PAMBANSANG MUSEO NG PILIPINAS
NATIONAL MUSEUM OF THE PHILIPPINES

BIDS AND AWARDS COMMITTEE

BIDDING DOCUMENTS

for the

DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA – PHASE 1 (to implement Republic Act No. 11333)

(Reference No. 7567105)

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Section I. Invitation to Bid

PAMBANSANG MUSEO NG PILIPINAS
NATIONAL MUSEUM OF THE PHILIPPINES

Invitation to Bid
for
DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA – PHASE 1 (to implement Republic Act No. 11333)

1. The **National Museum of the Philippines**, through the **General Fund FY 2021** intends to apply the sum of **Thirty-Nine Million Nine Hundred Ninety-Nine Thousand Three Hundred Forty-Five Pesos and 60/100 only (PHP 39,999,345.60)**, being the Approved Budget for the Contract (ABC), to payments under the contract for **DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA – PHASE 1 (to implement republic Act No. 11333).** 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 **Two Hundred Forty (240) calendar days**. The Contractor must have a **Medium A Category B** Contractor's License and must have completed or implemented at least one (1) contract that is similar to the project to be bid, and whose value, adjusted to current prices using PSA consumer price indices, must be at least fifty percent (50%) of the ABC to be bid. Similar is defined as "**having completed or implemented similar Heritage Site Development Projects that deals with urban landscape and or park development of at least 5,000sqm and must proven relevant experience with proper client references. The contractor must have also proven relevant similar working experience within ten (10) years***".*

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 **25 March 2021,** from the given address and below and the website **http://nationalmuseum.gov.ph/** and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of **Twenty-Five Thousand Pesos (PHP 25,000.00) and it is non-refundable**. The Procuring Entity shall allow the bidder to present its proof of payment for the fees thru presented in person, or through electronic means.

6. **Pre-Bid Conference** on **6 April 2021, 9:30 A.M.** at **Old Civil Service Building, National Museum of the Philippines, Padre Burgos Street, Manila,** which shall be open 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 **21 April 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 **21 April 2021, 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

(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 **DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA PHASE 1 (to implement Republic Act No. 11333)**, with Project Identification Number ***NMPBAC-PB-2021-03-03***.

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 **2021** in the amount of **Thirty-Nine Million Nine Hundred Ninety-Nine Thousand Three Hundred Forty-Five Pesos & 60/100 only** (**Php 39,999,345.60**.*)*

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 completed or implemented similar Heritage Site Development Projects that deals with urban landscape and or park development of at least 5,000sqm and must proven relevant experience with proper client references. The contractor must have also proven relevant similar working experience within ten (10) years**".
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 **Medium A Category 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 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 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 **Php 799,986.91,** 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 **Php 1,999,967.28** 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 7. Credit line issued by a local commercial bank or a cash deposit certificate, which shall be equal to ten percent (10%) of the Approved Budget for the Contract to be Bid

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	No sectional completion date is required. However, progress of works and delays shall be computed on the basis of the submitted Construction Schedule of S-Curve by the winning contractor.
4.1	The winning contractor, upon signing of the Contract Agreement and having been issued by a Notice to Proceed may immediately mobilize and took over the project site, and start the implementation of the contract works.
6	The site investigation reports are to be determined by the implementing unit that is the Facilities Management Division of the National Museum of the Philippines.
7.2	Five (5) years.
10	Dayworks are applicable at the rate shown in the Contractor's original Bid.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative within ten (10) days of delivery of the Notice of Award.
11.2	The amount to be withheld for late submission of an updated Program of Work is to be determined later by the implementing unit, the Facilities Management Division.
13	The amount of the advance payment shall not exceed 15% of the total contract price.
14	Not allowed.
15.1	The date by which operating and maintenance manuals are required is to be determined later by the implementing unit, the Facilities Management Division. The date by which "as built" drawings are required is to be determined later by the implementing unit, the Facilities Management Division.
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 is to be determined later by the implementing unit, the Facilities Management Division.

Section VI. Specifications

TECHNICAL SPECIFICATIONS

For the

DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA- PHASE 1
(to implement Republic Act No. 11333)

Rizal Park, Ermita, Manila

As prepared by

ROLDAN C. LAUREL
Architect II, FMD

Checked and Reviewed by:

Ar. NELSON L. AQUINO
Architect IV, OIC-FMD

Recommending Approval:

Atty. MA. CECILIA U. TIROL
Acting Deputy Director General (Administration)

Approved by:

JEREMY BARNS, CESO III
Director- General

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DIVISION 02 EXISTING CONDITIONS	This section shall include the contractor's involvement in the site assessment and survey Including selective demolition works and Geotechnical And material investigation if necessary	1.0
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DIVISION 32 **EXTERIOR IMPROVEMENTS**	This section shall include the works intended to complete the necessary scope of works to improve the existing condition of the site which are, but not limited to the hardscapes, softscapes and materials found on site	**4.0**

TECHINICAL SPECIFICATIONS

DIVISION 01 GENERAL REQUIREMENTS

1. SCOPE OF WORK

This sectionshall 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 theEngineer.

This sectionshall 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 too the ritems of work and will not be measured for payment.

3. TEMPORARY FACILITIES

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

During the performance of th econtract, the Contractor shall provide and maintain one unit of field office with living room/kitchen, quarter and bathroom within the site of thework at designated location approved by the Procuring Entity's representative at which the Engineer shall beholding 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 theContractor'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 theconstruction 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 inaccordance 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.

3.3TemporaryToilets

The Contractor shall provide and maintainin 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 inaccordance with all applicable codes and regulations of the local authorities having jurisdiction thereof. Upon completion of the work, temporary toilet and their appurtenances shall beremoved.

3.4TemporaryWaterService

The Contractor shall provide and maintain temporary water supply service, complete with necessary connections and appurtenances. Installed water supply lines shall be used as 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) KeyPersonnel:

Project Manager (LicensedCivilEngineer)
1 –Licensed Civil/Structural Engineer
1 –Licensed Electrical Engineer
1 –Licensed Mechanical Engineer
1 –Licensed Plumbing andSanitary Engineer
1 –Licensed Architect
1 –Interior Designer
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 paids eparately.

b) Maintenance Staff:

1 -ClerkTypist/ 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 chain men 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 ,chain men 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 LivingRoom, Dining/Kitchen, Quarter and bathroom) to include utilities for the Engineer but not limited to the following items:

4.1 Combined 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 a tall four corners to guard against movement during highwinds.

The Contractor shall provide the combined field office and quarterbuilding, before occupancy by theEngineer, with furniture (workingtables ,chairs, conferencetables, filing cabinet,plan racks),access to copying and faxmachines, airconditioning 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 ontime,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 day soft he 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 wornout, 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) utility man 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.

4.2 Vehicles 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 shal lcarry or be fitted with the accessories as maybe prescribed by laws and have comprehensive insurance. The vehicles on delivery shall be in good running condition,of the latest model and shall bed riven 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, thevehicles 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 hardcopies 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 too the items of work.

4.6 As-Built Drawings

The Contractor shall produce and supply to the Engineer two good hardcopies of a full setof"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 "ASBUILT".

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

5. MISCELLANEOUS ITEMS FOR THE ENGINEER'S QUARTERS

5.1 PAYMENT

a) For all work executed or goods, materials, or services supplied by the Contractor under lumpsum items,the quantities as determined above shall be paid for at the appropriate contract lumpsum unitprice 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

6.1 Control of on Site Construction

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

a) Review of Contract Documents to make surethat 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, shopdrawings and other data.

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

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

6.2 Preconstruction 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 thework:

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 reason able 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 benchmark 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 benchmark.It shall be the responsibility of the Contractor to maintain and preserve all stakes and othermarks 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.

6.6 Shop Drawings

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

a) Transmittal forms shall be filled outin type-written or ink with no alterations or inter lineations unless initialed and dated before submittal. Shopdrawings 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 shopdrawings,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 shopdrawings with transmittal forms,and copies of brochures with transmittal forms,as required by the Engineer.

c) Anyshop drawings and samples,submitted not accompaniedby 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"MakeCorrectionsNoted", means formal revision of said drawings will not be required. If it ismarked"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 shopdrawings and transmittal forms.Construction of an item shall not commenced before the Engineer has reviewed the pertinent shopdrawing and returned it to the Contractor,marked as mentioned above.Revisions indicated on shopdrawing s hall beconsidered 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 handcorner, 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 work man like 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 shopdrawings 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.

DIVISION 01-A 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 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 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 04 MASONRY

PART I-GENERAL

Concrete Masonry Unit Corners shall be protected from damage, with substantial board covers. Mortar or grout stains on masonry work shall be removed immediately. Any masonry work showing stains from mortar or concrete, or grout at completion of work, shall be replaced or the entire masonry surface sandblasted to provide uniform approved appearance. In cleaning the block, only stiff fiber brushes and wooden scrapers shall be used. Metal implements or acids shall not be used for cleaning blocks. All imperfect joining, nail holes, chipped edges of corners, and similar defects shall be corrected or replaced as directed.

TESTING AND SAMPLING BRICK UNITS FOR RESTORATION

In sampling the blocks for strength, absorption and moisture content determination, ten (10) individual units shall be selected from each 50,000 units or fraction thereof, contained in the lot. For non-load bearing type of CHB, no sampling for test shall be required for less than 500 units to be used in the job.

Units shall be tested in accordance with the standard method of testing Masonry units of the ASTM designation. No blocks shall be used unless results of tests are known and duly approved by the supervising Architect/Engineer.

PART II- PRODUCTS

1. CONCRETE UNIT MASONRY

Concrete hollow blocks shall be standard machine fabricated and shall have fine and even texture and well defined edges. All non-load bearing type concrete blocks shall have a unit weight not to exceed 80 PCF. For load bearing type, a minimum compressive strength of 6.90 MPa shall be developed. Samples shall be tested and submitted to the Consulting Engineer. Dimensions and tolerances shall be as individually specified on the Plans.

Provide units of dimensions shown on the Plans. Where dimensions are not shown on the Plans, provide units having nominal dimensions of 4" x 8" x 16" shown or otherwise required. Provide accessory shapes as indicated or otherwise required.

2. PORTLAND CEMENT

Portland cement shall comply with ASTM C150, type I

3. REINFORCEMENTS

Reinforcements shall be based on wall thickness as shown in Plans

4. FINE AGGREGATES

Fine aggregate shall conform to the requirements of AASHTO M 45 (ASTM C 144). Provide clean, sharp, well graded aggregate free from injurious amounts of dust, lumps shale, alkali, surface coatings and organic matter.

5. WATER

Water shall conform to the requirements of Item 714, Water. Provide water, free from deleterious amounts of acids, alkalis, and organic materials.

6. LIME

Provide hydrated lime complying with ASTM C207, or quicklime complying with ASTM C5.When quicklime is used, Slake and then screen through a 16 mesh sieve. After slaking and screening, but before using, store and protect for not less than ten days.

PART III-EXECUTION

1. MASONRY MORTARING

Unless otherwise indicated on the Plans, masonry mortar shall be composed of one (1) part Portland cement, and two (2) parts fine aggregate by volume to which hydrated lime has been added in an amount equal to ten (10) mass percent of the cement. Grout shall be of the same materials and proportion as mortar to which additional water shall be added to produce a consistency for pouring without segregation.

1.1 Mixing

Provide mortar type "M' or type "S", as designated on the Plans or otherwise directed by the Consulting Engineer, and in accordance with ASTM C270.

1.2 Proportions

For type "M" mortar, provide one part Portland cement to ¼ part hydrated lime and 3-3/4-part sand by volume.

For type "S" mortar, provide one part Portland cement to ½ part hydrate lime and 4-1/2-part sand by volume.

Mechanically mix in a batch mixer for not less than three minutes, using only sufficient water to produce a mortar, which is spreadable, and of a workable consistency.

Plastic cement shall have less than 12% of the total volume in approved types of plastic agents and shall conform to all of the requirements for Portland Cement per ASTM C-150

Mortar shall be re-tempered with water as required to maintain high plasticity. Re-tempering on mortar boards shall be done only by adding water within a basin formed with mortar and mortar re-worked into water.

1.3 Admixture

The use of admixtures shall not be permitted in mortar or grout unless substantiating data is submitted to and approved by the Consulting Architect/Engineer.

The use of admixtures shall not be permitted in mortar without reducing the lime content.

Insert coloring pigments maybe added but not to exceed 6% by weight of cement

2. MASONRY GROUTING

Grout for pouring shall be of fluid consistency and mixed in the proportion by volume: 1 part Portland Cement, 2-3 parts maximum damp loose sand. Grout for pumping shall be fluid consistency and shall not have less than 7 bags of cement in each cubic meter. The mix design shall be approved by Consulting Engineer.

Concrete hollow blocks shall be laid with all cells completely grouted from the wall footing up to the ground level. The rest of the concrete hollow blocks above ground shall have at least 50 percent of the cells grouted, including those containing the vertical reinforcements.

Reinforcing steel shall be secured in place and inspected before grouting starts.

Mortar dropping should be kept out of the grout space. All grout shall be puddled or vibrated in place.

Cells containing reinforcement shall be solidly filled with grout and pours shall be stopped 3.8 cm below the top of a course to form a key at pour joints.

Grouting of beams over openings shall be done in continuous operation.

Spaces around door frames and other built-in items shall be filled solidly with grout of mortar.

3. MASONRY ANCHORAGE AND REINFORCING

3.1 Masonry Anchors

Where columns and beams poured without the CHB wall dowels, provide 16 mm diameter expansion bolts to match CHB reinforcement spacing. These anchors shall be drilled and hammered in placed. No chipping off of concrete columns and beams is allowed unless otherwise permitted by the Engineer.

3.2 Masonry Reinforcing Bars

Wall reinforcements shall be as follows:

Table 8.Masonry Reinforcements

Wall Thickness	Vertical Reinforcement	Horizontal Reinforcement
8 in (200 mm)	12 mm Ø @ 600 mm	10 mm Ø @ 600 mm
6 in (150 mm)	12 mm Ø @ 600 mm	10 mm Ø @ 600 mm
4 in (100 mm)	10 mm Ø @ 600 mm	10 mm Ø @ 600 mm

Lap splices shall be 40db long (minimum) where splice dowels from footing or slabs shall extend into the block wall a minimum of 40db and dowels to match.

All reinforcing steel, except dowels in concrete, shall be accurately set in strict accordance with the Plans and the notes thereon. Vertical steel shall be secured firmly in place by means of frames or other suitable devices. Horizontal steel may be placed as the work progresses. In any core containing reinforcement, the distance between any masonry and the reinforcement shall be at least 12.7 mm (1/2 in) at all points. The masonry contractor shall furnish all tiles, spacers

and supports required to hold steel in position during grouting. Cores shall be grouted in lifts not exceeding 1.22 m (4 ft) in height. Grout shall be thoroughly rodded. Splices in reinforcing bars shall be lapped at a distance sufficient to develop the stress in the bar, but not less than 40 bar diameters.

