet, dead front type, gray enamel finish, complete with frame supports, steel bracings, steel sheet panelboard, removable rear plates, copper busbars, and all other necessary accessories to ensure sufficient mechanical strength and safety. It shall be provided with grounding bolts and clamps.

6.6 Secondary Metering Section

The secondary metering section shall consist of one (1) ammeter, AC, Indicating type; one voltmeter, AC, Indicating Type, one (1) ammeter transfer switch for 3-phase; one (1) voltmeter transfer switch for 3-phase; and current transformers of suitable rating and capacity.

The abovementioned instruments shall be installed in one compartment above the main breaker and shall be complete with all necessary accessories completely wired, ready for use.

6.7 Main Circuit Breaker

The main circuit breaker shall be draw-out type, manually or electrically operated, manual trip bottom, magnetic tripping devices, adjustable time over current protection and instantaneous short circuit trip and all necessary accessories to ensure safe and efficient operation.

6.8 Feeder Circuit Breakers

There shall be as many feeder breakers as are shown on the single line diagram or schematic riser diagram and schedule of loads and computations on the Plans. The circuit breaker shall be drawn out or molded case as required. The circuit breakers shall each have sufficient interrupting capacity and shall be manually operated complete with trip devices and all necessary accessories to insure safe and efficient operation. The number, ratings, capacities of the feeder branch circuit breakers shall be shown on the approved Plans.

Circuit breakers shall each be of the indicating type, providing "ON" – "OFF" and "TRIP" positions of the operating handles and shall each be provided with nameplate for branch circuit designation. The circuit breaker shall be so designed that an overload or short on one pole automatically causes all poles to open.

6.9 Low-Voltage Switchgear (For projects requiring low-voltage Switchgear only)

The Contractor shall furnish and install a low-voltage switchgear at the location shown on the Plans. It shall be metal-clad, dead front, free standing, safety type construction and shall have copper busbars of sufficient size, braced to resist allowable Root Mean Square (RMS) symmetrical short circuit stresses, and all necessary accessories.

The low-voltage switchgear shall consist of the switchgear housing, secondary metering, main breaker and feeder branch circuit breakers and all necessary accessories, completely wired, ready for service.

6.10 Grounding System

All non-current carrying metallic parts like conduits, cabinets and equipment frames shall be properly grounded in accordance with the Philippine Electrical Code, latest edition.

The size of the ground rods and ground wires shall be as shown on the approved Plans. The ground resistance shall not be more than 5 ohms.

6.11 Panelboards and cabinets

Panelboards shall conform to the schedule of panelboards as shown on the approved Plans with respect to supply characteristics, rating of main lugs or main circuit breaker, number and ratings and capabilities of branch circuit breakers.

Panelboards shall consist of a factory completed dead front assembly mounted in an inclosing flush type cabinet consisting of code gauge 14 (2.0 mm thick) galvanized sheet steel box with trim and door. Each door shall be provided with catch lock and two (2) keys. Panelboards shall be provided with directories and shall be printed to indicate load served by each circuit.

Panelboard cabinets and trims shall be suitable for the type of mounting shown on the approved Plans. The inside and outside of panelboard cabinets and trims shall be factory painted with one rust-proofing primer coat and two finish shop coats of pearl gray enamel paint.

Main and branch circuit breakers for panelboards shall have the rating, capacity and number of poles as shown on the approved Plans. Breakers shall be thermal magnetic type. Multiple breaker shall be of the common trip type having a single operating handle. For 50-ampere breaker or less, it may consist of single-pole breaker permanently assembled at the factory into a multi-pole unit.

Panel boards shall be of the dead front safety type components to UL and provided with size and number of circuit. As indicated (panel directory) MDPI and MDP2 panelboard shall be free standing type. Other power panel shall be installed flush on walls. Panelboards main breaker shall be molded case, center main. All branch breakers shall be of bolt-on type. A ground terminal bus shall be installed at bottom of every panel with branch terminal screw equivalent to the number of branch circuit. A cable trench under the free standing panel shall be provided. The trench dimension shall be of suitable clearance for cable bends.

7. MOTORS

Motors shall have enclosed frames, class B insulation and continues duty classification based on 40 C ambient temperature referenced. Each motor have its owned equivalent motor controller as shown in the plans.

7.1 Motor Controllers and Control Devices

Motor controllers and control devices shall be suitable for performing the functions specified. Motor control equipments shall conform to NEMA standards specifications. Each motor controller shall be provided with thermal overload protection.

8. PUMP CONTROL CONDUIT

Pump control conduit, a continuous run conduit with 6 – 2mm sq. THWN stranded wire installed from water pump controller to limit or level switch installed at roof water tank. This is for pump automatic control operation.

9. SNAP SWITCHES

Snap switches shall be flush mounted. Rating should be 15A, 220V.

10. SAFETY SWITCHES

Provide safety switches of heavy-duty type, horsepower rated, quick-make and quick-break design, externally operated with provision for padlocking fusible and non-fusible as shown on the Drawings.

PART III-EXECUTION

All works throughout shall be executed in the best practice in a workmanlike manner by qualified and experienced electricians under the immediate supervision of a duly licensed Electrical Engineer.

1. CONDUITS

Conduits should be cut square with hacksaw and ends reamed. Running or non-tapered threads shall not be used. Each run of conduit between boxes or equipment shall be electrically continuous. Threads shall conform to the American Standard for tapered pipe threads. In making bends only conduit bending apparatus will be used. The use of a pipe tee or vise for bending conduits shall not be permitted. Conduits entering slip holes in boxes shall be secured with a locknut on each side of the box wall and terminated with a bushing.

All joints between lengths of conduits and threaded connections to boxes, fittings and equipment enclosures shall be made watertight. Conduits shall be sloped towards drain points. Conduits shall be rigidly supported and braced to avoid shifting during placement of concrete. Conduits extending out of floors, walls, or beams shall be at right angles to the surfaces.

Spacing of conduits shall be such as to permit the flow of concrete between them. A minimum spacing of not less than 5 cm. shall be maintained, except where conduits enter boxes. Where conduits are placed in two or more layers or rows, the conduits in the upper or inner layers shall be placed directly over or behind the lower or outer layers, respectively.

Conduits terminating at the face of concrete for initial or future extensions as exposed runs shall be terminated with plugged couplings set flush with the floor, ceilings or wall. Galvanized iron plugs shall be provided for conduits, which are to be extended in the future. Where it is not practical to employ flush couplings, the conduit ends shall be suitably boxed or otherwise protected and plugged.

Conduits running in floors and terminating at motors or other equipment mounted on concrete bases shall be brought up to the equipment within the concrete base wherever possible. Conduit boxes shall be flush with the finished wall with covers and openings easily accessible. The Contractor shall remove and reset all boxes not properly installed or shifted out of line during concreting to the satisfaction of the Engineer.

2. CONDUIT BOXES & FITTINGS

Each outlet in the drawing or raceway system shall be provided with an outlet box to suit the conditions encountered. Boxes for exposed work or in wet locations shall be of the cast metal type having threaded hubs. Boxes for concealed work shall be the cadmium-plated or zinc-coated sheet metal type. Each box shall have sufficient volume to accommodate the number of conductors entering the box.. Boxes shall not be less than 50 mm deep unless shallower boxes are required by structural conditions that are specifically approved by the Engineer. Ceiling and bracket outlet boxes shall not be less than 100 mm octagonal except that smaller boxes may be used where required by the particular fixtures to be installed. Switch and receptacle boxes shall be approximately 100 mm x 50 mm x 50 mm. Telephone outlets shall be 100 mm square except that 100 mm x 54 mm x 40 mm boxes may be used where only one raceway enter the outlet. Boxes installed in concealed locations shall be set flush with the finished surfaces and shall be provided with the proper extension rings or plaster covers where required. Boxes shall be installed in a rigid and satisfactory manner and shall be supported by bar hangers in frame construction, or shall be fastened directly with wood screws on wood. Location of outlets shown on the drawings are approximates; the Contractor shall study the building plans in relation to the spaces and equipment surrounding each outlet so that the lighting fixtures are symmetrically located according to the room layout. When necessary, with the approval of the Consultant, outlets shall be relocated to avoid interference with mechanical equipment or structural features.

Provide conduit boxes for pulling and splicing wires and outlet boxes for installation of wiring devices. As a rule, provide junction boxes or pull boxes in all runs greater than 30 meters in length, for horizontal runs. For other lengths, provide boxes as required for splices or pulling. Pull boxes shall be installed in conspicuous but accessible locations.

Support boxes independently of conduits entering by means of bolts, red hangers or other suitable means.

Conduit boxes shall be installed plumb and securely fastened. They shall be set flush with the surface of the structure in which they are installed where conduits are run concealed.

All convenience and wall switch outlet boxes for concealed conduit work shall be deep, rectangular flush type boxes. Four inch octagonal flush type boxes shall be used for all ceiling light outlets and shall be of the deep type where three or more conduits connect to a single box. Floor mounted outlet boxes required shall be waterproof type with flush brass floor plate and brass bell nozzle.

All boxes shall be painted with anti-rust red lead paint after installation. All conduits shall be fitted with approved standard galvanized bushing and locknuts where they enter cabinets and conduit boxes.

Junction and pull boxes of code gauge steel shall be provided as indicated or as required to facilitate the pulling of wires and cables.

3. LIGHTING FIXTURES

4. GROUNDING SYSTEM

All grounding system installation shall be executed in accordance with the approved plans. Grounding system shall include building perimeter ground wires, ground rods, clamps, connectors, ground wells and ground wire taps as shown in the approved design.

5. WIRES AND WIRING DEVICES

This Item shall consist of the furnishing and installation of all wires and wiring devices consisting of electrical wires and cables, wall switches, convenience receptacles, heavy duty receptacles and other devices shown on the approved Plans but not mentioned in this Specification.

All wiring installation herein shall be done under the direct supervision of a licensed Electrical Engineer at the expense of the Contractor. The Contractor shall submit the request for the Clearance to Proceed duly approved by the owner's representative.

Conductors of wires shall not be drawn in conduit until after the cement plaster is dry and the conduits are thoroughly cleaned and free from dirt and moisture. In drawing wires into conduits, sufficient slack shall be allowed to permit easy connection for fixtures, switches, receptacles and other wiring devices without the use of additional splice:

All conductors of convenience outlets and lighting branch circuit home runs shall be wired with a minimum of 3.5 mm. in size. Circuit homeruns to panel boards shall not be smaller than 3.5 mm. but a homerun to panel board more than 30 meters shall not be smaller than 5.5 mm. No conductor shall be less than 2 mm. in size.

All wires of 14 mm. and larger in size shall be connected to panel and apparatus by means of approved type lugs or connectors of the solderless type, sufficiently large enough to enclose all strands of the conductors and securely fasten. They shall not loosen under vibration of normal strain.

All joints, taps and splices on wires larger than 14 mm. shall be made of suitable solderless connectors of the approved type and size. They shall be taped with rubber and PVC tapes providing insulation no less than that of the conductors.

No splices or joints shall be permitted in either feeder or branch conductors except within outlet boxes or accessible junction boxes (pull boxes). All joints in branch circuit wiring shall be made mechanically and electrically secured by approved splicing devices taped with rubber and PVC tapes in a manner which will make their insulation as that of the conductor.

All wall switches and receptacle shall be fitted with standard bakelite face plate covers. Device plate for flush mounting shall be installed with all four edges in continuous contract finished wall surfaces without the use of coiled wire or similar devices. Plaster fillings will not be permitted. Plate installed in wet locations shall be gasketed.

When more than one switch or device is indicated in a single location gang plate shall be used.

6. POWER LOAD CENTER, SWITCHGEAR AND PANELBOARDS

The Contractor shall install the Power Load center Unit Substation or Low-Voltage Switchgear and panel boards at the locations shown on the approved Plans.

Standard panels and cabinets shall be used and assembled on the job. All panels shall be of dead front construction furnished with trims for flush or surface mounting as required.

Unless indicated or specified otherwise herein, all materials and workmanship shall conform to specification, and to the applicable standards, codes. Regulations and specification listed therein. Workmanship shall be or the "HIGHEST GRADE'. Electrical materials shall be new and approved "STANDARD". Defective equipment or equipments damaged shall be replaced or repaired. The contract drawings indicate the extent and several arrangements of conduit and wiring systems. For any departures from the contract drawings are deemed necessary by the contractor, details of such departures and the reasons therefore shall be submitted as soon as practicable to the owners. All panel boards, lighting fixture, convenience outlet and switches shall be presented to the principal architect and to the electrical designer for approval before installation.

7. MOTORS

Motors furnished and installed shall be of sufficient size, and shall not exceed their full rated load when driven equipment is operating at specified capacity under the most severe condition likely to be encountered.

END OF SECTION

DIVISION 18 EXTERIOR IMPROVEMENTS

PART I-GENERAL

Contractor shall accept actual conditions at the project site and do work specified without additional compensation for possible variation from grades and conditions shown, whether surface or subsurface. All grading work shall be unclassified except for rock removal as described in Division 3 – Site works.

This is a pedestrian oriented facility and as such, designs should be prepared with pedestrian traffic (including those with mobility impairments) as the highest priority. All sidewalks associated with new building construction shall be paved.

Request for permission to substitute will not be entertained unless adequate evidence substantiating the unavailability of the specified item accompanies the request for substitution. The contractor must submit a list of a minimum of 10 sources of plant suppliers that have been contacted. The list must include the name of the plant supplier, contact name, date and time. If proof is submitted, substantiated in writing, that any plant specified is not obtainable, a proposal will be considered for use of the nearest available size or similar variety with a corresponding adjustment of the contract price.

PART II- PRODUCTS

1. GRADING

Grading and fill shall be Common or Select Fill. Description of which is found on Division 3- Site works.

2. STEEL GATE

2.2 Fence

Design shall be as shown in Plans. Fence assembly shall be:

6 mm thick x 50 mm Flat bar

6 mm thick x 50 mm x 50 mm Angle bar

4.5 mm thick x 25 mm x 25 mm Angle bar

6 mm thixk x 50 mm Flat bar ring

3. CONCRETE UNIT PAVING

Interlocking concrete paver units shall be 225 mm x 120 mm x 50 mm 102 Multi-wave pavers and shall comply with ASTM C 936. Design to be approved by the Consulting Architect.

All brick scrap from paving or repair projects are to be recycled.

Paver Bedding and Joint Sand shall be as recommended by paver manufacturer and as follows:

Clean, non-plastic, free from deleterious or foreign matter, natural or manufactured from crushed rock.

4. GRANITE TILING

Provide granite cut size tile 0.60 x 0.60 m, for edge of concrete unit paving, with all tiles of uniform grain and pattern.

5. LIGHTING

Lamps shall be 60 watts LED, design, configuration and location as shown in Plans.

Spotlights shall be 3 watts LED, configuration and location as shown in Plans.

Lamp post shall be pre-cast concrete, complete with mouldings. Design and configuration shall be as shown in Plans.

6. RC BENCHES, CONCRETE PAVEMENTS, BORDERS AND WALKWAYS

6.1 Portland Cement

Portland cement Comply with ASTM C150, type I

6.2 Reinforcement

5.2.1 RC Benches

10 mm Ø main bars with 10 mm Ø ties spaced at 0.20 m.

5.2.2 Concrete Pavements, Walkways

10 mm Ø main bars

6.3 Aggregates

Provide clean, sharp, well graded aggregate free from injurious amounts of dust, lumps shale, alkali, surface coatings and organic matter and complying with ASTM C144.

6.4 Water

Provide water, free from deleterious amounts of acids, alkalis, and organic materials.

6.5 Finish

6.1.1 RC Benches

Benches shall be finished with 0.60 x lm granite slab. Type, color, pattern and finish shall be approved by the Consulting Architect.

6.1.2 Concrete Pavements, Borders and Walkways

Finish on concrete pavements shall be approved by the Consulting Architect.

7. PLANTING/LANDSCAPE

Topsoil and Planting Mix as approved by the Consulting Architect.

Planting to be chosen shall be low lying grasses and turfs, perennial plants and shrubs that are low maintenance and will not obstruct the view of the building. Samples of which shall be approved by the Consulting Architect.

PART III-EXECUTION

1. GRADING

Site grading shall conform to the lines and grades indicated by the finish contours on the Plans.

2. STEEL GATE

Install in accordance with Plans and Shop drawings as approved by Consulting Architect.

3. CONCRETE UNIT PAVING

Verify compacted subgrade, granular base or stabilized soil is acceptable and ready to support paving and imposed loads.

If soil fill is necessary, all fill material shall be free of organic or foreign material.

All fill materials shall be placed in minimum six-inch lifts and shall be compacted to 100% of maximum density

Install paving system(s) in accordance with manufacturer's recommendations and as indicated.

4. GRANITE TILING

4.1 Setting Materials

Provide a mortar system of Portland cement, sand and water.

4.2 Others Materials

Provide other materials, not specifically described, but required for a complete and proper installation, as selected by the Contractor, subject to the approval of the Consulting Architect.