Reinforcing steel shall be straight except for bends around corners and where bends or hooks are detailed on Plans.

Provide 1-16 mm Ø vertical bars with 38 mm clearance from openings at corners, intersections, end of walls and each side of openings.

Wire reinforcement shall be completely embedded in mortar/grout. Joints with wire reinforcement shall be at least twice the thickness of the wire.

Wire reinforcement shall be lapped at least 16 cm at slices and shall contain at least one cross wire of each piece of reinforcement in the lapped distance.

3.3 Lintel Beams

Unless noted otherwise, lintel beams to be used shall have a depth of 0.20 m and the thickness of CHB wall, reinforced by 4 – 10 mm Ø bars with 10 mm Ø at 150 mm stirrups.

Lintel beams shall be provided on top of CHB wall openings. It shall extend at least 0.20 m beyond each opening.

Stiffener beams (detail similar to lintel beam) shall be provided on top CHB partition walls not anchored to regular reinforced concrete beams/girders. Stiffener beams shall be provided for walls exceeding 3 meters in height.

3.4 Dowels

Where CHB walls adjoin R.C. columns and beams provide dowels on R.C. column and beams prior to pouring to match CHB wall reinforcement size and spacing. Dowels shall be 600 mm long unless noted otherwise.

3.5 Setting Embedded Items

All anchor bolts and miscellaneous metalwork embedded in masonry shall be set in accordance with setting plans or instructions furnished by trades supplying the metalwork. Care shall be exercised to ensure that all anchors are completely surrounded by grout.

3.6 Masonry Lintels

The Contractor shall provide properly shored supports for construction of masonry lintels for opening in walls. Shoring shall not be removed for at least seven days after lintels are placed.

3.7 Movement Gaps

3.7.1 Control Joints

Do not continue bond beams or joint reinforcing across control joints.

Install preformed control joint filler at locations indicated on Plans.

Use proper size material to create sealant joint space.

Backer rod and sealant installed according to Plans.

3.7.2 Expansion Joints

Install expansion joint filler material on centreline of wall at locations indicated on drawings

Backer rod and sealant installed according to Plans.

3.7.3 Seismic Joints

Provide seal and cover at both faces of joint, as indicated in Plans.

Secure seal to face of wall.

4. MASONRY WORKMANSHIP

Units shall be set plumb and true to line with level horizontal joints and with level courses accurately spaced. Hollow units shall be laid with full mortar coverage on horizontal and vertical face shells, and at least 50 percent of the cells shall be filled with grout, the cells containing vertical reinforcements to be among those to be filled up.

All cells of CHB walls from footing up to at least the ground floor level shall be filled up. Clean the top surface of foundation free from dirt, debris, and laitance, and expose the aggregate prior to start of installing first course Solid units shall be laid with full head and bed joints. Joints shall be uniform and approximately 10 mm wide unless otherwise indicated.

Wetting the units shall not be permitted except when hot dry weather exists causing the units to be warm to the touch, and then the surface only maybe wetted with a light fog spray.

Unless otherwise shown on the Plans, joints of exterior concrete masonry units that will be exposed and painted shall be cut flush and tooled finished with a 6.5 mm depth "V" joint for horizontal joints. Vertical joints between the horizontal joints shall be tooled flush. Joints of interior concrete masonry units shall be cut flush, and the blocks shall be given a cement plaster finish except as otherwise shown on the Plans. The minimum of cement plaster shall be 10 mm.

Use masonry saws to cut and fit masonry units and cuts shall be neat and true to line..

Accurately fit the units to plumbing, ducts, opening, and other interfaces, neatly patching all holes.

Keep the walls continually clean, preventing grout and mortar stains. If grout does run over, clean immediately.

Unless otherwise shown on the Plans, provide running bond with vertical Joints located at center of masonry units in the alternate course below.Do not use chipped or broken units. If such units are discovered in the finished wall, the Architect may require their immediate removal and replacement with new units at no additional cost to the owner.

Concrete masonry units shall be laid with thicker edge of the core up to provide a wide mortar bed. Both face core and ends of blocks should receive a full bed of mortar. Cross web should be mortared.

Intersecting masonry walls and partitions shall be bounded by the use of steel ties.

END OF SECTION

DIVISION 05 METALS

PART I-GENERAL

All structural steel work shall be in accordance with AISC Specification for the Design, Fabrication and Erection of Structural steel for buildings.

Materials and parts necessary to complete each item through such work which is not shown or specified shall be included, such as miscellaneous bolts, anchors, supports, braces and connections, etc.

Materials shall be stored out of contact with the ground to minimize contamination, corrosion and deterioration.

Shop drawings as well as erection drawings shall be prepared and submitted by the General Contractor to the Supervising/Consulting Engineer for approval before any fabrication is made.

Shop fabricated members shall be marked prior to delivery to facilitate the erection of members. Markings shall be listed and given description and copies of which shall be furnished to the Procuring Entity and the Consulting Architect/Engineer. Markings shall be neatly painted on the members with a distinctive color of enamel paint.

PART II- PRODUCTS

3. COLD-FORMED METAL FRAMING

3.1 Ceilings

Hangers and rod joiners shall be 6 mm diameter with hook end, threaded or un threaded as shown in Plans.

Suspension clips shall be Ga. 24, 15mm x 30mm x 55mm.

Carrying channel support bracket shall be Ga. 26, spring steel.

W-clip shall be Ga. 24, galvanized steel.

Furring member shall be double crading, Ga. 26, galvanized steel, 5.0 m long, configuration and size as shown in Plans.

Carrying channel shall be 0.8 mm thick, 5.0 m long, configuration and sizes as shown in Plans.

Wall angle shall be Ga. 24, 2.4 or 3.0 m long, configuration and sizes as shown in Plans.

10 mm Ø Expansion bolt to ceiling

Nails, common or finishing of the proper sizes for intended use and shall be of the best commercial standard.

4. METAL SUPPORT ASSEMBLIES

Metal support assemblies for plumbing, electrical, mechanical, fire suppression and communication shall be fabricated as shown on Plans. This includes but not limited to the following:

Duct Hangers/ Hanger rods, Angle bar, Vibration isolator, Locking nut, Heavy duty Clevis type hanger, U-bolt

3/8" x 1 ½ " x 1 1/2 " x 6 m Angle bars, 3/16" x 1 x 6 m Flat bars, 3/16" x 1 x 6 m Round bars, 1/2" x 2 Bolt and Nut, ½" Anchor Grip with Bolt and 3/8" x 1 U-bolt

5. METAL FABRICATIONS

5.1 Stainless Steel Railings

Provide metal from pitting, seam marks, roller marks, grinding marks and stains at areas exposed to view on completed rail units.

Railing design, configurations and dimensions are as shown in Plans.

6. SHOP-APPLIED COATINGS FOR METAL

Shop-applied coatings for metal shall be quality material

7. METAL FASTENINGS

7.1 Machine Bolts

Machine Bolts shall conform to ASTM A-307. Each bolt shall be provided with standard nuts and washers.

7.2 Anchor Bolts, Sag rods

Anchor Bolts and sag rods shall conform to ASTM A-141 and shall be provided where indicated and where necessary for fastening work in place. They shall be embedded in the concrete and masonry as the work progresses and shall be spaced as indicated in Plans or specified otherwise. Sizes, kinds and spacing of anchors and anchors not indicated or specified shall be as necessary for their purposes.

7.3 Saddle

Saddle shall be a standard manufactured products of sections shown and shall be heat treated extruded aluminum alloy 6063-TS conforming to ASTM Specification B221.

7.4 Expansion Shield

Expansion shields shall be of the style, type and size suited for the intended use. Shields shall be accurately recessed and unless otherwise indicated, shall be not less than 50mm into concrete or masonry.

7.5 Nails

Power driven nails shall be steel, especially formulated to produce high ductility and hardness and capable of being explosively driven through the medium to be attached.

Nails, common or finishing of the proper sizes for intended use and shall be of the best commercial standard.

7.6 Washers

Circular washers shall be flat and smooth and shall conform to requirements for type A washers in ANSI B 27.2. Beveled washers to American Standard Beams and channel shall be square or rectangular, tapered in thickness and smoothed. Washer for use with high strength bolts shall be hardened.

7.7 Miscellaneous Fastenings

Anchor clips, plates and nuts shall be of the configuration and sizes shown, and shall conform to the best commercial standard as approved.

PART III-EXECUTION

1. STRUCTURAL AND ARCHITECTURALLY EXPOSED STEEL FRAMING AND METAL SUPPORT ASSEMBLIES

All structural steel shapes and plates of beams shall conform to ASTM A-36.

Exposed surfaces shall have smooth finish, sharp and well defined lines. Section shall be well framed to shape and size with sharp lines and angles; curved work shall be sprung evenly to curves. All necessary rabbets, lags and brackets shall be provided so that the work can be assembled in a neat and substantial manner. Holes for bolts and screws shall be drilled. Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall provide ample strength and stiffness. Joints exposed to weather shall be formed to exclude water.

Metal work shall be provided with proper clearances. Work shall be fabricated and installed in a manner that will provide for expansion and contraction, prevent the shearing of the bolts, screws and other fastenings, insure rigidity and provide close fitting of sections.

Welding Electrodes-shall conform to AWS A-5.1 or A-5.5; E 70 Electrodes.

1.1 Fabrication

Field fabrication shall be kept to a minimum. And shop fabrication shall be employed to the greatest extent possible with members shop fabricated as practicable with a minimum requirement for field connections.

Welding, shearing, gas cutting, chipping and all other works involved in the fabrication of structural steel shall be done with accuracy and of the highest quality of workmanship, within allowable tolerances prescribed in the AISC specifications.

1.2 Welding

The technique, appearance and quality of welds and the method of correcting defective work shall conform to the applicable provisions of Workmanship of the Standard Code for Welding in Building Construction of the American Welding Society.

Welding of structural members in shop and on field, shall be done only by certified and experienced welder.

Surfaces to be welded shall be free from loose side, rust, grease, paint and other foreign materials that will impair the soundness of the weld.

Temporary weld and assembly attachments shall be kept to a minimum. All temporary attachment that are welded, shall be removed by a flame torch above the parent metal surface and ground to smooth surface by power grinding.

Notes shall be made on the Plans and on the shop drawings of those joints or groups of joints in which it is especially important for the welding sequence and technique of welding to be controlled carefully, to minimize welding under restraint, and to avoid undue distortion.

Weld length called on the Plans and on the shop drawings shall be the net effective length.

1.3 Connections and Holes

Connections shall be as shown in the Plans and shall develop the full capacity of the members.

Surfaces or joints prepared for welded or high strength bolted connections shall comply with the cleanliness requirements of all joint surfaces within friction type joints as specified in bolted parts of the AUSC specifications.

Holes shall be punched or drilled at right angles to the surface of the metals and shall not be enlarged by burning.

Holes shall be clean-cut without rugged edges. Outside burrs resulting from drilling or reaming operations shall be removed with a tool which reaches a 1.588mm level around the bolt holes.

1.4 Workmanship

The steel structures shall be erected plumb and true to line and grade. Bracings and supports shall be introduced whenever necessary to take care of all the loads to which the structure may be subjected. Such bracings shall be left in place as long as maybe required for safety.

Base plates and bearing plates shall be supported on steel wedges until the supported members shall have been aligned and plumb, following which the entire bearing area shall be grouted solid with non-shrink cement grout.

Grouting mortar shall be of the commercial type approved by the Consulting Architect/Engineer and the methods of use as recommended by the manufacturer.

Quality control shall be practiced by the Fabricator to assure high quality in the work. In addition to the Fabricator's quality control procedures, materials and workmanship shall be subject to inspection by Architect/Engineer.

Fabricator shall cooperate harmoniously with the Consulting Architect/Engineer to avoid misinterpretation of the work, when correction shall be needed.

Materials or workmanship not in reasonable conformance with the provisions of these Specifications shall be rejected at anytime during the progress of the work.

Inserts and sleeves of suitable and approved type shall be furnished and installed where necessary for the support of piping, mechanical equipment or apparatus, or other work. Steel pipe sleeves of suitable type and size shall be provided where indicated and where required for all pipes passing through floors, roofs or walls.

The Fabricator shall receive copies of all reports made by the Engineer authorized by the Procuring Entity and/or his Architect/Engineer.

2. COLD-FORMED METAL FRAMING

Light- gauge Cold-formed Structural Steel shall conform to pertinent specifications of the American Iron and Steel Institute (AISI).

Light steel framing system shall be as manufacturer's standard.

2.1 Application

Light steel framing system shall be used in lieu of wood framing system and applied where indicated. Sizes, configurations, and typical installation procedures are as shown in the accompanying drawings

Submit shop drawings of the required steel framing assemblies for walling, ceiling or other applications for approval prior to procurement.

3. METAL FABRICATIONS

3.1 Stainless Steel Railings

3.1.1 Fabrication

Fabricate handrails and frames in accordance to approved Plans, Shop Drawings and Field dimensions using mitered and welded joints with bends where indicated.

Shop fabricate in greatest possible lengths to eliminate field splicing. Form bends to uniform radius, free of distortion, twists, cracks and grain separation.

Top rails shall be continuous over posts and frames for strength.

Splices and expansion joints shall utilize internal splice connectors with set screws to allow for rail expansion over ambient temperature change.

Weld all shop assembled connections continuous without undercut and or distortion of rail materials.

Grind and or dress exposed welds smooth and flush to corner or fillet without weakening rail materials.

Remove all burrs and sharp edges from exposed ends of final rail assemblies.

Lightly sand and blend with fine grit paper all light scratches prior to rail finishing.

Provide drainage and weep holes within rail assemblies to prevent entrapment of water.

3.1.2 Installation

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

Set railings within sleeves, use anchor bolts or core drill for mounting holes. Maintain slab edge distances and rail locations as per Plan.

Assemble rail fitting splices together to form tight hairline joints while allowing for thermal expansion as required.

Make all adjustments to alignment for satisfactory rail appearance and to plumb joints prior to final tightening of fasteners or pouring of holes.

After installation is complete, clean product using non-abrasive mild soap and water. Do not utilize any cleaners containing any type of acid.

Use touch-up paint and touch-up kit to repair any areas damaged during installation.

4. SHOP-APPLIED COATINGS FOR METAL

Steel work prior to painting and after inspection and approval shall be cleaned of loose mill scale, loose rust, weld slag or flux deposit, dirt and other foreign materials.

Oil and grease shall be removed by solvent. Parts of the steel work which shall be fielded, welded or connected shall not be painted. All steel work specified to have no shop paint shall likewise be thoroughly cleaned.

Steel works to be encased in concrete shall not be painted. All other steel works shall be given one coat of shop paint of metal primer, applied thoroughly and evenly to dry surfaces, which have been cleaned, by brush, spray roller coating, floor coating or dipping at the selection of the Fabricator.