4.3 Surface Conditions

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

4.4 Installation

4.4.1 Floor Tiles

Measure mortar materials in approved containers. Mix all materials in proportions by volume. Water and aggregates shall be introduced and mixed gradually to ensure a uniform distribution. Set mortar beds in a volume proportion of one part Portland cement, four parts dry sand and ½ part lime.

Mortar setting beds shall be a minimum thickness of 25 millimeters.

Apply a coat of tile adhesive, one to two millimeters thick over the setting bed. Press tiles and slab firmly on the bed, keeping lines straight, parallel and true.

4.4.2 Pointing

Pointing material shall be polyurethane or polyester resin of best quality standard.

4.4.3 Sanding

Flooring shall be sanded with an approved equipment intended to provide smooth, even, uniform finish without burns. Final finished flooring shall be applied with heavy duty abrasion resistant wax to provide a lasting mirror like finish

4.4.4 Cleaning

Clean surrounding areas of slabs, tiles, and debris.

5. LIGHTING

Install in accordance with Plans and Shop drawings as approved by Consulting Architect/Engineer.

6. RC BENCHES, CONCRETE PAVEMENTS, BORDERS AND WALKWAYS

Execute in accordance with Plans and Shop drawings as approved by Consulting Architect/Engineer.

7. PLANTING/LANDSCAPE

Soils for all landscaped areas will conform to soil types, either topsoil or planting mix.

Unless specified elsewhere, prior to completing the project, there shall be a 6-inch layer of organic top soil across the site in areas where any planting is to occur. If there is top soil on site, the Contractor may store it within the Project Limit.

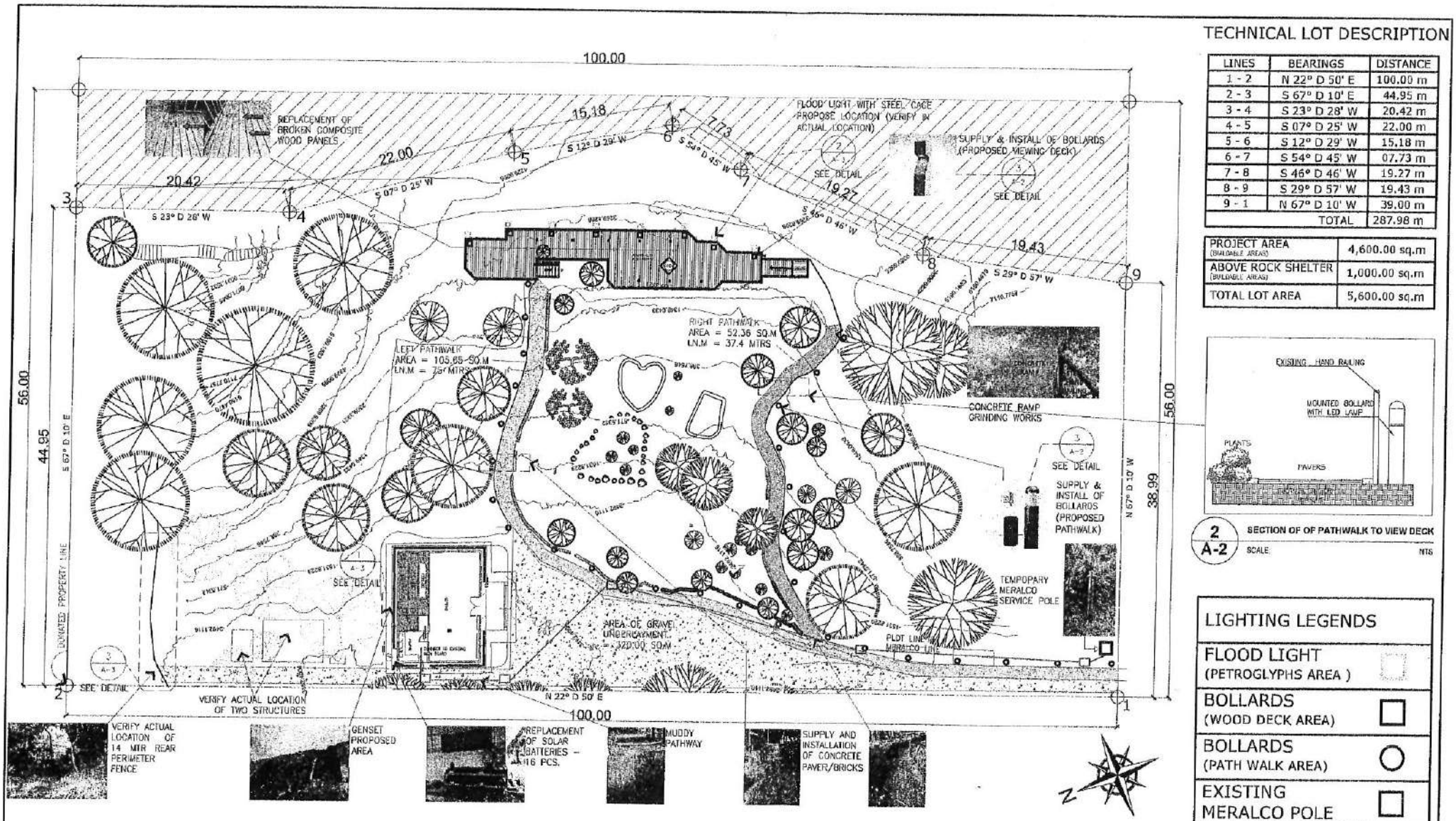
Plants shall be provided as approved by the Consulting Architect. All plant material furnished shall be well branched and proportioned, full-foliaged, and in a healthy condition, free of disease and insect infestation. There shall be no substitutions without express written permission of the Grounds Superintendent. The following requirements pertain to all plant material:

Quality: Unless specifically noted otherwise, all plants shall be of specimen quality, exceptionally heavy, symmetrical, thickly branched, so trained or treated in their development and appearance as to be unquestionably of first quality in form, branch structure, buds, fruit, compactness and symmetry.

Disease and Damage: All plants shall be free of disease, insect infestations, eggs or larvae; and shall have thickly developed, well proportioned and healthy root systems. Plant material shall be free from physical

damage or conditions that prevent the desired quality appearance and growth characteristics; or inhibit the plants thriving ability, hardiness, or adaptability

END OF SECTION



TECHNICAL LOT DESCRIPTION

LINES	BEARINGS	DISTANCE
1 - 2	N 22° D 50' E	100.00 m
2 - 3	S 67° D 10' E	44.95 m
3 - 4	S 23° D 28' W	20.42 m
4 - 5	S 07° D 25' W	22.00 m
5 - 6	S 12° D 29' W	15.18 m
6 - 7	S 54° D 45' W	07.73 m
7 - 8	S 46° D 46' W	19.27 m
8 - 9	S 29° D 57' W	19.43 m
9 - 1	N 67° D 10' W	39.00 m
	TOTAL	287.98 m

PROJECT AREA (BUILDABLE AREAS)	4,600.00 sq.m
ABOVE ROCK SHELTER (BUILDABLE AREAS)	1,000.00 sq.m
TOTAL LOT AREA	5,600.00 sq.m

2 / A-2 SECTION OF OF PATHWALK TO VIEW DECK
SCALE: NTS

LIGHTING LEGENDS

FLOOD LIGHT (PETROGLYPHS AREA)	▢
BOLLARDS (WOOD DECK AREA)	□
BOLLARDS (PATH WALK AREA)	○
EXISTING MERALCO POLE	□
CONCRETE PULL BOX	□

1 / A-1 ANGONO-BINANGONAN PETROGLYPHS
SITE DEVELOPMENT PLAN
SCALE 1:350 MTS

SCALE 0 1 5 10 20 30 40 50 METERS

NATIONAL MUSEUM OF THE PHILIPPINES
FACILITIES MANAGEMENT DIVISION
P. BURGOS DRIVE, MANILA, 1000

DATE | PROJECT NO.