All steel work after complete erection, shall be field painted with the type and color specified in the section of painting of this Specifications. Surfaces where the shop coat of paint has been damaged shall be retouched using the same system as the original shop painting. Surfaces which will be in contact after erection, except when in contact with bolted or welded connection shall be given one finish coat before erection.

5. METAL FASTENINGS

Connections for which details are not indicated shall be designed in accordance with the American Institute of Steel Construction and shall be welded or bolted, except as specified otherwise. Welding shall be done in a manner that will prevent permanent buckling and all welds exposed in the finished work shall be ground smooth. Steel and iron shall be standard well-finished structural shapes, plates, or bar steel or bar iron. All finished and/or machined faces shall be true to line and level.

END OF SECTION

DIVISION 32 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 Im 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.

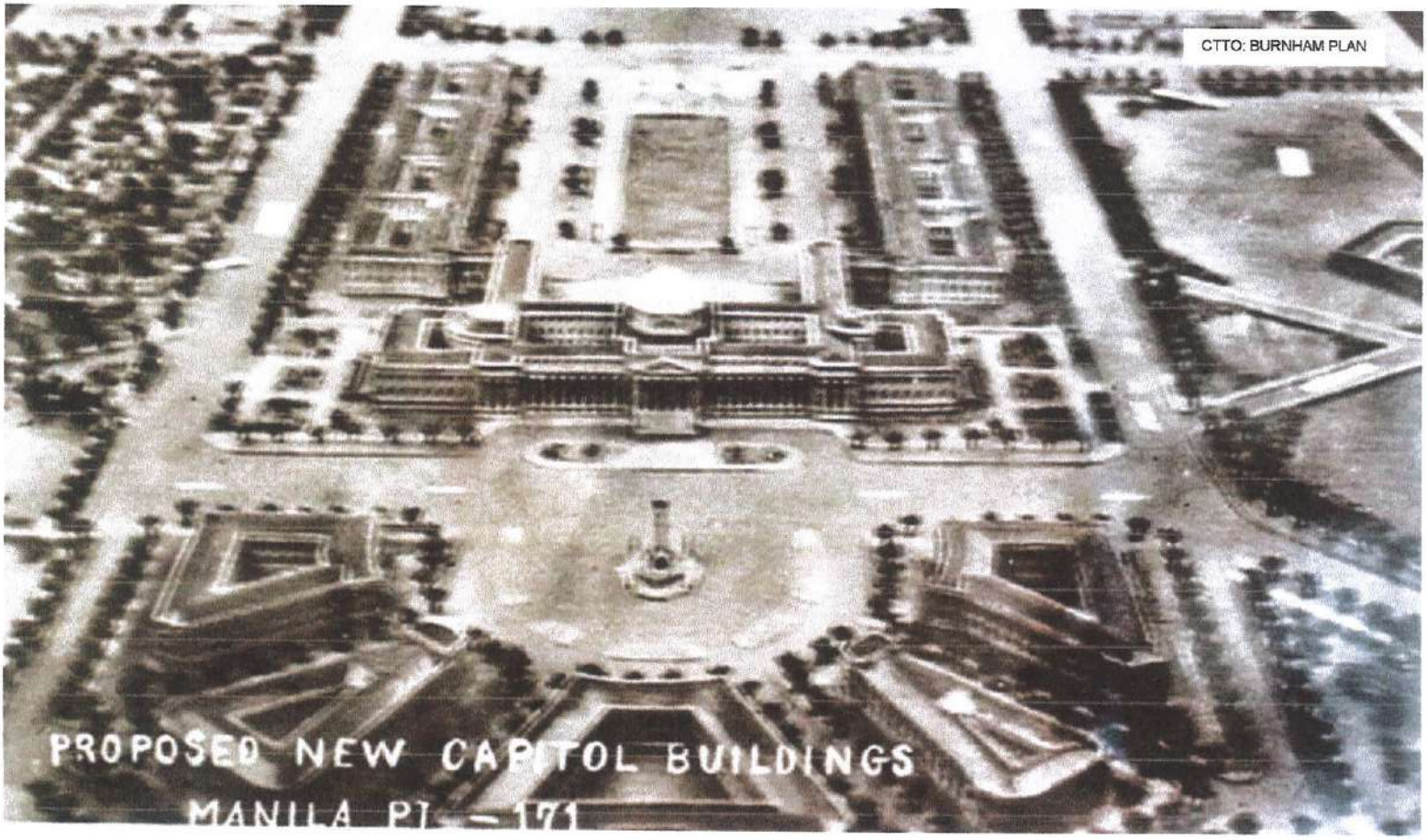
Disease and Damage: All plants shall be free of disease, insect infestations, eggs or larvae; and shall have thickly developed, well-proportioned and healthy root systems. Plant material shall be free from physical damage or conditions that prevent the desired quality appearance and growth characteristics; or inhibit the plants thriving ability, hardiness, or adaptability

END OF SECTION

TERMS OF REFERENCE

PROJECT TITLE AND LOCATION

DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA-PHASE I
(to Implement Republic Act No. 11333)
Rizal Park, Ermita, Manila



I. PROJECT BACKGROUND

Daniel H. Burnham an American Architect and Urban Planner designed Manila as the capital of the Commonwealth government during the American occupation. He envisioned the city as a civic center where government buildings are configured in a formal mass. According to Burnham, these buildings should constitute a visible expression of the law, a symbol of dignity and power. Meanwhile, he decided that diagonal streets radiate from the civic center and be surrounded by an abundance of foliage, fountains of water and a continuous parkway.

In 1905, Architect William E. Parsons serving as the general architectural supervisor for all public buildings and parks throughout the Philippines became the interpreter and executed Burnham's plan. Although Burnham's scheme was not fully implemented, it still left an indelible mark that we still see today.

II. OBJECTIVE

As an institution that preserves and promotes Filipino history and heritage, the National Museum of the Philippines understands that the Burnham plan is an important piece in the development of the country and a tangible legacy of the American occupation.

With the passing of Republic Act 11333 in 2019 strengthening National Museum's mandate and functions, the agency plans to develop the 'National Museum complex' in accordance to the original layout envisioned by Burnham. This proposal will not only address the need to revive the Burnham plan but will also add structures that will update and upgrade the needs of the central museums in the hope of furthering public awareness and information about the country's rich history.

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 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.

3. 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.

GENERAL REQUIREMENTS

1. Mobilization/ Demobilization
2. TEMFACIL (includes warehousing & utility consumption)
3. Site Safety and Housekeeping
4. Project Signage (4' x8')
5. Supply & installation of 2.40m high board-up(rental)-1,355 LM
6. Permits/ licenses & tests

DISMANTLING,CLEARING & HAULING WORKS (SITE/ AREA PREPARATION)

1. Dismantling,clearing & hauling of existing concrete benches & concrete garbage bins
2. Dismantling, clearing & hauling of existing concrete steps (Lapu-Lapu)
3. Dismantling, clearing & hauling of existing public restrooms & existing structures (Binhi ng Kalayaan & Children's playground)
4. Dismantling, clearing & hauling of identified steel railings & posts
5. Dismantling, clearing & hauling of identified concrete fences (Binhi ng Kalayaan & Children's playground)
6. Dismantling, clearing & hauling of existing lamp posts & flood lights
7. Relocation and realignment to proposed radial road of existing lamp post
8. Removal, clearing & hauling of existing islands & concrete planter boxes
9. Removal, clearing & hauling of affected existing concrete road as reflected on plan
10. Removal, clearing & hauling of affected existing sidewalks
11. Removal, clearing & hauling of identified concrete children's playground pavements
12. Dismantling, clearing & hauling of identified concrete children's playground elements/ features (including entrance arch)
13. Relocation of identified concrete marker & sculpture
14. Dismantling, clearing & hauling of concrete pavements at Binhi ng Kalayaan
15. Rental of Equipments
16. Drainage for Proposed Road Network

RESTORATION AND LANDSCAPING WORKS

1. Earth balling of Trees(along the proposed roads)
2. Cutting of Trees(along the proposed roads
3. Paving of proposed road network (Roads 1-4 as reflected on plan)
4. Reusing of Perimeter Fence for the corner of Taft & Kalaw-refer to plan

IV. EXPECTED OUTPUT

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 facilities & utilities on site, manage their own personnel & contruction traffic, dispose and recycle construction waste, monitor schedule and cash flows and maintain daily logbook of activities.
4. Submit for approval plans that outlines the safety measures that will be implemented on site applicable tovisitors,construction team & other personnel to include safety & protection of workers during construction,prevention & occurance of fire & potential risk.
5. Furnish the National Museum of the Philippines with a set of the original copy of As built plans.
6. Abide with the contract including all its annexes & attachment like the General Condition, Scope of Works, Term of Reference, Specification and etc. which form part of the contract.
7. 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 must report to the National Museum of the Philippines (NMP) any archaeological finding during excavation works. An automatic work stoppage shall take effect after NMP's documentation & confirmation.
9. The Contractor must secure and maintain all salvaged original materials on site. No original material can be removed, altered or transported without the authority from the NMP

V. EXPECTED TIME FRAME

The Project's actual construction is expected to be completed in **Two Hundred Forty (240) calendar days.**

VI. CONSTRUCTION SUPERVISION

The project will be implemented under the direct supervision of the National Museum of the Philippines- Facilities Management Division.

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 contractor must have completed or implemented similar Heritage Site Development Projects that deals with urban landscape and or park development of at least 5,000sqm and must have proven relevant experience with proper client references. The contractor must have also proven relevant similar working experience within 10 years

VIII. SOURCE OF FUND

Budget is available and should be chargeable against General Fund under Capital Outlays-Locally Funded Projects for fiscal Year 2021-Supplemental.

IX. APPROVED BUDGET FOR THE CONTRACT

Thirty Nine Million Nine Hundred Ninety Nine Thousand Three Hundred Fourty Five and 60/100 Pesos (Php 39,999,345.60). Inclusive of all applicable taxes.

IX. PROCUREMENT PROCESS

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.

Prepared by:

Ar. ROLDAN C. LAUREL
Architect II, FMD

Checked & Reviewed by:

Ar. NELSON L. AQUINO
Architect IV, OIC-FMD

Recommending Approval:

Atty. MA. CECILIA U. TIROL
Acting Deputy Director General (Administrations)

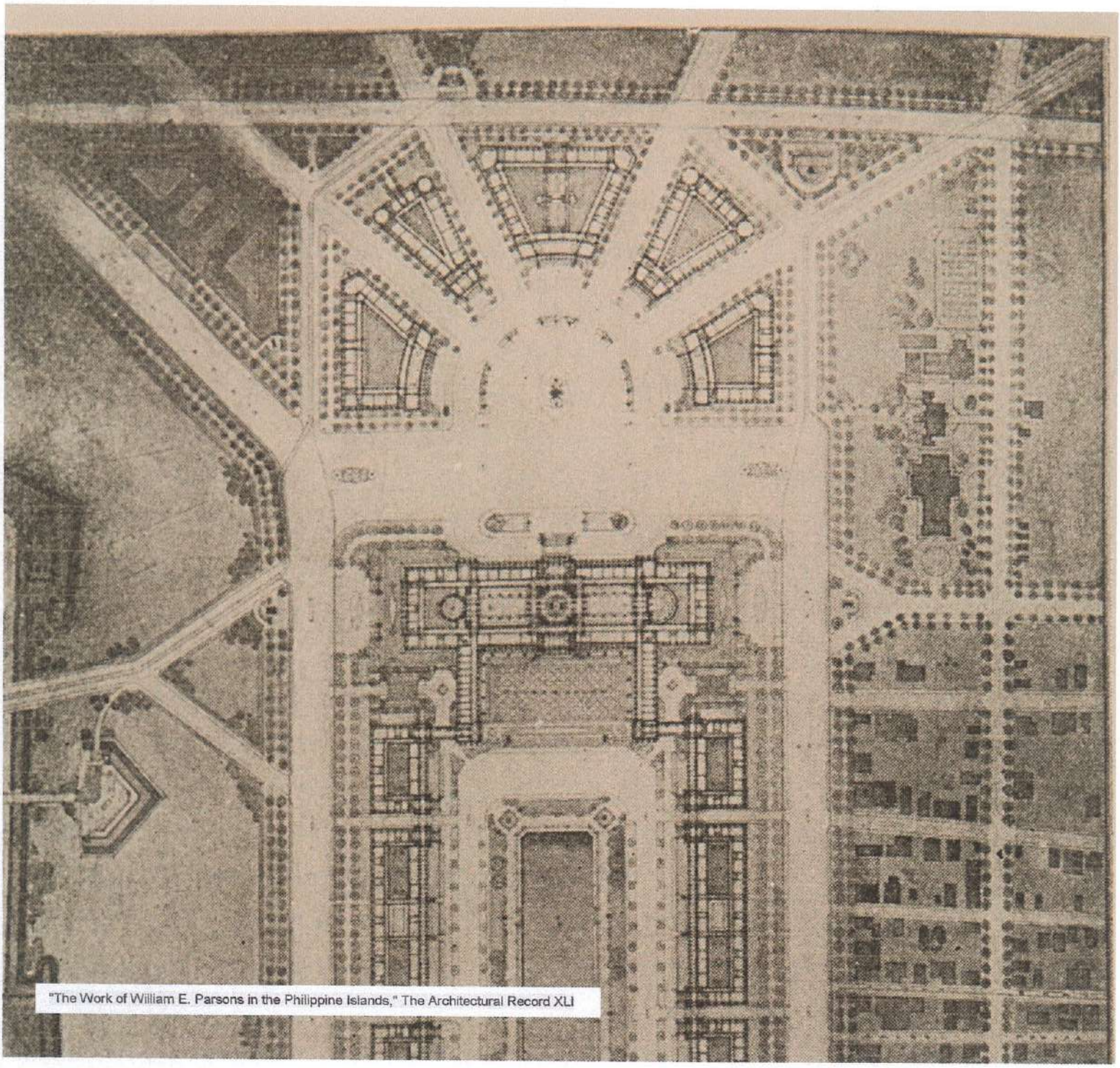
Approved by:

JEREMY BARNS, CESO III
Director-General

SCOPE OF WORKS

PROJECT TITLE AND LOCATION

DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA-PHASE 1
(to implement Republic Act No. 11333)
Rizal Park, Ermita, Manila



"The Work of William E. Parsons in the Philippine Islands," The Architectural Record XLI

III. SCOPE OF WORKS

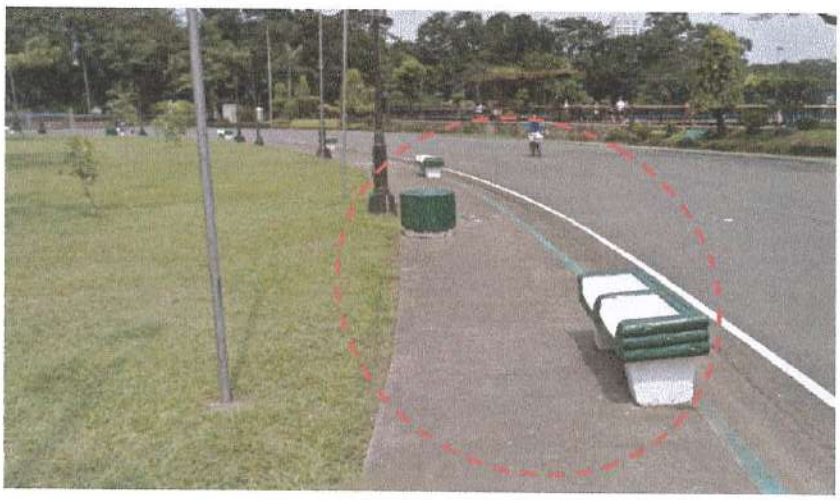
This shall pertain to necessary works needed to complete the proposed project and shall include but is not limited to the supply, fabrication and installation of all materials, labour and equipment; provision for specialized activities, technical knowledge and skills; together with the liaison and coordination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

GENERAL REQUIREMENTS

1. Mobilization/ Demobilization
2. TEMFACIL (includes warehousing & utility consumption)
3. Site Safety and Housekeeping
4. Project Signage (4' x8')
5. Supply & installation of 2.40m high board-up(rental)-1,355 LM
6. Permits/ licenses & tests

DISMANTLING,CLEARING & HAULING WORKS (SITE/ AREA PREPARATION)

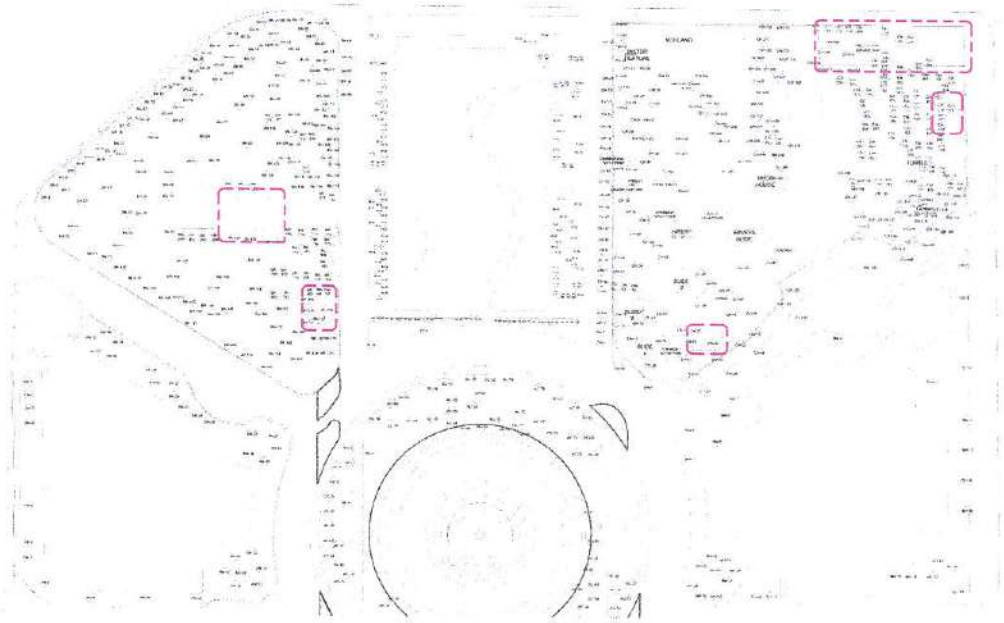
1. Dismantling,clearing & hauling of existing concrete benches & concrete garbage bins



2. Dismantling, clearing & hauling of existing concrete steps (Lapu-Lapu)

3. Dismantling, clearing & hauling of existing public restrooms & existing structures (Binhi ng Kalayaan & Children's playground)

T A F T A V E N U E



4. Dismantling, clearing & hauling of identified steel railings & posts

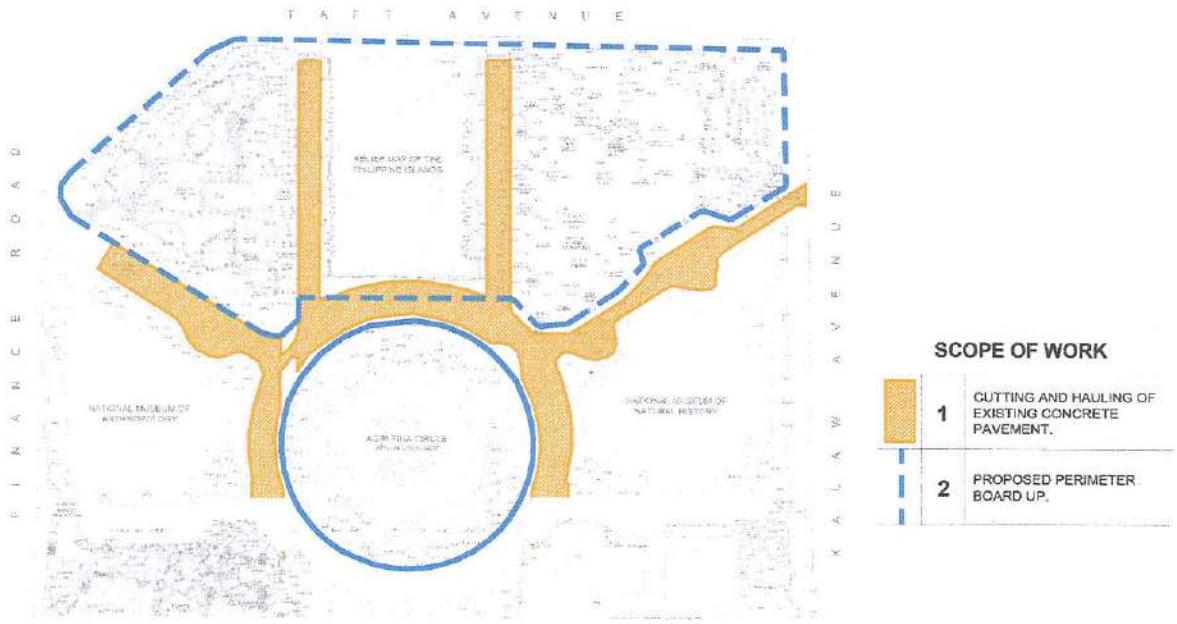
5. Dismantling, clearing & hauling of identified concrete fences (Binhi ng Kalayaan & Children's playground)

6. Dismantling, clearing & hauling of existing lamp posts & flood lights

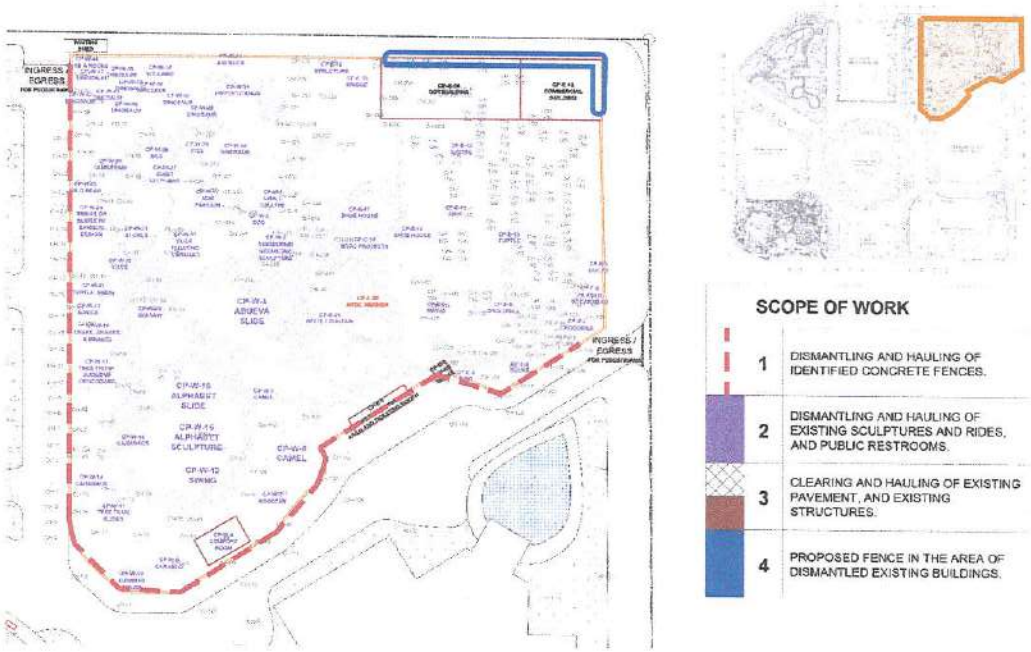
7. Relocation and realignment to proposed radial road of existing lamp post

8. Removal, clearing & hauling of existing islands & concrete planter boxes

9. Removal, clearing & hauling of affected existing concrete road as reflected on plan



10. Removal, clearing & hauling of affected existing sidewalks
11. Removal, clearing & hauling of identified concrete children's playground pavements



12. Dismantling, clearing & hauling of identified concrete children's playground elements/ features (including entrance arch)

13. Relocation of identified concrete marker & sculpture

14. Dismantling, clearing & hauling of concrete pavements at Binhi ng Kalayaan
15. Rental of Equipments
16. Drainage for Proposed Road Network

RESTORATION AND LANDSCAPING WORKS

1. Earth balling of Trees(along the proposed roads)

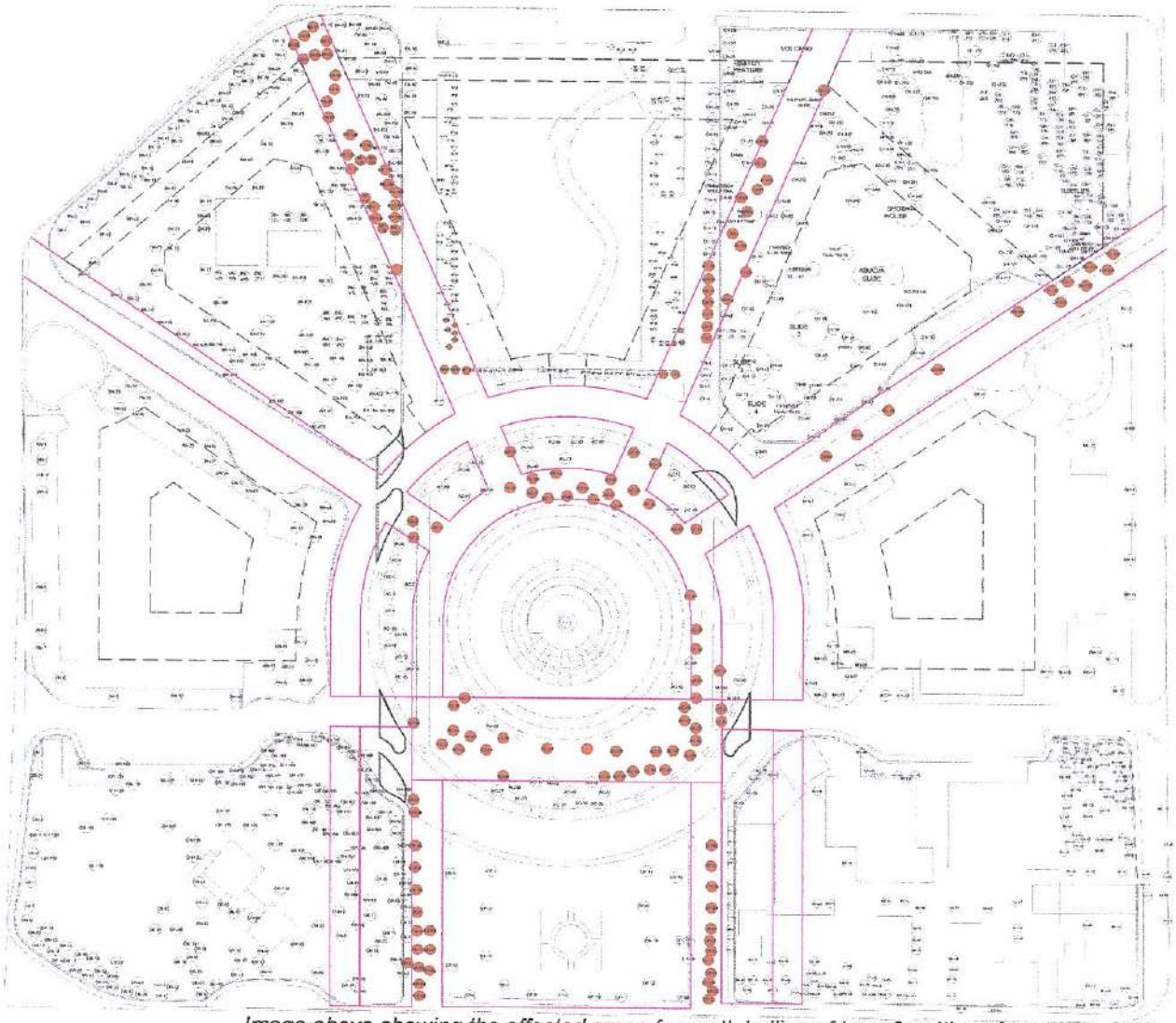
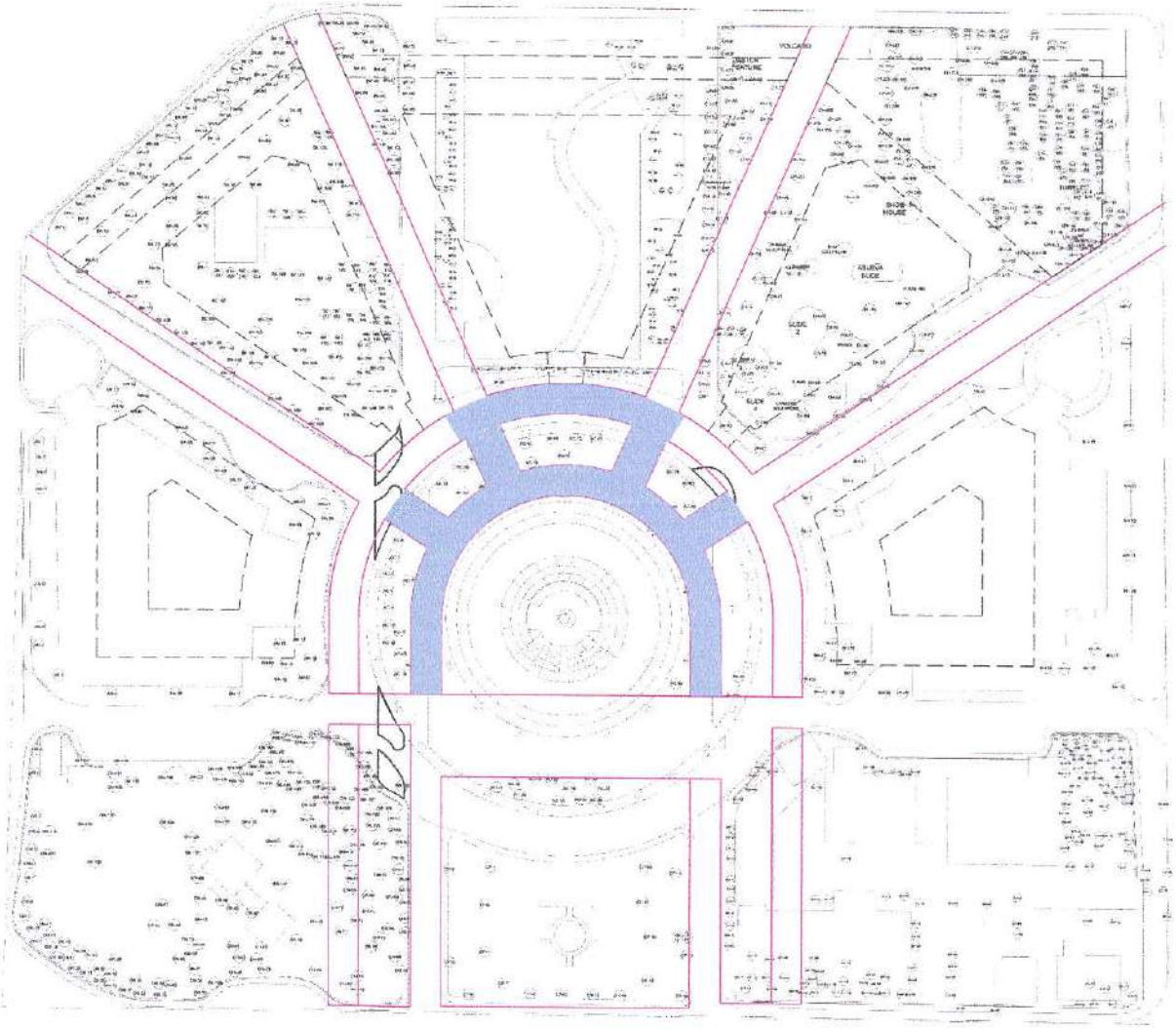