PROJECT TITLE: **REPAIRS AND MAINTENANCE OF ANGONO - BINANGONAN PETROGLYPHS SITE MUSEUM AND SATELLITE OFFICE**

PROJECT LOCATION: ANGONO, RIZAL

PREPARED BY: AR. BOY BENEDICT N. BAUTISTA, ADMINISTRATIVE OFFICER V, PROJECT-IN-CHARGE

CHECKED AND REVIEWED BY: AR. ALLISON L. AQUINO, ARCHITECT V - FMD

RECOMMENDING APPROVAL: ENGR. JOINAB ALIH T. TAHIL - ALTILLERO, CHIEF ADMINISTRATIVE OFFICER - FMD

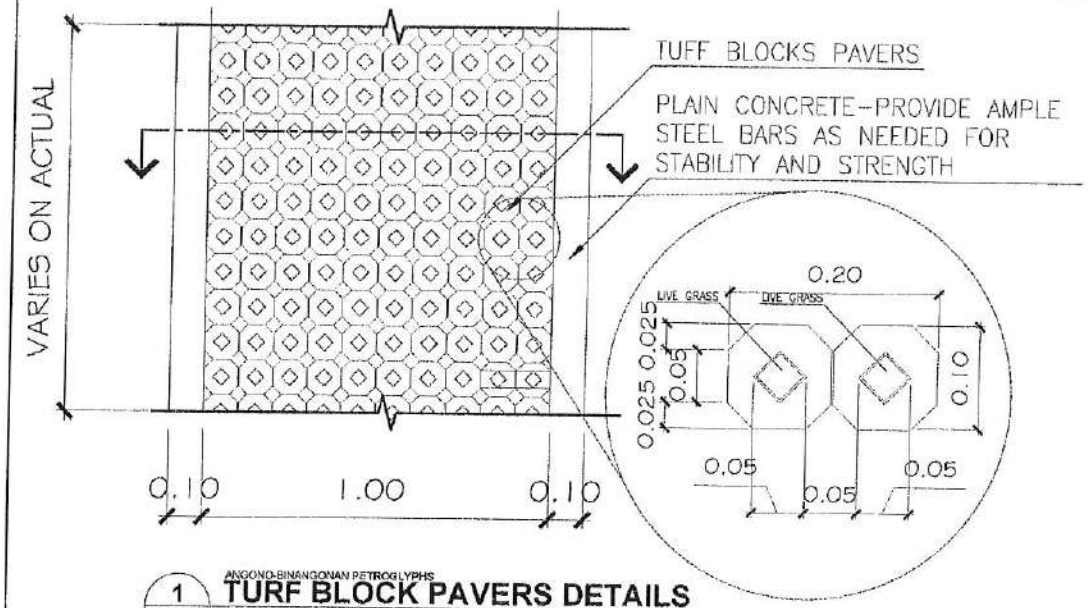
APPROVED BY: JEREMY BARNS, CESO III, DIRECTOR - GENERAL

DRAWN BY: [illegible]
CHECKED BY:
DATE: 08/07/2021

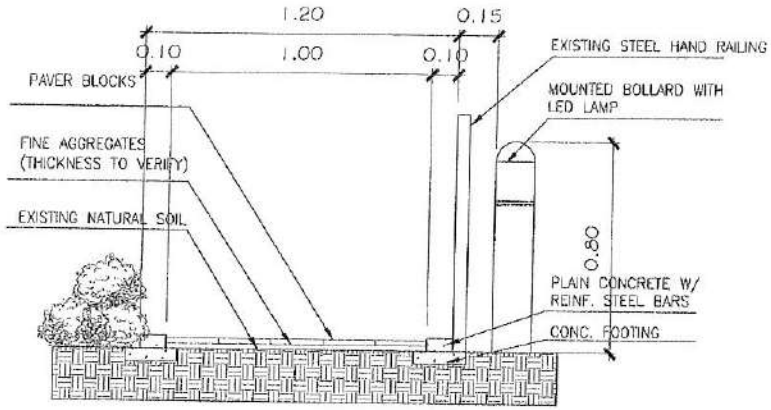
REVISIONS

SHEET CONTENTS: DETAILS SITE DEVELOPMENT PLAN

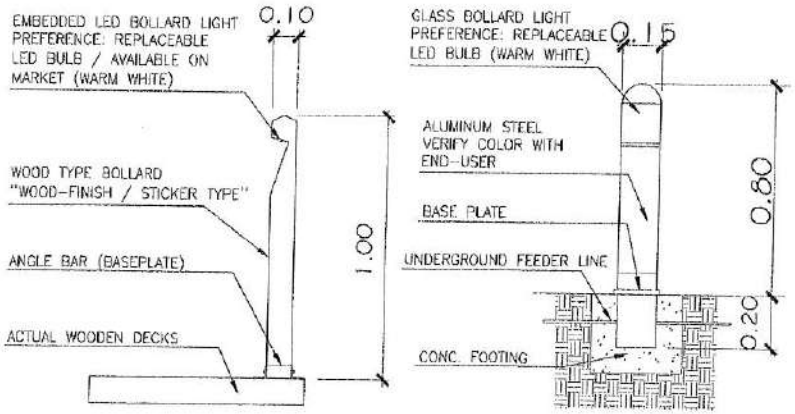
SHEET NO.: A-1



1 / A-2 ANGONO-BINANGONAN PETROGLYPHS
TURF BLOCK PAVERS DETAILS
SCALE: 1:10 MTS



2 / A-2 ANGONO-BINANGONAN PETROGLYPHS
PATH WAY SECTION DETAILS
SCALE: 1:10 MTS



3 / A-2 ANGONO-BINANGONAN PETROGLYPHS
BOLLARD DESIGN AND DETAILS
SCALE: 1:20 MTS

NATIONAL MUSEUM OF THE PHILIPPINES
FACILITIES MANAGEMENT DIVISION
P. BURGOS DRIVE, MANILA, 1000

PROJECT TITLE: **REPAIRS AND MAINTENANCE OF ANGONO - BINANGONAN PETROGLYPHS SITE MUSEUM AND SATELLITE OFFICE**

DATE: | PROJECT NO: | PROJECT LOCATION: ANGONO, RIZAL

PREPARED BY: AR. ROY BENEDICT N. BAUTISTA, ADMINISTRATIVE OFFICER V, OFFICER-IN-CHARGE

CHECKED AND REVIEWED BY: AR. NELSON L. AQUINO, ARCHITECT IV - FMD

RECOMMENDING APPROVAL: ENGR. JAINAB A. TAHIL - ALTILLERO, CHIEF ADMINISTRATIVE OFFICER - FMD

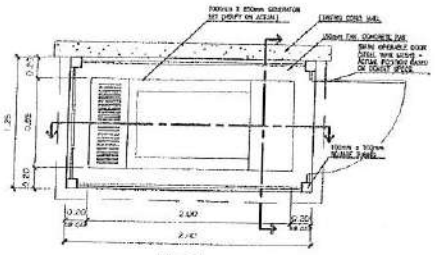
APPROVAL BY: JEREMY BARNS, CESO III, DIRECTOR - GENERAL

DRAWN BY: PRL
CHECKED BY:
DATE: 08/06/2021

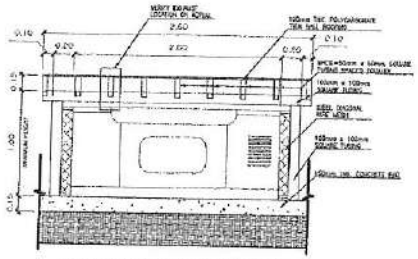
REVISIONS:

SHEET CONTENTS: TURF BLOCKS PAVERS DETAILS, PATHWAY SECTION DETAILS, BOLLARD DESIGN DETAILS

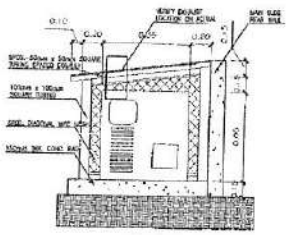
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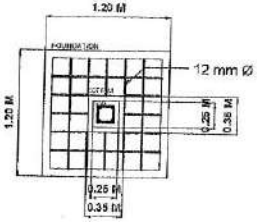
PLAN



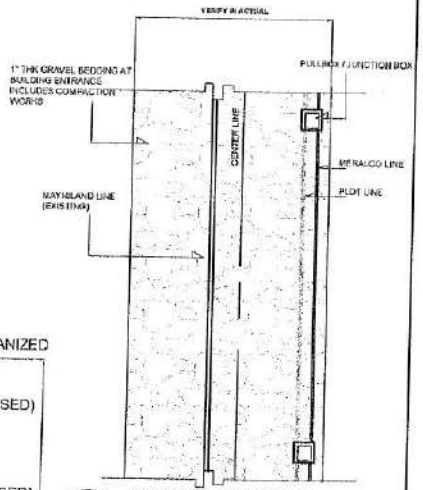
LONGITUDINAL SECTION



CROSS SECTION



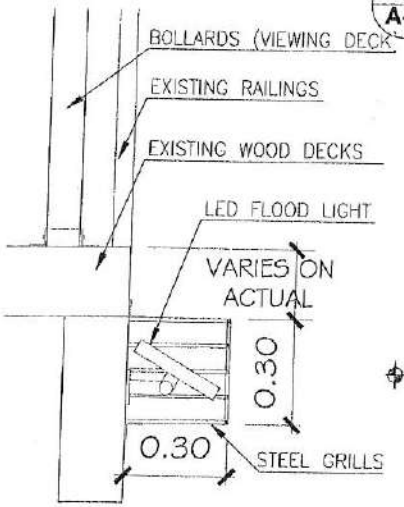
PLAN
MERALCO / PLDT PEDESTAL



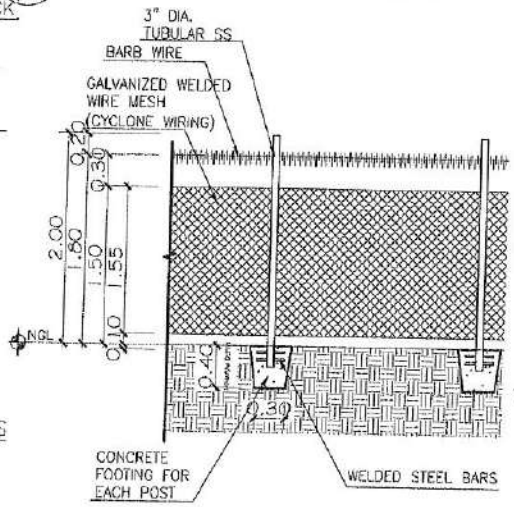
ANGONO BINANGONAN PETROGLYPHS

1 / A-3 GENSET CASE DETAILS

SCALE: 1:50 MTS



SIDE VIEW

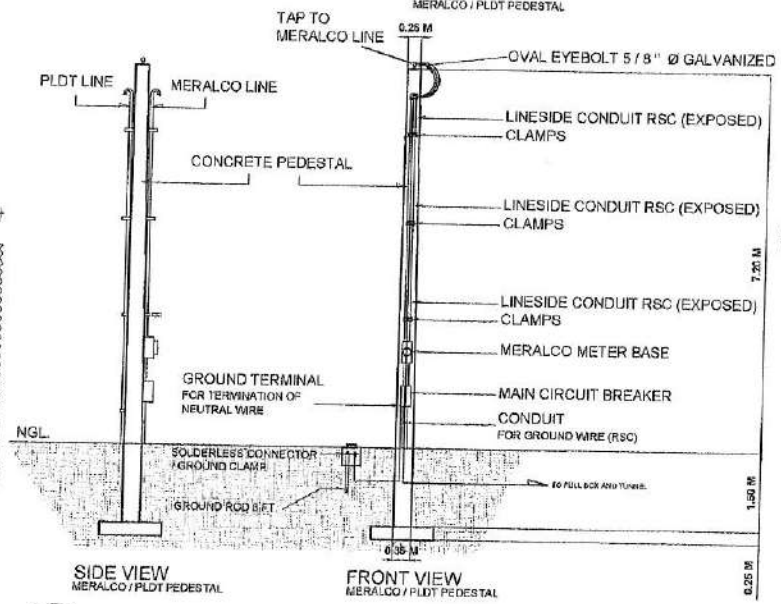


2 / A-3 FLOOD LIGHT STEEL CASING DETAILS

SCALE: 1:15 MTS.

3 / A-3 PERIMETER FENCE DETAILS

SCALE: 1:100 MTS

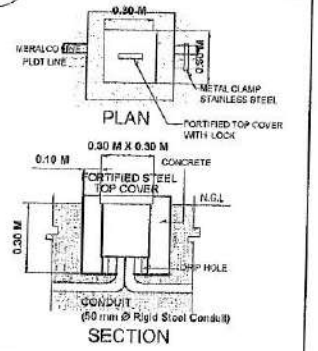


SIDE VIEW
MERALCO / PLDT PEDESTAL

FRONT VIEW
MERALCO / PLDT PEDESTAL

4 / A-3 DETAILS OF MERALCO PEDESTAL

SCALE 1:100 MTS.



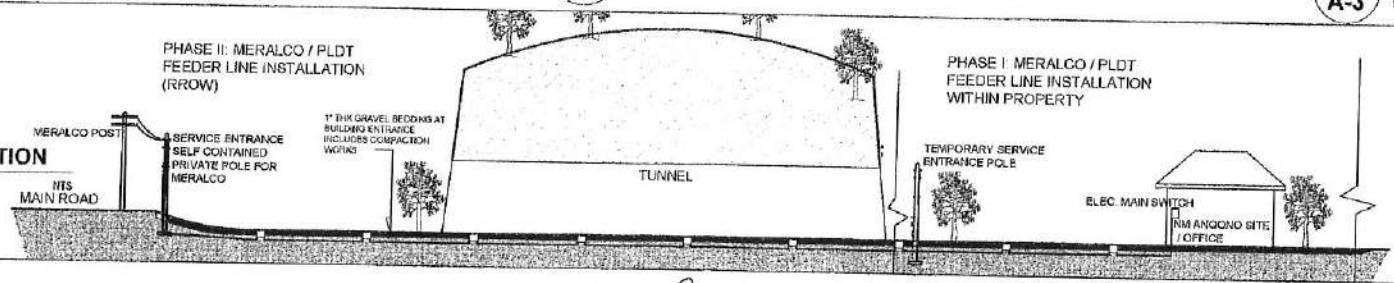
SECTION

5 / A-3 PROPOSED UTILITY ROAD LAYOUT

SCALE: NTS

6 / A-3 CONCRETE PULLBOX

SCALE: NTS



7 / A-3 PROPOSED ROAD SECTION

SCALE

NATIONAL MUSEUM OF THE PHILIPPINES FACILITIES MANAGEMENT DIVISION P. BURGOS DRIVE, MANILA, 1000	PROJECT TITLE: REPAIRS AND MAINTENANCE OF ANGONO - BINANGONAN PETROGLYPHS SITE MUSEUM AND SATELLITE OFFICE	PREPARED BY: ARCHT. ROY BENEDICT N. BAUTISTA ADMINISTRATIVE OFFICER V PROJECT-IN-CHARGE	CHECKED AND REVIEWED BY: AR. NELSON L. AQUINO ARCHITECT IV - FMD	RECOMMENDING APPROVAL: ENGR. JANAB DIRETAHIL - ALTILLERO CHIEF ARCHITECTURAL OFFICE - FMD	APPROVED BY: JEREMY BARNS, CESO III DIRECTOR - GENERAL	DRAWN BY: RBL CHECKED BY: DATE: 06/03/2021	REVISIONS:	SHEET CONTENTS: DEMOLITION DETAILS FLOOD LIGHT CASE DETAILS PERIMETER FENCE DETAILS DETAILS OF MERALCO PEDESTAL PROPOSED UTILITY ROAD LAYOUT CONCRETE PULL BOX PROPOSED ROAD SECTION	SHEET NO: A-3
DATE:	PROJECT NO:	PROJECT LOCATION: ANGONO, RIZAL						

Section VII. Bill of Quantities

INSERT COMPANY LOGO

Project: **REPAIRS AND MAINTENANCE OF ANGONO-BINANGONAN PETROGLYPHS SITE MUSEUM AND SATELLITE OFFICE**
Location: Angono, Rizal
Duration: 75 Calendar Days
Amount (Php): 0.00

Project No. :
Date : August 23, 2021

APPROVED BUDGET OF CONTRACT

Item No.	Description	Qty	Unit	Estimated Direct Cost (EDC)					Indirect Cost (IC)			TOTAL COST
				MATERIAL		LABOR		TOTAL EDC	OCMP (25%)	Sub-Total	VAT (5%)	EDC + IC
				Unit	Total	Unit	Total					
A. PRELIMINARIES / GENERAL REQUIREMENTS												
1	**Mobilization & Demobilzation**	1	lot			0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	**Project Indentification Signage**	1	lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	**TEMFACIL**	32	sq.m	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(includes warehousing and ulitity consumption)											
4	**Safety, Security and Housing**	75	C.D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(including basic PPEs: hardhats, gloves, safety shoes, harness, first aid kit, etc for all personnel.)											
5	**Equipment Rental, General Cleaning & Hauling**	1	lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Cleaning											
	a. oridinary hardbroom	3	pcs	0.00	0.00	*0.00*	0.00	0.00				
	b. ordinary dustpan	3	pcs	0.00	0.00	*0.00*	0.00	0.00				
	c. ordinary bucket w/ dipper	3	pcs	0.00	0.00	*0.00*	0.00	0.00				
	d. garbage bag/ sacks	5	rolls	0.00	0.00	*0.00*	0.00	0.00				
	Equipment Rental											
	a. elf truck (debris hauling)	8	trip	0.00	0.00	*0.00*	0.00	0.00				
	b. plate compactor	7	days	0.00	0.00	*0.00*	0.00	0.00				
6	**Covid-19 Safety Precautionary Measures** (1 Thermal Scanner, Face Masks & Face Shield for each worker, 2 Alcohol with Dispenser, Health reminder signages, 1 Disinfectant Mat w/ tray - For Staff-use)	1	lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
								SUB-TOTAL A. PRELIMINARIES / GENERAL REQUIREMENTS				***0.00***
B.	**ELECTRICAL WORKS**								-	-	-	-
1	**Supply & installation of underground Meralco / PLDT Feeder Line Pipes and Junction Boxes (Phase I: Within Property Line)**	90	ln.mtr	-00	0.00	-	-	-	-	-	-	-
	a. 1 1/2" dia PVC conduit	90	ln.mtr	-00	0.00	-	-	-				
	b. 1 1/2" PVC long elbow conduit	3	pcs.	-00	0.00	-	-	-				
	c. 1 1/2 PVC coupling/connectors	10	pcs.	-00	0.00	-	-	-				
	d. 3/4" PVC conduit for tel/int line	90	ln.mtr	-00	0.00	-	-	-				
	e. Solderless connectors	6	pcs.	-00	0.00	-	-	-				
	f. Double C-clamps, bolts, etc.	50	pcs.	-00	0.00	-	-	-				