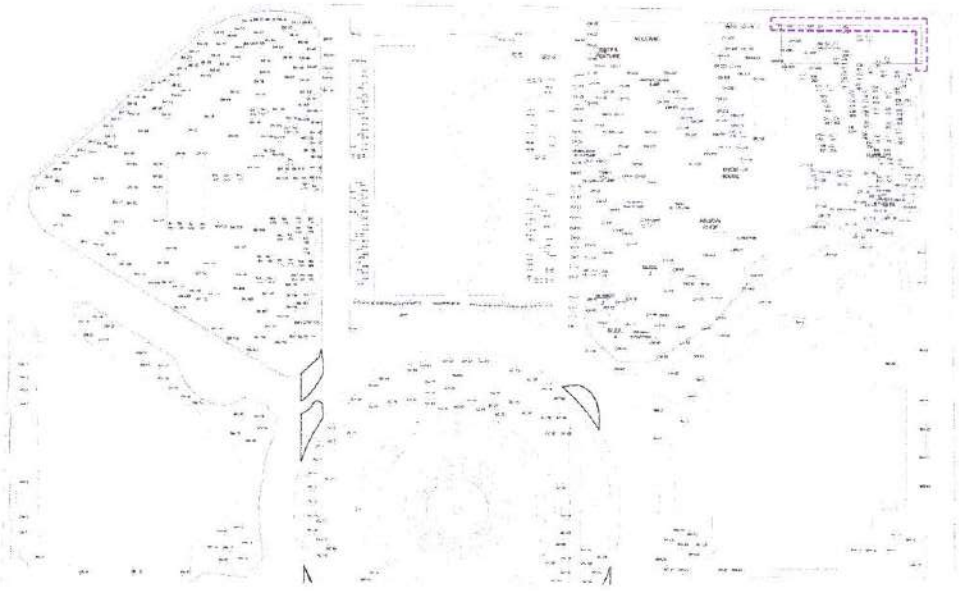
Image above showing the affected areas for earth balling of trees& cutting of trees

2. Cutting of Trees(along the proposed roads

3. Paving of proposed road network (Roads 1-4 as reflected on plan)



4. Reusing of Perimeter Fence for the corner of Taft & Kalaw-refer to plan



II. 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.

Prepared by:

Ar. ROLDAN C. LAUREL
Architect II, FMD

Checked & Reviewed by:

Ar. NELSON L. AQUINO
Architect IV, OIC-FMD

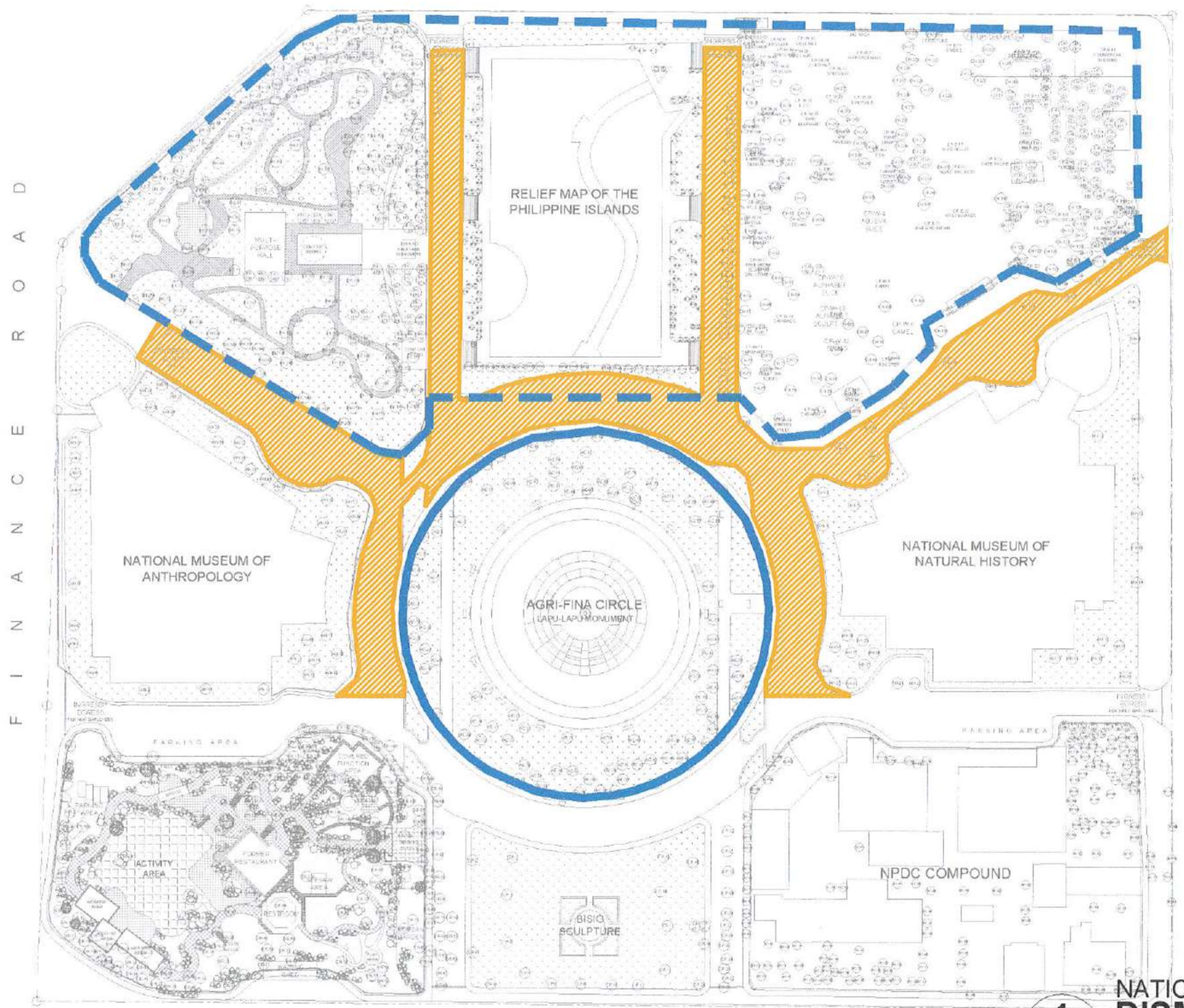
Recommending Approval:

Atty. MA. CECILIA U. TIROL
Acting Deputy Director General (Administrations)

Approved by:

JEREMY BARNS, CESO III
Director-General

Section VII. Drawings



NORTH

SCOPE OF WORK

	1	CUTTING AND HAULING OF EXISTING CONCRETE PAVEMENT.
	2	PROPOSED PERIMETER BOARD UP.

NATIONAL MUSEUM COMPLEX

1 / A-6 DISMANTLING AND HAULING PLAN

SCALE 1:800 MTS

PAMBANSANG MUSEO NG PILIPINAS NATIONAL MUSEUM OF THE PHILIPPINES	NATIONAL MUSEUM OF THE PHILIPPINES FACILITIES MANAGEMENT DIVISION P. BURGOS DRIVE, MANILA, 1000	PROJECT TITLE: DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA - PHASE 1 RIZAL PARK, ERMITA, MANILA	PREPARED BY: AR. ROLDAN C. LAUREL ARCHITECT II	REVIEWED AND CHECKED BY: AR. NELSON L. AQUINO ARCHITECT IV, OIC-FMD	RECOMMENDING APPROVAL: ATTY. MA. CECILIA U. TIROL DEPUTY DIRECTOR FOR ADMINISTRATION	APPROVED BY: JEREMY R. BARNS, CESO III DIRECTOR-GENERAL	REVISIONS: DRAWN BY: KMR CHECKED BY: DATE:	SHEET CONTENT: DISMANTLING AND HAULING PLAN OF AGRI-FINA CIRCLE	SHEET NO. A-6
	DATE: PROJECT NO:	LOCATION: CITY OF MANILA							

T A F T A V E N U E

P A D R E B U R G O S D R I V E

9
NATIONAL MUSEUM
FINE ARTS
(EXISTING BUILDING)

10

6
NATIONAL
HERBARIUM
(PROPOSED)

7
QUINCENTENNIAL
EXHIBITION BUILDING
(PROPOSED)

8
NATIONAL
PLANETARIUM
(PROPOSED)

12.00

5
NATIONAL MUSEUM
OF ANTHROPOLOGY
(EXISTING BUILDING)

4
QUINCENTENNIAL
PAVILION
(PROPOSED)
40.88

3
NATIONAL MUSEUM
OF NATURAL HISTORY
(EXISTING BUILDING)

F I N A N C E R O A D

K A L A W

1
THE ORCHIDARIUM
(FOR LATER TRANSFER)

2
NPDC COMPOUND
(FOR LATER TRANSFER)

M A O R O S A S T R E E T

NORTH

SCOPE OF WORK

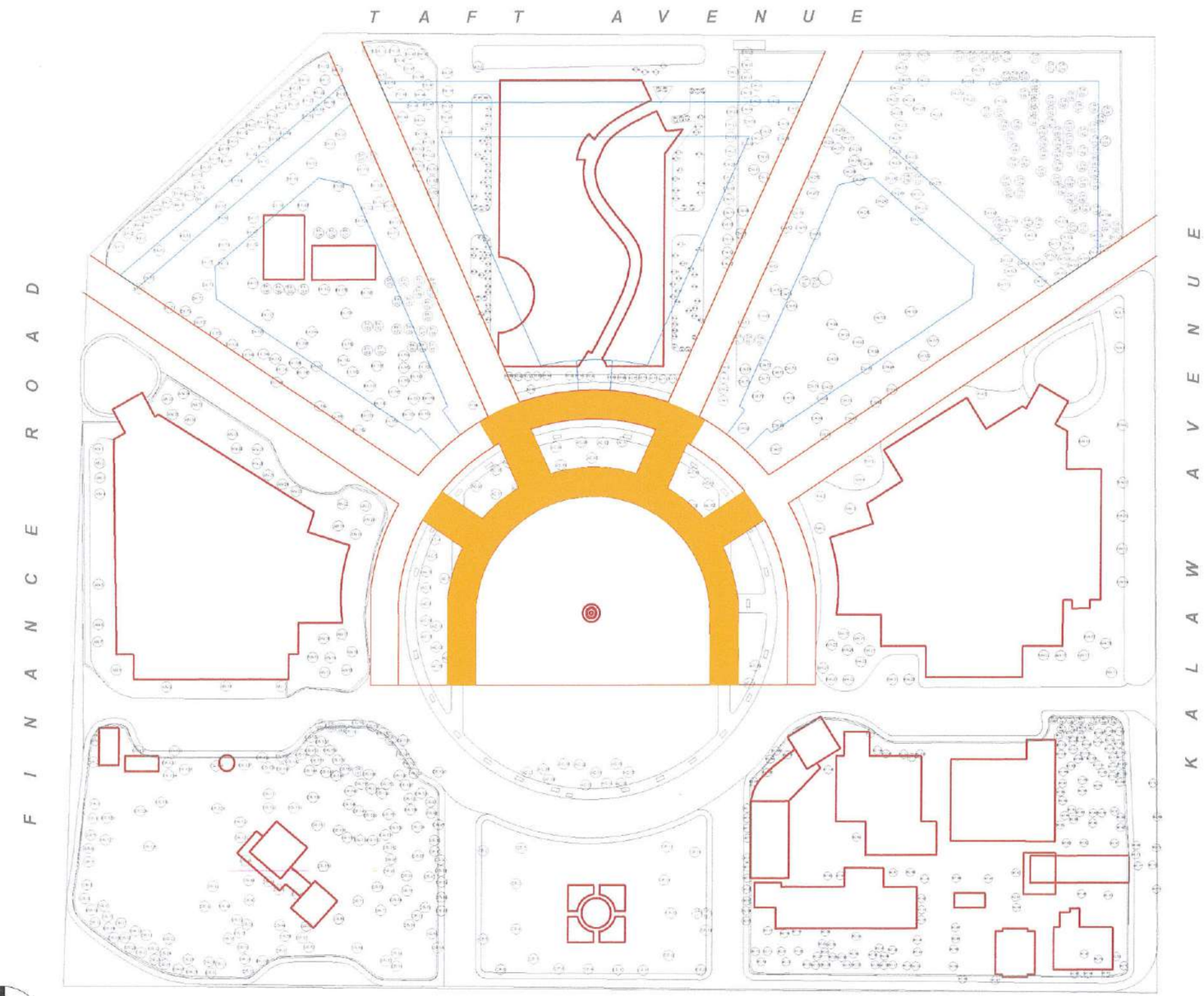
	1	EXISTING MUSEUM BUILDINGS.
	2	PROPOSED STRUCTURES FOR PHASE-1.
	3	TO BE DEVELOPED IN NEXT PROJECT PHASES.

PROPOSED NATIONAL MUSEUM COMPLEX

1 / A-7 MASTER DEVELOPMENT PLAN

SCALE 1:1,750 MTS

PAMBANSANG MUSEO NG PILIPINAS NATIONAL MUSEUM OF THE PHILIPPINES	NATIONAL MUSEUM OF THE PHILIPPINES FACILITIES MANAGEMENT DIVISION P. BURGOS DRIVE, MANILA, 1000	PROJECT TITLE: DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA - PHASE 1 RIZAL PARK, ERMITA, MANILA	PREPARED BY: AR. ROLDAN T. LAUREL ARCHITECT II	REVIEWED AND CHECKED BY: AR. NELSON L. AQUINO ARCHITECT IV, OIC-FMD	RECOMMENDING APPROVAL: ATTY. MA. CECILIA U. TIROL DEPUTY DIRECTOR FOR ADMINISTRATION	APPROVED BY: JEREMY R. BARNS, CESO III DIRECTOR-GENERAL	REVISIONS: DRAWN BY: KMR CHECKED BY: DATE:	SHEET CONTENT: PROPOSED MASTER DEVELOPMENT PLAN - PHASE 1	SHEET NO. A-7
	DATE:	PROJECT NO:	LOCATION: CITY OF MANILA						



NORTH

SCOPE OF WORK

	1	ROADS TO BE RESTORED BASED ON THE BURNHAM PLAN.
	2	PROPOSED AREAS OF PATHWALK TO BE COVERED BY PAVERS.
	3	PROPOSED LOCATION OF FUTURE MUSEUM BUILDINGS.
	4	BUILDINGS TO BE RETAINED.

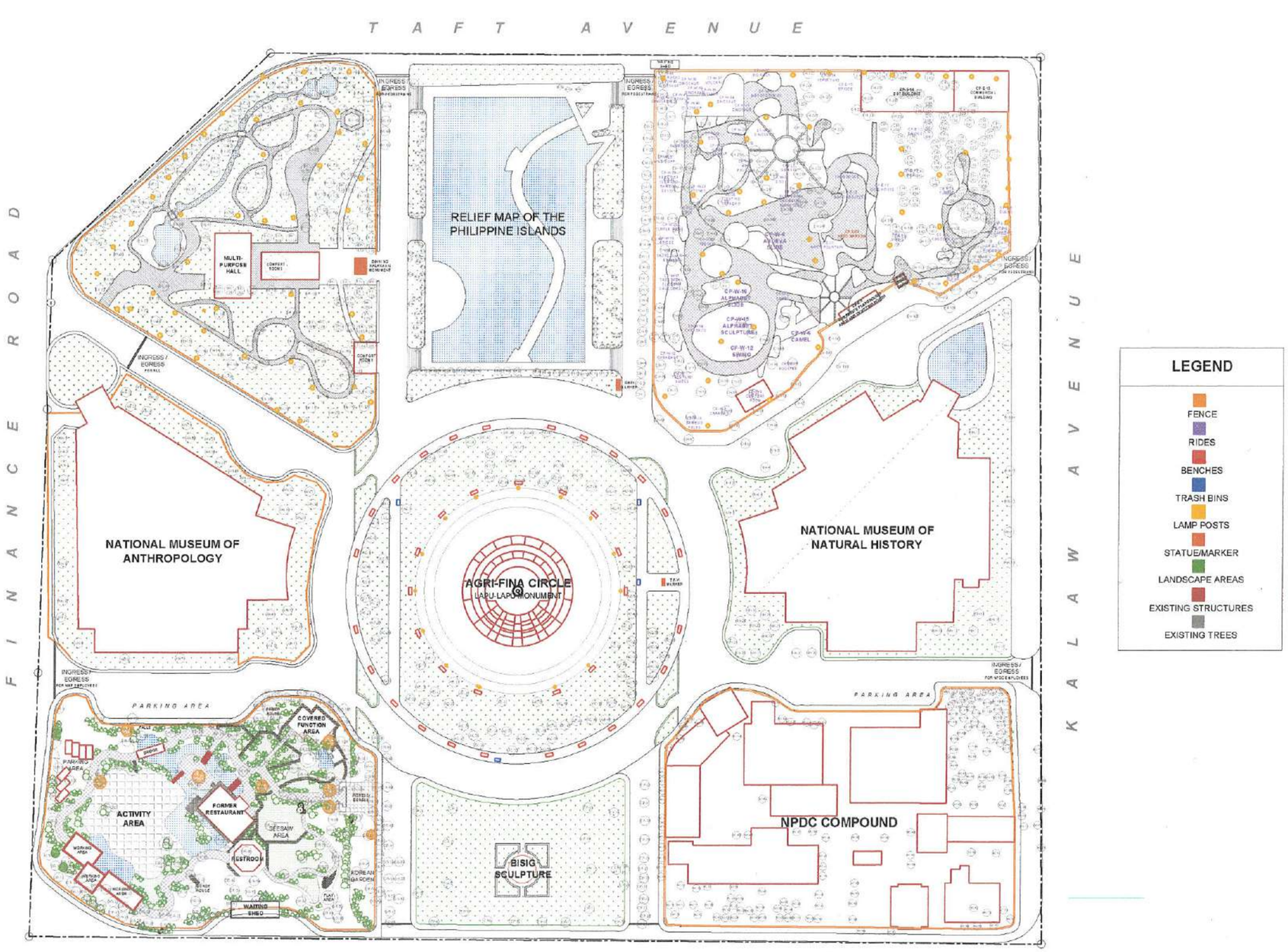
1 / A-8

PROPOSED DEVELOPMENT FOR PHASE 1

MASTER DEVELOPMENT PLAN

SCALE 1:1,750 MTS

PAMBANSANG MUSEO NG PILIPINAS NATIONAL MUSEUM OF THE PHILIPPINES	NATIONAL MUSEUM OF THE PHILIPPINES FACILITIES MANAGEMENT DIVISION P. BURGOS DRIVE, MANILA, 1000	PROJECT TITLE: DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA - PHASE 1 RIZAL PARK, ERMITA, MANILA	PREPARED BY: AR. ROLDAN T. LAUREL ARCHITECT II	REVIEWED AND CHECKED BY: AR. NELSON L. AQUINO ARCHITECT IV, OIC-FMD	RECOMMENDING APPROVAL: ATTY. MA. CECILIA U. TIROL DEPUTY DIRECTOR FOR ADMINISTRATION	APPROVED BY: JEREMY R. BARNS, CESO III DIRECTOR-GENERAL	REVISIONS: DRAWN BY: KMR CHECKED BY: DATE:	SHEET CONTENT: PROPOSED DEVELOPMENT FOR PHASE 1	SHEET NO. A-8
	DATE:	PROJECT NO:	LOCATION: CITY OF MANILA						



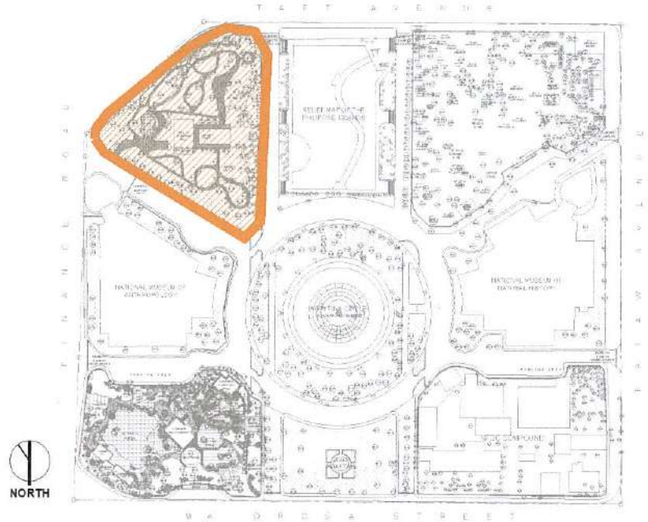
NATIONAL MUSEUM COMPLEX

MASTER DEVELOPMENT PLAN

1
A-1

SCALE 1:1,750 MTS

PAMBANSANG MUSEO NG PILIPINAS NATIONAL MUSEUM OF THE PHILIPPINES	NATIONAL MUSEUM OF THE PHILIPPINES FACILITIES MANAGEMENT DIVISION P. BURGOS DRIVE, MANILA, 1000	PROJECT TITLE: DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA - PHASE 1 RIZAL PARK, ERMITA, MANILA	PREPARED BY: AR. ROLDAN T. LAUREL ARCHITECT II	REVIEWED AND CHECKED BY: AR. NELSON L. AQUINO ARCHITECT IV, OIC-FMD	RECOMMENDING APPROVAL: ATTY. MA. CECILIA U. TIROL DEPUTY DIRECTOR FOR ADMINISTRATION	APPROVED BY: JEREMY R. BARNS, CESO III DIRECTOR-GENERAL	REVISIONS: DRAWN BY: KMR CHECKED BY: DATE:	SHEET CONTENT: AS-BUILT OF EASTERN SECTION OF RIZAL PARK	SHEET NO. A-1
	DATE:	PROJECT NO:	LOCATION: CITY OF MANILA						



SCOPE OF WORK

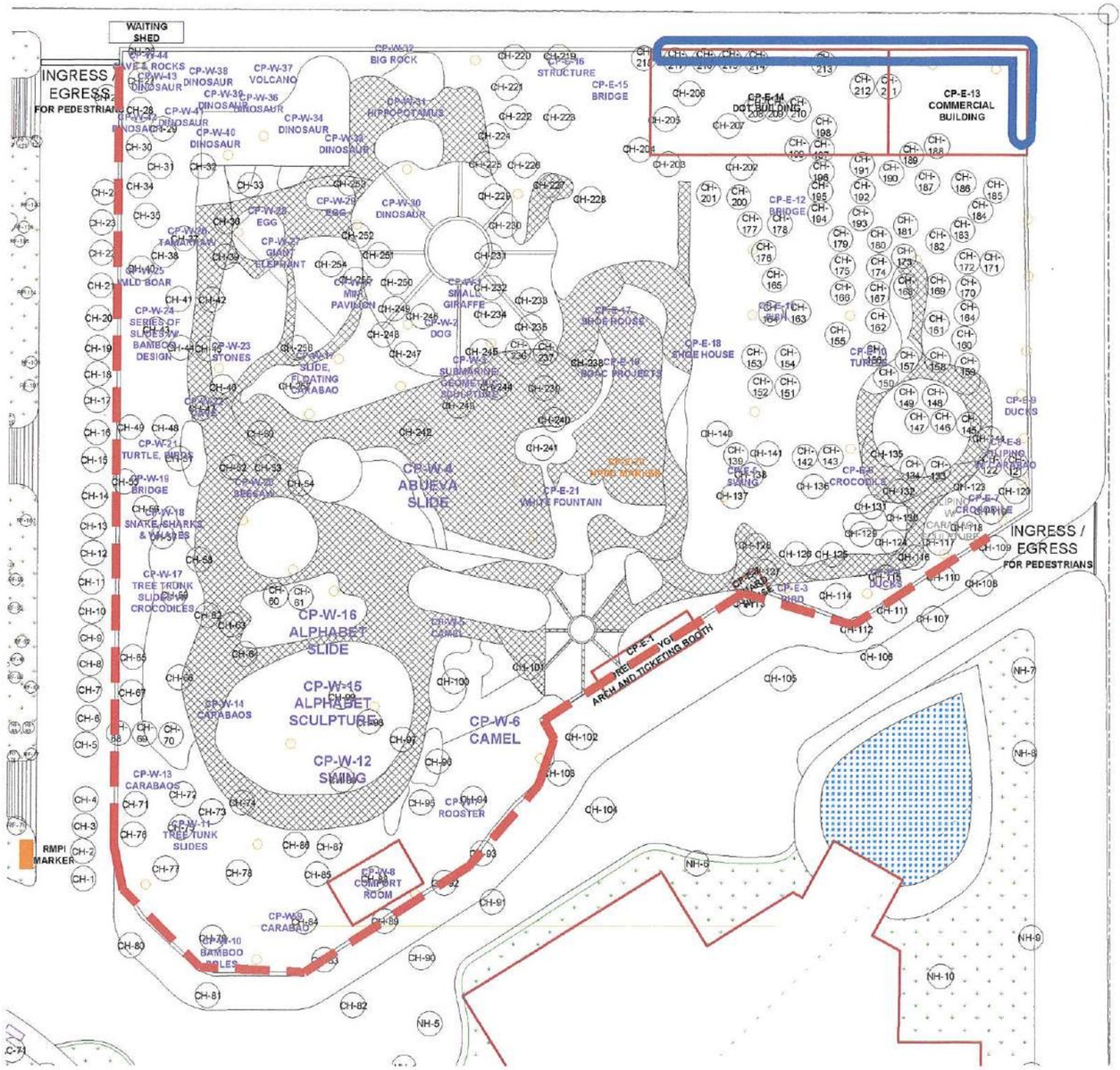
1	DISMANTLING AND HAULING OF IDENTIFIED CONCRETE FENCES.
2	DISMANTLING AND HAULING OF EXISTING LAMP POSTS AND FLOOD LIGHTS.
3	CLEARING AND HAULING OF EXISTING PUBLIC RESTROOMS AND PAVEMENT.
4	RELOCATION OF IDENTIFIED MARKER AND SCULPTURE.