APPROVED BUDGET OF CONTRACT

Item No.	Description	Qty	Unit	Estimated Direct Cost (EDC)					Indirect Cost (IC)			TOTAL COST
				MATERIAL		LABOR		TOTAL EDC	OCMP (25%)	Sub-Total	VAT (5%)	EDC + IC
				Unit	Total	Unit	Total					
	g. Concrete junction boxes (50x50x30cm) directly buried w/ steel top cover (Cement, sand, rebar, steel cover, lock, GI wire, etc. - see drawing detail)	5	unit	-00	0.00	-	-	-				
	h. CAT-6 UTP cable	90	ln.mtr	-00	0.00	-	-	-				
	i. 2-30mm2 THHN wires (L1-L2)	90	ln.mtr	-00	0.00	-	-	-				
	j. 1-14mm2 THHN wire (Ground)	90	ln.mtr	-00	0.00	-	-	-				
	k. Electrical/rubber tapes	50	pcs.	-00	0.00	-	-	-				
	l. Continuity test & insulation resistance tests	1	lot	-00	0.00	5,000.00	5,000.00	5,000.00				
2	**Supply, delivery, and Installation of Lighted Bollards, Timerswitch & underground Electrical Connection (Viewing Deck)**	**32.00**	**pcs.**	**-00**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	a. Bollard (LED bulb "easily replaceable, market-available" 10w, 3000k, Die-cast Aluminum Body, Anti-corrosion treated, IP65 - verify color / finish on plan, see site development plan / drawing detail: 2 types)	32.00	pcs.	-00	0.00	-	-	-				
	b. 3/4" PVC conduit	140.00	ln.mtr.	-00	0.00	-	-	-				
	c. 2-set 5.5mm2 THHN wires + 3.5mm 2 ground	140.00	ln.mtr.	-00	0.00	-	-	-				
	d. 3/4" Coupling/connectors, elbows, tee etc.	30.00	pcs.	-00	0.00	-	-	-				
	e. GI wires	10.00	kgs.	-00	0.00	-	-	-				
	f. Timer Switch with manual override	1.00	pcs.	-00	0.00	-00	-00	-				
3	**Supply, delivery and installation of LED Flood Lights, steel cage, timer switch, & Electrical Connection (Viewing Deck)**	**8.00**	**set**	**-00**	**0.00**	**-00**	**-00**	**-**	**-**	**-**	**-**	**-**
	a. LED flood lights (100W, 120deg. Angle, DL/WW) - see site development plan / drawing detail	8.00	pcs.	-00	0.00	-00	-00	-				
	b. 3/4" PVC conduit	80.00	ln.mtr.	-00	0.00	-00	-00	-				
	c. 2-set 5.5mm2 THHN wires + 3.5mm 2 ground	80.00	ln.mtr.	-00	0.00	-00	-00	-				
	d. 3/4" Coupling/connectors, elbows, tee etc.	30.00	pcs.	-00	0.00	-00	-00	-				
	e. GI wires	10.00	kgs.	-00	0.00	-00	-00	-				
	f. Timer Switch with manual override	1.00	pcs.	-00	0.00	-00	-00	-				
	g. Fabrication of Steel Bar cage for flood lights with one-side opening & lock (see drawing detail)	8.00	sets	-00	0.00	-00	-00	-				
4	**Upgrading of 25kVA, 230V, 1-phase, 60Hz silent-type Diesel Generator System Set with Housing**	**1.00**	**set**	**-00**	**0.00**	**-00**	**-00**	**-**	**-**	**-**	**-**	**-**

APPROVED BUDGET OF CONTRACT

Item No.	Description	Qty	Unit	Estimated Direct Cost (EDC)					Indirect Cost (IC)			TOTAL COST
				MATERIAL		LABOR		TOTAL EDC	OCMP (25%)	Sub-Total	VAT (5%)	EDC + IC
				Unit	Total	Unit	Total					
	a. 25kVA silent type diesel generator set 230V, 1-phase, 60 hz complete with accessories and spring type footing •Prime Power : 25KVA •Standby Power : 27.5KVA •Rated Speed : 1800RPM •Output Frequency : 60HZ •Phase : 1 •Rated Voltage : 220V •Engine Model : 4DW92-42D •Alternator Model :184F •Noise (7m) dB(A) : 70 •Fuel Consumption (L/H) : 5.6L/H •Fuel Tank Capacity: 50L •Random Voltage Rate : ≤±1% •Voltage Regulation Rate : ≤±1% •Random Frequency Variation : ≤±0.5% •Frequency Regulation Rate : ≤±5% •Weight (silent type) : 580kg •Dimension (silent type) : 2000*850*850 (mm)	1.00	set	0.00	0.00	-	-	-				
	b. Construction of GenSet Cage Housing with one-side opening / lock and concrete pedestal (includes concrete pedestal, rebars, steel tubing, wire mesh, roofing, lock - see drawing detail)	1.00	lot	0.00	0.00	-	-	-				
5	**Upgrading of Solar Panel Battery System**											
	a. SMN200 solar master 200AH battery for solar power system	16.00	units	-00	0.00	-	-	-	-	-	-	-
											SUB-TOTAL B. ELECTRICAL WORKS	***0.00***
C.	**SITE DEVELOPMENT WORKS**											
1	**Repair of Viewing Deck**											
	a.Replacement of Broken Composite Wood Panels - 14cm x 2.7m	**4**	**pcs.**	**-00**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	b. Repainting Works of Composite Wood Panels (Wood Polyurethane - verify color) & Concrete Viewing Deck (Latex : Semi-Gloss White)	**150**	**sqm**	**500.00**	**0.00**	**150.00**	**-**	**-**	**-**	**-**	**-**	**-**
	b1. Repainting Works of Composite Wood Panels (Wood	130	sqm									
	i. Topcoat (Polyurethane, 2coats)	6	gal	-00	0.00	-	-	-				
	ii. Paint Catalyst	3	gal	-00	0.00	-	-	-				
	iii. Paint brush	6	pcs	-00	0.00	-	-	-				
	iv. Paint roller	8	pcs	-00	0.00	-	-	-				
	b2. Repainting Works of Concrete Viewing Deck	20	sqm		0.00	-	-	-				
	i. Acrytex Primer	3	liters	-00	0.00	-	-	-				
	ii. Acrytex Topcoat	11	liters	-00	0.00	-	-	-				
	iii. Acrytex Reducer	3	liters	-00	0.00	-	-	-				