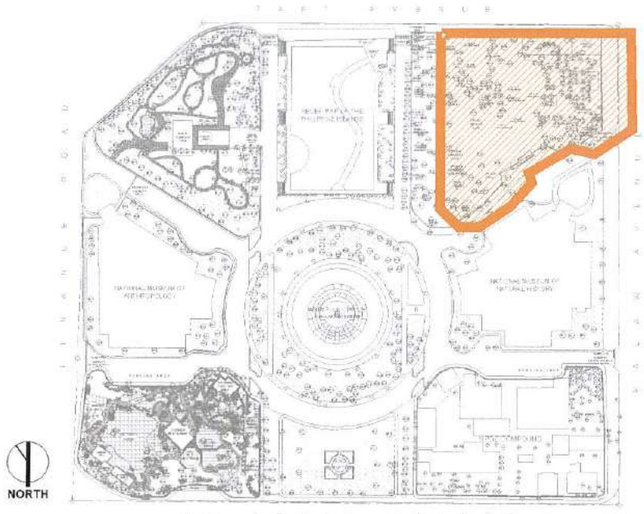
NATIONAL MUSEUM COMPLEX

1 / A-2 DISMANTLING AND HAULING PLAN

SCALE 1:800 MTS

PAMBANSANG MUSEO NG PILIPINAS NATIONAL MUSEUM OF THE PHILIPPINES	NATIONAL MUSEUM OF THE PHILIPPINES FACILITIES MANAGEMENT DIVISION P. BURGOS DRIVE, MANILA, 1000	PROJECT TITLE: DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA - PHASE 1 RIZAL PARK, ERMITA, MANILA	PREPARED BY: AR. ROLDAN T. LAUREL ARCHITECT II	REVIEWED AND CHECKED BY: AR. NELSON L. AQUINO ARCHITECT IV, OIC-FMD	RECOMMENDING APPROVAL: ATTY. MA. CECILIA U. TIROL DEPUTY DIRECTOR FOR ADMINISTRATION	APPROVED BY: JEREMY R. BARNS, CESO III DIRECTOR-GENERAL	REVISIONS: DRAWN BY: KMR CHECKED BY: DATE:	SHEET CONTENT: DISMANTLING AND HAULING PLAN AT BINHI NG KALAYAAN	SHEET NO. A-2
	DATE:	PROJECT NO:	LOCATION: CITY OF MANILA						





SCOPE OF WORK

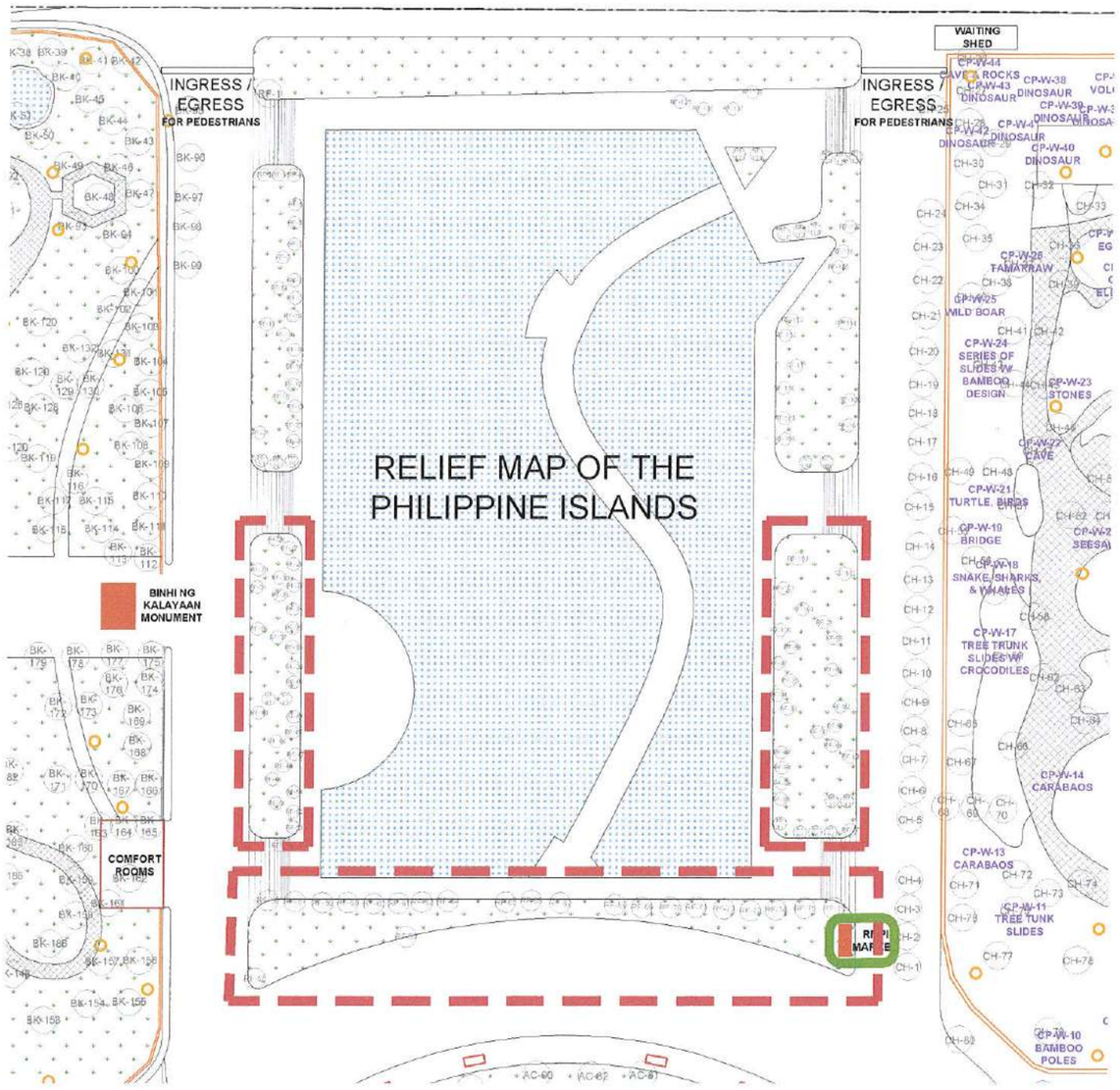
1	DISMANTLING AND HAULING OF IDENTIFIED CONCRETE FENCES.
2	DISMANTLING AND HAULING OF EXISTING SCULPTURES AND RIDES, AND PUBLIC RESTROOMS.
3	CLEARING AND HAULING OF EXISTING PAVEMENT, AND EXISTING STRUCTURES.
4	PROPOSED FENCE IN THE AREA OF DISMANTLED EXISTING BUILDINGS.

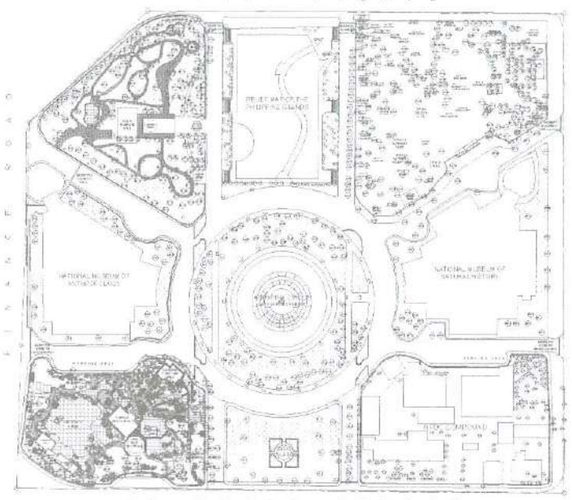
NATIONAL MUSEUM COMPLEX

1 / A-3 DISMANTLING AND HAULING PLAN

SCALE 1:800 MTS

PAMBANSANG MUSEO NG PILIPINAS NATIONAL MUSEUM OF THE PHILIPPINES	NATIONAL MUSEUM OF THE PHILIPPINES FACILITIES MANAGEMENT DIVISION P. BURGOS DRIVE, MANILA, 1000	PROJECT TITLE: DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA - PHASE 1 RIZAL PARK, ERMITA, MANILA	PREPARED BY: AR.ROLDAN T. LAUREL ARCHITECT II	REVIEWED AND CHECKED BY: AR. NELSON L. AQUINO ARCHITECT IV, OIC-FMD	RECOMMENDING APPROVAL: ATTY. MA. CECILIA U. TIROL DEPUTY DIRECTOR FOR ADMINISTRATION	APPROVED BY: JEREMY R. BARNS, CESO III DIRECTOR-GENERAL	REVISIONS: DRAWN BY: KMR CHECKED BY: DATE:	SHEET CONTENT: DISMANTLING AND HAULING PLAN AT CHILDREN'S PLAYGROUND	SHEET NO. A-3
	DATE: / PROJECT NO:	LOCATION: CITY OF MANILA							





SCOPE OF WORK

	1	DISMANTLING AND HAULING OF IDENTIFIED STEEL RAILINGS.
	2	RELOCATION OF IDENTIFIED MARKER AND SCULPTURE.

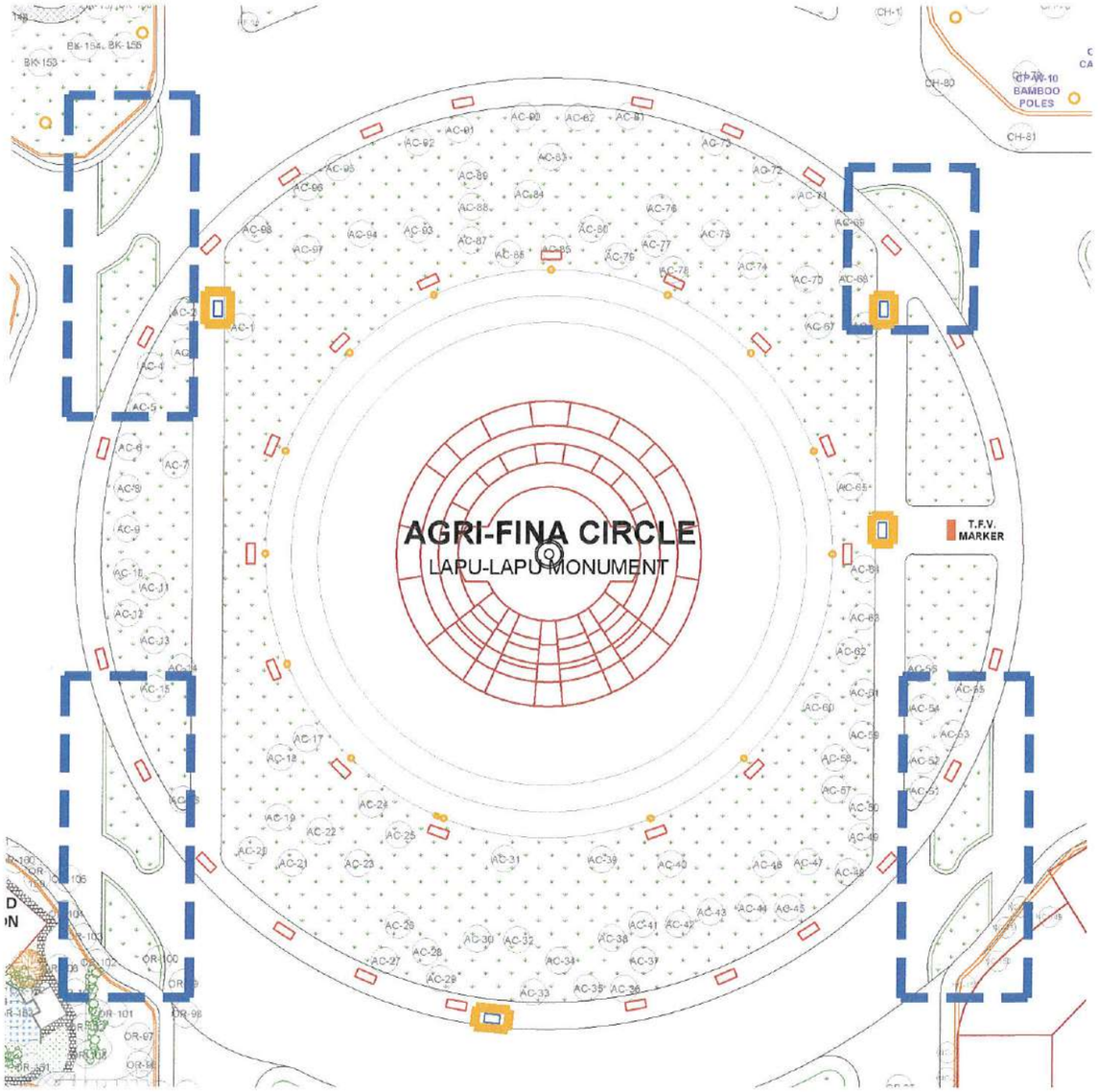
1 / A-4

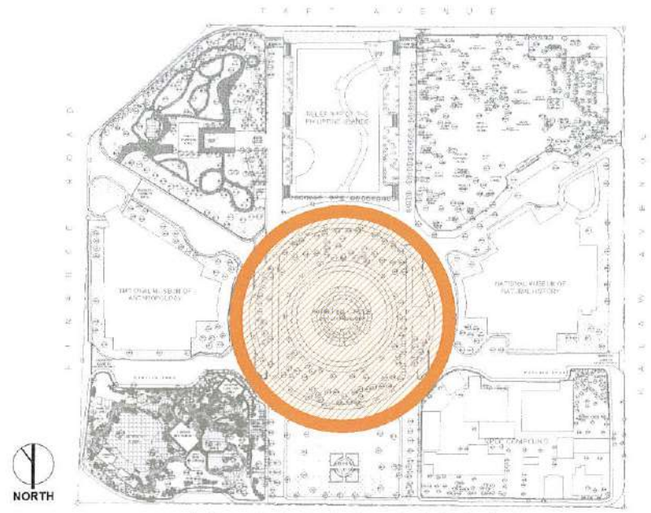
NATIONAL MUSEUM COMPLEX

DISMANTLING AND HAULING PLAN

SCALE 1:800 MTS

NATIONAL MUSEUM OF THE PHILIPPINES FACILITIES MANAGEMENT DIVISION P. BURGOS DRIVE, MANILA, 1000		PROJECT TITLE: DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA - PHASE 1 RIZAL PARK, ERMITA, MANILA	PREPARED BY: AR.ROLDAN G. LAUREL ARCHITECT II	REVIEWED AND CHECKED BY: AR.NELSON L. AQUINO ARCHITECT IV, OIC-FMD	RECOMMENDING APPROVAL: ATTY. MA. CECILIA U. TIROL DEPUTY DIRECTOR FOR ADMINISTRATION	APPROVED BY: JEREMY R. BARNS, CESO III DIRECTOR-GENERAL	REVISIONS:	SHEET CONTENT:	SHEET NO.
DATE:	PROJECT NO:	LOCATION: CITY OF MANILA					DRAWN BY: KMR CHECKED BY: DATE:	DISMANTLING AND HAULING PLAN AT RELIEF MAP OF THE PHILIPPINE ISLANDS	A-4





SCOPE OF WORK

	1	DISMANTLING AND HAULING OF EXISTING ISLANDS.
	2	CLEARING AND HAULING OF EXISTING CONCRETE BENCHES AND CONCRETE GARBAGE BINS.
	3	CLEARING AND HAULING OF EXISTING CONCRETE STEPS TO LAPU-LAPU MONUMENT.