APPROVED BUDGET OF CONTRACT

Item No.	Description	Qty	Unit	Estimated Direct Cost (EDC)					Indirect Cost (IC)			TOTAL COST
				MATERIAL		LABOR		TOTAL EDC	OCMP (25%)	Sub-Total	VAT (5%)	EDC + IC
				Unit	Total	Unit	Total					
	iv. Paint brush	4	pcs	-00	0.00	-	-	-				
	v. paint roller	6	pcs	-00	0.00	-	-	-				
	c.Grinding Works on Slippery Concrete Ramp (Right Pathwalk)	**10**	**sqm**			-	-	-	-	-	-	-
	d.Dismantling and alignment of existing steel hand Railing (Right Pathway) - verify color on actual	**3**	**ln. mtr**	**-00**	**0.00**	-	-	-	-	-	-	-
	e.Supply and Installation of Turf Block Concrete Paver Pathway, includes soil fill & compaction works (see drawing detail)	**175**	**sqm**	**2,000.00**	**0.00**	**600.00**	-	-	-	-	-	-
	i. Turf concrete pavers (0.20x0.10x0.15m)	9187	pcs	-00	0.00	-	-	-				
	ii. Gravel(for underlayment)	4.375	cum	-00	0.00	-	-	-				
	iii. Concrete Footing (Class B mixture)	8.98	cum	-00		-	-					
	iii.a. cement	68	bags	-00	0.00	-	-	-				
	iii.b.gravel	8.98	cum	-00	0.00	-	-	-				
	iii.c. sand	0.449	cum	-00	0.00	-	-	-				
2	**Construction of Perimeter fence at the back of main building office (concrete footing, cyclone wiring, tubular steel, welded rebar, etc. - verify color - see drawing detail)**	**14.00**	**ln. mtr**	**-00**	**0.00**	-	-	-	-	-	-	-
	i. Fence Footing	***0.18***	***cum***									
	Excavation	*0.18*	*cum*			-	-	-				
	a. cement	*2*	*cum*	*-00*	*0.00*	-	-	-				
	b.gravel	*0.18*	*cum*	*-00*	*0.00*	-	-	-				
	c. sand	*0.01*	*cum*	*-00*	*0.00*	-	-	-				
	d. cyclone wire mesh (6'x8m) - 4" hole	*2*	*pcs*	*-00*	*0.00*	-	-	-				
	e. 3" dia. G.I Pipe, sch	*3*	*pcs*	*-00*	*0.00*	-	-	-				
	f. 10mm dia. Rebars	*1*	*pcs*	*-00*	*0.00*	-	-	-				
	g. Aluminum Barb wire	*1*	*roll*	*-00*	*0.00*	-	-	-				
	h. Welding rod	*15*	*pcs*	*-00*	*0.00*	-	-	-				
	ii. Perimeter fence	***3***	***sqm***									
	Red Oxide Primer	*1.00*	*gal*	*0.00*	*0.00*	-	-	-				
	Paint Thinner	*2.00*	*gal*	*0.00*	*0.00*	-	-	-				
	Quick Drying Enamel	*0.50*	*gal*	*0.00*	*0.00*	-	-	-				
	Paint Brush #3	*3.00*	*pcs*	*0.00*	*0.00*	-	-	-				
	Steel Brush	*1.00*	*pcs*	*0.00*	*0.00*	-	-	-				
	iii. Equipment Rental											
	Welding Machine(rental)	*2.00*	*days*	*0.00*	*0.00*	-	-	-				
3	**Supply, delivery & installation of 1" thk gravel bedding within property line / access road, includes compaction works (see drawing detail)**	**320.00**	**sq.m**	-	0.00	-	-	-	-	-	-	-
	a.Clearing of existing vegetations	320.00	sqm			-	-	-				
	b.gravel	*32.00*	*cum*	*-00*	*0.00*	-	-	-				
								SUB-TOTAL C. SITE DEVELOPMENT WORKS				***0.00***
								TOTAL PROJECT ESTIMATED COST (Php)				**0.00**

Section VIII. Checklist of Technical and Financial Documents

Components of Bid Proposal

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE (FIRST ENVELOPE)

Class "A" Documents

Legal Documents

☐ 1. Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages);

or

☐ Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document;

and

☐ Mayor's or 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;

and

☐ Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

Technical Documents

☐ 2. Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**

☐ 3. Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules; **and**

☐ 4. Philippine Contractors Accreditation Board (PCAB) License;

or

Special PCAB License in case of Joint Ventures;

and registration for the type and cost of the contract to be bid; **and**

☐ 5. Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;

or

Original copy of Notarized Bid Securing Declaration; **and**

Project Requirements, which shall include the following:

☐ 6. Organizational chart for the contract to be bid; **and**

☐ 7. List of contractor's key personnel (*e.g.*, Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data; **and**

☐ 8. List of contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership

or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be; **and**

☐ 9. Original duly signed Omnibus Sworn Statement (OSS); **and** if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

☐ 10. Bid Bulletin, if any;

☐ 11. Official Receipt of the Bidding Documents;

Financial Documents

☐ ***12.*** 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; **and**

☐ 13. The prospective bidder's computation of Net Financial Contracting Capacity (NFCC).

Class "B" Documents

☐ 14. If applicable, duly signed joint venture agreement (JVA) in accordance with RA No. 4566 and its IRR in case the joint venture is already in existence;

or

duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

II. FINANCIAL COMPONENT (SECOND ENVELOPE)

☐ 1. Original of duly signed and accomplished Financial Bid Form; **and**

Other documentary requirements under RA No. 9184

☐ 2. Original of duly signed Bid Prices in the Bill of Quantities; **and**

☐ 3. Duly accomplished Detailed Estimates Form, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; **and**

☐ 4. Cash Flow by Quarter.

Note: Please provide us a e–copy of all Eligibility, Technical and Financial Components of the Bid Proposal save in a compact disc.

Annex A Packaging and Labelling Instructions

PACKAGING AND LABELLING INTRUCTIONS

1. Two Envelope System
   The ORIGINAL - TECHNICAL COMPONENTS requirements stated below shall be enclosed into a folder, same as with the ORIGINAL - FINANCIAL COMPONENTS requirements which will also be done in a separate folder. These two (2) folders shall be placed into separate envelope forming the **Two-Envelope System.**

   Envelope 1 : Technical Components (see attached listing)
   Envelope 2 : Financial Components (see attached listing)

2. The First Envelope, ORIGINAL - TECHNICAL COMPONENTS and the Second Envelope, ORIGINAL - FINANCIAL COMPONENTS should be sealed in an outer envelope marked as ORIGINAL BID. Each copy of the first and second envelopes shall be similarly sealed duly marking the inner envelopes as "COPY NO. ___ - TECHNICAL COMPONENT" and "COPY NO. ___ – FINANCIAL COMPONENT" and the outer envelope as "COPY NO. ___", respectively. The First and Second envelope should be produced into three (3) copies marked as Copy No. 1 , Copy No. 2 and Copy No. 3.

3. All four (4) envelopes, Original, Copy No. 1, Copy No. 2 and Copy No. 3, shall be enclosed in a single envelope referred to as the **Mother Envelope.**

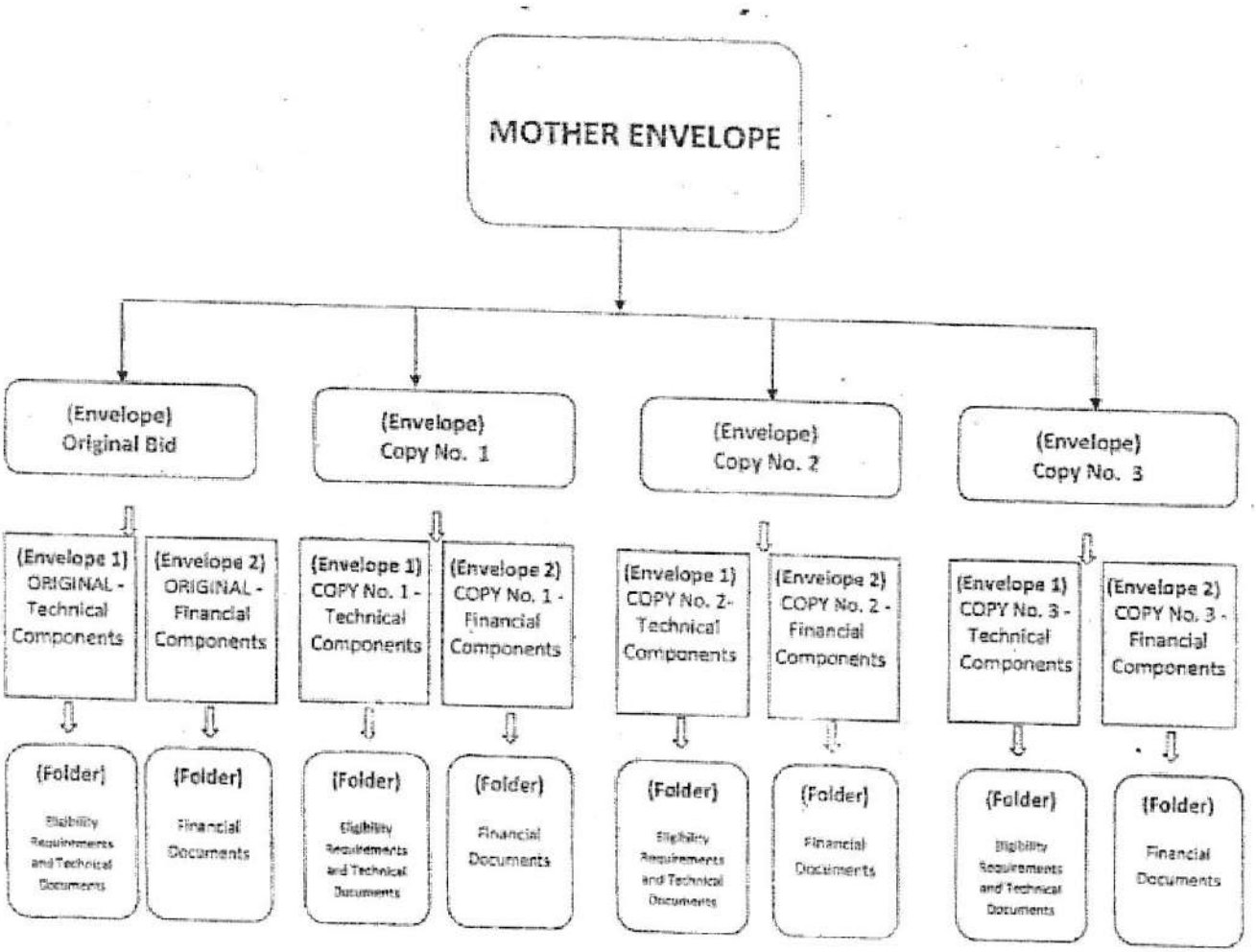
4. All documents must be marked with **Ear tabs.** There must be a Table of Contents indicating all the documents to be submitted per folder.

5. All envelopes should properly be **sealed, signed and labelled.** The folders should also be be labelled properly.

6. All copies must be **Certified True Copy** and signed.

TO:	ATTY. MA. ROSENNE M. FLORES-AVILA Chairperson Bids and Awards Committee National Museum of the Philippines Padre Burgos Avenue, ermita Manila
FROM:	Name of Company Address & Telephone Number
Reference No.	
	Project Title Location
Do not Open Before: date and time of the Submission and Opening of Bids	

PACKAGING AND LABELING INSTRUCTIONS (DIAGRAM)



Annex B Bidding Form

Contract Agreement Form for the

Procurement of Infrastructure Projects (Revised)

[not required to be submitted with the Bid, but it shall be submitted within ten (10) days after receiving the Notice of Award]

CONTRACT AGREEMENT

THIS AGREEMENT, made this *[insert date]* day of *[insert month]*, *[insert year]* between *[name and address of PROCURING ENTITY]* (hereinafter called the "Entity") and *[name and address of Contractor]* (hereinafter called the "Contractor").

WHEREAS, the Entity is desirous that the Contractor execute *[name and identification number of contract]* (hereinafter called "the Works") and the Entity has accepted the Bid for *[contract price in words and figures in specified currency]* by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.

2. The following documents as required by the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184 shall be deemed to form and be read and construed as part of this Agreement, *viz.*:

   a. Philippine Bidding Documents (PBDs);
   - i. Drawings/Plans;
   - ii. Specifications;
   - iii. Bill of Quantities;
   - iv. General and Special Conditions of Contract;
   - v. Supplemental or Bid Bulletins, if any;

   b. Winning bidder's bid, including the Eligibility requirements, Technical and Financial Proposals, and all other documents or statements submitted;

Bid form, including all the documents/statements contained in the Bidder's bidding envelopes, as annexes, and all other documents submitted (*e.g.*, Bidder's response to request for clarifications on the bid), including corrections to the bid, if any, resulting from the Procuring Entity's bid evaluation;

c. Performance Security;

d. Notice of Award of Contract and the Bidder's conforme thereto; and

e. Other contract documents that may be required by existing laws and/or the Procuring Entity concerned in the PBDs. **Winning bidder agrees that additional contract documents or information prescribed by the GPPB that are subsequently required for submission after the contract execution, such as the Notice to Proceed, Variation Orders, and Warranty Security, shall likewise form part of the Contract.**

3. In consideration for the sum of *[total contract price in words and figures]* or such other sums as may be ascertained, *[Named of the bidder]* agrees to *[state the object of the contract]* in accordance with his/her/its Bid.

4. The *[Name of the procuring entity]* agrees to pay the above-mentioned sum in accordance with the terms of the Bidding.

IN WITNESS whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

[Insert Name and Signature]

[Insert Signatory's Legal Capacity]

for:

[Insert Procuring Entity]

[Insert Name and Signature]

[Insert Signatory's Legal Capacity]

for:

[Insert Name of Supplier]

Acknowledgment

[Format shall be based on the latest Rules on Notarial Practice]

Omnibus Sworn Statement (Revised)

[shall be submitted with the Bid]

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. *[Select one, delete the other:]*

   [If a sole proprietorship:] I am the sole proprietor or authorized representative of [Name of Bidder] with office address at [address of Bidder];

   [If a partnership, corporation, cooperative, or joint venture:] I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];

2. *[Select one, delete the other:]*

   [If a sole proprietorship:] As the owner and sole proprietor, or authorized representative of [Name of Bidder], I have 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 [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney;

   [If a partnership, corporation, cooperative, or joint venture:] I am 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 [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, 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. *[Select one, delete the rest:]*

   [If a sole proprietorship:] The owner or sole proprietor is 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;

   [If a partnership or cooperative:] None of the officers and members 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;

   [If a corporation or joint venture:] 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

8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:

   a. Carefully examining all of the Bidding Documents;
   b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
   c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
   d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.

9. *[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.

10. **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.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]

[Insert signatory's legal capacity]

Affiant

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

Performance Securing Declaration (Revised)

[if used as an alternative performance security but it is not required to be submitted with the Bid, as it shall be submitted within ten (10) days after receiving the Notice of Award]

REPUBLIC OF THE PHILIPPINES)

CITY OF _____) S.S.

PERFORMANCE SECURING DECLARATION

Invitation to Bid: [Insert Reference Number indicated in the Bidding Documents]

To: [Insert name and address of the Procuring Entity]

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, to guarantee the faithful performance by the supplier/distributor/manufacturer/contractor/consultant of its obligations under the Contract, I/we shall submit a Performance Securing Declaration within a maximum period of ten (10) calendar days from the receipt of the Notice of Award prior to the signing of the Contract.

2. I/We accept that: I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of one (1) year for the first offense, or two (2) years **for the second offense**, upon receipt of your Blacklisting Order if I/We have violated my/our obligations under the Contract;

3. I/We understand that this Performance Securing Declaration shall cease to be valid upon:

    a. issuance by the Procuring Entity of the Certificate of Final Acceptance, subject to the following conditions:
        i. Procuring Entity has no claims filed against the contract awardee;
        ii. It has no claims for labor and materials filed against the contractor; and
        iii. Other terms of the contract; or

b. replacement by the winning bidder of the submitted PSD with a performance security in any of the prescribed forms under Section 39.2 of the 2016 revised IRR of RA No. 9184 as required by the end-user.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this ____ day of [month] [year] at [place of execution].

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]

[Insert signatory's legal capacity]

Affiant

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

Bid Form for the Procurement of Infrastructure Projects

[shall be submitted with the Bid]

BID FORM

Date : _____

Project Identification No. : _____

To: [name and address of Procuring Entity]

Having examined the Philippine Bidding Documents (PBDs) including the Supplemental or Bid Bulletin Numbers *[insert numbers]*, the receipt of which is hereby duly acknowledged, we, the undersigned, declare that:

a. We have no reservation to the PBDs, including the Supplemental or Bid Bulletins, for the Procurement Project: *[insert name of contract];*

b. We offer to execute the Works for this Contract in accordance with the PBDs;

c. The total price of our Bid in words and figures, excluding any discounts offered below is: *[insert information]*;

d. The discounts offered and the methodology for their application are: *[insert information]*;

e. The total bid price includes the cost of all taxes, such as, but not limited to: *[specify the applicable taxes, e.g. (i) value added tax (VAT), (ii) income tax, (iii) local taxes, and (iv) other fiscal levies and duties]*, which are itemized herein and reflected in the detailed estimates,

f. Our Bid shall be valid within the a period stated in the PBDs, and it shall remain binding upon us at any time before the expiration of that period;

g. 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, or a Performance Securing Declaration in lieu of the the allowable forms of Performance Security, subject to the terms and conditions of

issued GPPB guidelines[1] for this purpose;

h. 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;

i. 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

j. We understand that you are not bound to accept the Lowest Calculated Bid or any other Bid that you may receive.

k. 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 [Name of Project] of the [Name of the Procuring Entity/.

l. We acknowledge that failure to sign each and every page of this Bid Form, including the Bill of Quantities, shall be a ground for the rejection of our bid.

Name: _____

Legal Capacity: _____

Signature: _____

Duly authorized to sign the Bid for and behalf of: _____

Date: _____

[1] currently based on GPPB Resolution No. 09-2020