1 / A-5

NATIONAL MUSEUM COMPLEX

DISMANTLING AND HAULING PLAN

SCALE 1:800 MTS

PAMBANSANG MUSEO NG PILIPINAS / NATIONAL MUSEUM OF THE PHILIPPINES	NATIONAL MUSEUM OF THE PHILIPPINES FACILITIES MANAGEMENT DIVISION P. BURGOS DRIVE, MANILA, 1003	PROJECT TITLE: DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA - PHASE 1 RIZAL PARK, ERMITA, MANILA	PREPARED BY: AR. ROLDAN T. LAUREL ARCHITECT II	REVIEWED AND CHECKED BY: AR. NELSON L. AQUINO ARCHITECT IV, OIC-FMD	RECOMMENDING APPROVAL: ATTY. MA. CECILIA U. TIROL DEPUTY DIRECTOR FOR ADMINISTRATION	APPROVED BY: JEREMY R. BARNS, CESO III DIRECTOR-GENERAL	REVISIONS: DRAWN BY: KMR CHECKED BY: DATE:	SHEET CONTENT: DISMANTLING AND HAULING PLAN OF AGRI-FINA CIRCLE	SHEET NO. A-5
	DATE:	PROJECT NO:	LOCATION: CITY OF MANILA						

Section VIII. Bill of Quantities

CONTRACTOR'S LOGO

Project: **DEVELOPMENT OF NATIONAL MUSEUM COMPLEX IN MANILA- PHASE 1(to implement Republic Act No. 11333)**
Location P. Burgos Street, Ermita, Manila
Duration 240 Calendar days

Project No.
Date Prepared:

DETAILED APPROVED BUDGET FOR THE CONTRACT

ITEM	DESCRIPTION	QUANTITY	UNIT	ESTIMATED DIRECT COST (EDC)					INDIRECT COST (IC)			TOTAL COST
				MATERIAL		LABOR		TOTAL EDC	OCMP	Sub-Total	VAT	(EDC+IC)
				Unit Cost	Total Cost	Unit Cost	Total Cost		20%			
I.	**GENERAL REQUIREMENTS**											
1	**Mobilization/ Demobilization**	**1.00**	**lot**									
2	**TEMFACIL (includes warehousing & utility consumption)**	**75.00**	**sq.m**									
	a) Temporary Facilities(Site office,Warehousing & Barracks)	**75.00**	**sq.m**									
	(Container van rental w/ interior finishings,)											
	b) Temporary Utilities	**240.00**	**cd**									
	water consumption	240.00	cd									
	electrical consumption	240.00	cd									
	communication consumption	240.00	cd									
3	**Site Safety and Housekeeping**	**240.00**	**cd**									
	a. Security Services	**240.00**	**cd**									
	b. Safety/Health/PPE											
	(including Safety harness,Hardhats,safety Shoes,etc.)											
	Safety Officer(1)	240.00	days									
	Caution Tape	3	pcs									
	Hardhat (Various color & sizes)	30	pcs									
	Hardhat White	8	pcs									
	Safety Signages	5	sets									
	Rubber Boots	30	pcs									
	Dark Glass	1	pcs									
	Maong Gloves	5	pcs									
	Leather Gloves	5	pcs									
	Welding Mask	2	pcs									
	Safety Harness	10	pcs									
	Safety Shoes (Various sizes)	30	pcs									
	Hardhat Strap	5	pcs									
	First Aid Kit	2	set									
	Heavy duty Folding Stretcher w/ wheels	1	set									
	First Aid Wall Cabinet	1	set									
	c. Covid 19 Precautionary Equipments											
	Health Protocol Officer(1)	240.00	days									
	Thermal Scanner/Infrared Thermommeter forehead	2	set									
	Portable Hand Sanitazer	1	set									
	refilling bottle(500ml)	1	set									
	70% isophropyl alcohol	35	gal									
	Disposable Surgical Mask	240	box									
	face shields	40	set									
	refilling spray bottle(500ml)	3	pcs									
	Disinfectant Door Mat w/ Tray	4	pcs									
	Signages	8	set									
	6mm thick Acrylic Sheet Clear	2	pcs									
	Consumables(Acrylic Adhesive,Aluminum Connectors,Tools)	1	lot									
4	**Project Signage (4' x8')**	**1.00**	**set**									
5	**Supply & installation of 2.40m high board-up(rental)-1,355 LM**	**240.00**	**cd**									

DETAILED APPROVED BUDGET FOR THE CONTRACT

ITEM	DESCRIPTION	QUANTITY	UNIT	ESTIMATED DIRECT COST (EDC)					INDIRECT COST (IC)			TOTAL COST
				MATERIAL		LABOR		TOTAL EDC	OCMP	Sub-Total	VAT	(EDC+IC)
				Unit Cost	Total Cost	Unit Cost	Total Cost		20%			
	Prepainted rib type corrogated sheet(.35mm thk.),2"x6m S40 dia. G.i. pipe,Swivel/fixed Clamp ,Consummables	240.00	cd									
6	**Permits/ licenses & tests**	**1.00**	**lot**									
	a. DENR permit for cutting & transfer of trees											
	b. Environmental Compliance Certificate (ECC)											
	c. Permit & clearances											
											Sub-Total I. GENERAL REQUIREMENTS	**-**
II.	**DISMANTLING,CLEARING & HAULING WORKS (SITE/ AREA PREPARATION)**											
1	**Dismantling,clearing and hauling of existing concrete benches & concrete garbage bins**	**60.00**	**pcs**									
2	**Dismantling,clearing and hauling of existing concrete steps (Lapu-Lapu)**	**1,966.27**	**cum**									
3	**Dismantling,clearing and hauling of existing public restrooms & existing structures (Binhi ng Kalayaan & Children's playground)**	**85.65**	**cum**									
	a) Restroom 1(Binhi ng Kalayaan)	16.42	cum									
	b) Restroom 2(Binhi ng Kalayaan)	17.09	cum									
	d) Restroom 3(Children playground)	19.15	cum									
	e) Rest room 4(Children playground)	32.99	cum									
	f) Commercial stall/structures(old wendys)	216.57	cum									
4	**Dismantling,clearing and hauling of identified steel railings & posts**	**759.00**	**ln.m**									
5	**Dismantling,clearing and hauling of identified concrete fences (Binhi ng Kalayaan & Children's playground)**	**919.01**	**ln.m**									
6	**Dismantling,clearing and hauling of existing lamp posts & flood lights**	**135.00**	**sets**									
7	**Relocation and realignment to proposed radial road of existing lamp post**	**48.00**	**sets**									
	With minor elctrical wiring replacements,conduits replacement, n etc)											
	excavation	6.91	cum									
	backfill w/ compaction	2.07	cum									
	Concreting of rubble pedestal & footing	6.91	cum									
8	**Removal,clearing & hauling of existing islands & concrete planter boxes**	**147.53**	**cum**									
9	**Removal,clearing & hauling of affected existing concrete road as reflected on plan**	**2,781.64**	**cum**									
10	**Removal,clearing & hauling of affected existing sidewalks**	**720.88**	**cum**									
11	**Removal and hauling of identified concrete children's playground pavements**	**1,955.20**	**cum**									
12	**Dismantling,clearing and hauling of identified concrete children's playground elements/ features (including entrance arch)**	**182.82**	**cum**									
	a) Sculpture 1(Children playground)-Small scale	3.60	cum									
	b) Sculpture 2(Children playground)-Medium scale	11.52	cum									
	c) Sculpture 3(Children playground)- Large scale	28.50	cum									
	d) Sculpture 4(Children playground)-Extra Large scale	139.20	cum									
13	**Relocation of identified concrete marker & sculpture**	**2.00**	**sets**									
14	**Dismantling,clearing and hauling of concrete pavements at Binhi ng Kalayaan**	**428.80**	**cum**									
15	**Rental of Equipments(For dismantling &earthballing, cutting of trees)**											
###	unit Dump truck (3.5 cu.m)	179	days									
1	Back hoe w/ breaker & bucket	1,525	hrs									
1	payloader 1.5cum	559	hrs									
1	Portable Jackhummer(big)	120.00	hrs									
1	mobile crane	156.00	hrs									
2	Chainsaw	248.00	hrs									
	Consummables(Fuel & Lubricants)	1.00	lot									
16	**Drainage for Proposed Road Network**											
	a)excavation,backfill &compaction works	316.27	cum									
	b) 1220 Dia RCP	166.00	m									
	c) 910 Dia RCP	126.00	m									
	d) Area Drain with Concre cover 1mx1m1.2mH	12.00	set									
											Sub-Total II. CLEARING & DISMANTLING WORKS	**-**
III.	**RESTORATION AND LANDSCAPING WORKS**											
	SITE DEVELOPMENT											
1	**Earth balling of Trees(along the proposed roads)**	**19**	**units**									
2	**Cutting of Trees(along the proposed roads)**	**132**	**units**									
	a. cutting saw blade set	62.00	set									

DETAILED APPROVED BUDGET FOR THE CONTRACT

ITEM	DESCRIPTION	QUANTITY	UNIT	ESTIMATED DIRECT COST (EDC)					INDIRECT COST (IC)			TOTAL COST
				MATERIAL		LABOR		TOTAL EDC	OCMP	Sub-Total	VAT	(EDC+IC)
				Unit Cost	Total Cost	Unit Cost	Total Cost		20%			
	b.consummables(Fuel& lubricants)	1.00	lot									
3	**Paving of proposed road network (Roads 1-4 as reflected on plan)**	**3,208.50**	**sq.m**									
		320.85	**cum**									
	b.Non-skid paving blocks (verify colour & pattern)	3,208.50	sq.m									
	c. Cement (for border and setting bed)	2,245.95	bags									
	d. Sand (for border & setting bed)	16.04	cu.m									
	e. Gravel (for border and setting bed)	320.85	cu.m									
	f. Compacted aggregates	320.85	cu.m									
4	**Reusing of Perimeter Fence for the corner of Taft & Kalaw-refer to plan**	**80.00**	**lnm**									
	a. Excavation, hauling & compaction works	578.92	cu.m									
	b. concreting of Footing	6.74	cum									
	c. Concreting of columns	7.94	cum									
	d. Masonry(4" CHB,Mortar)	64.00	sqm									
	e. 12mm dia rebar	189.00	pcs									
	f. 10mm dia rebar	108.00	pcs									
	g. no.16 GI tie wire	2.00	kg									
	f. Realignment & refurbishing of existing Steel Fence	80.00	lm									
	f. Consummables(Welding rods,painting works,	1.00	lot									
								Sub-Total III. RESTORATION AND LANDSCAPING WORKS				-
											TOTAL PROJECT COST (Php)	-

SUMMARY OF APPROVED BUDGET FOR THE CONTRACT

ITEM	DESCRIPTION	QUANTITY	UNIT	ESTIMATED DIRECT COST (EDC)					INDIRECT COST (IC)			TOTAL COST
				MATERIAL		LABOR		TOTAL EDC	OCMP	Sub-Total	VAT	(EDC+IC)
				Unit Cost	Total Cost	Unit Cost	Total Cost		20%		5%	
I.	**GENERAL REQUIREMENTS**	1.00	lot									
II.	**CLEARING & DISMANTLING WORKS (Site/ Area Preparation)**	1.00	lot									
III.	**RESTORATION & LANDSCAPING WORKS**	1.00	lot									
	SITE DEVELOPMENT WORKS	1.00	lot									
											TOTAL PROJECT COST (Php)	-

Section IX. 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);
and

☐ 2. 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

☐ 3. 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

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

Technical Documents

☐ 5. 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**

☐ 6. 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**

☐ 7. 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**

☐ 8. 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:

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

☐ 10. 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

☐ 11. 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**

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

Financial Documents

☐ 13. 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**

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

Class "B" Documents

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

II. FINANCIAL COMPONENT ENVELOPE

☐ 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 compact disc.

ANNEX "A"

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**.

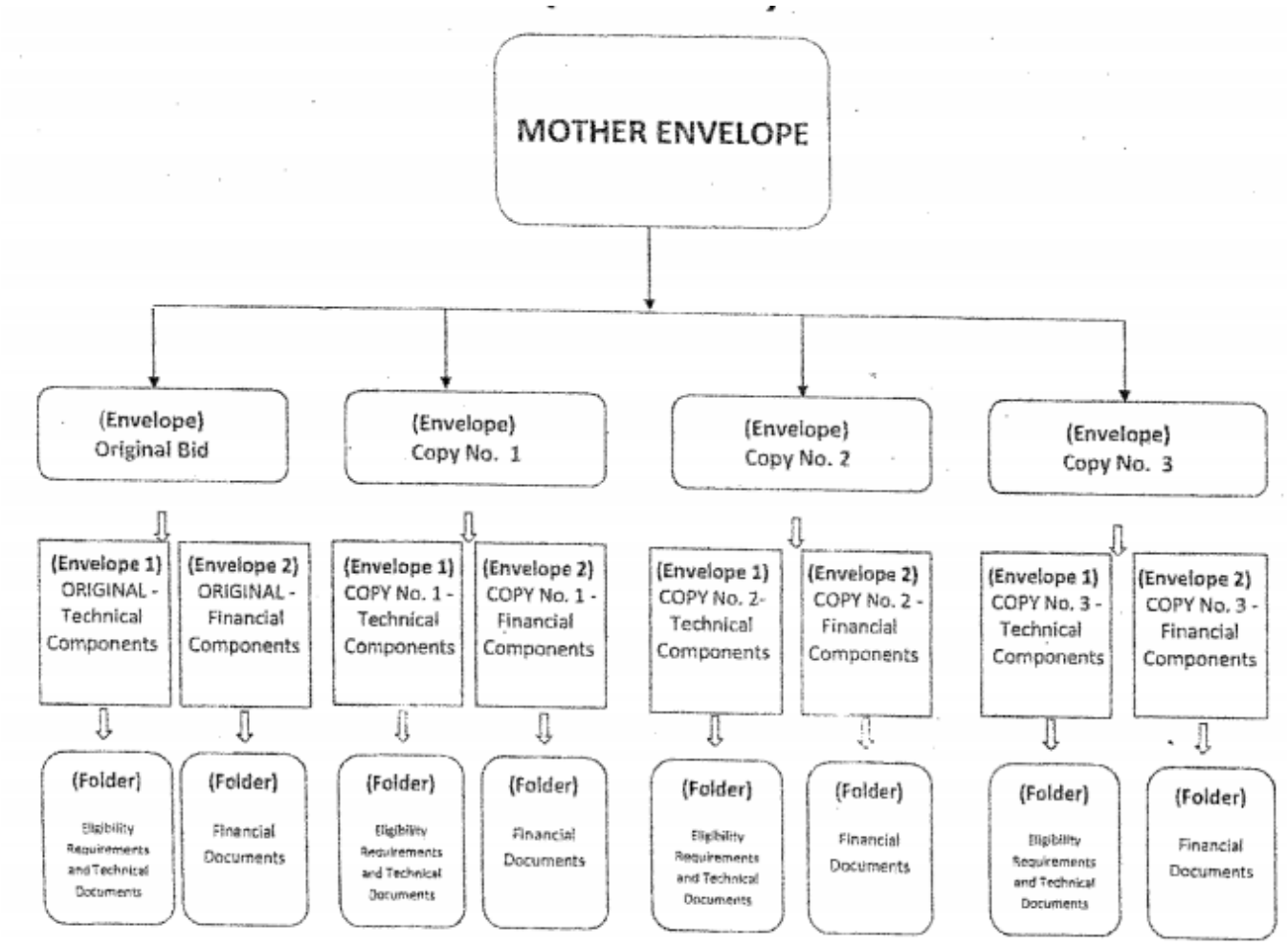
4. All documents must be marked with **Ear tabs**. There must be a Table of Contents indicating all the documents to be submitted per folder.

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 Name and Signature]*
[Insert Signatory's Legal Capacity]	*[Insert Signatory's Legal Capacity]*
	for:
for:	*[Insert Name of Supplier]*
[Insert Procuring Entity]	

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