

# **PHILIPPINE BIDDING DOCUMENTS**

## **COMMUNAL WATER SYSTEM FOR AETA COMMUNITY IN IRAM, Brgy. New Cabalan Olongapo City**

Government of the Republic of the Philippines

**March 2015**

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# ***Section I. Invitation to Bid***

**Republic of the Philippines  
City of Olongapo  
BIDS AND AWARDS COMMITTEE  
General Services Office, 2/F City Hall Complex  
Web: [www.olongapocity.gov.ph](http://www.olongapocity.gov.ph)**

## **INVITATION TO BID**

1. The City Government of Olongapo, through the local fund 2015 intends to apply the sum of **Eight Hundred Thirty Five Thousand Four Hundred Sixty Four Pesos and Sixty Three Centavos (P835,464.63)** being the Approved Budget for the Contract (ABC) to payments under the contract for **OC-14(CEO-03) 15 CW**. Bids received in excess of the ABC shall be automatically rejected at bid opening.
2. The City Government of Olongapo now invites bids for **Proposed Communal Water System for Aeta in Iram, Barangay New Cabalan**. Completion of the Works is required Contract Duration: 60 CD. Bidders should have completed, within ten (10) years from the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II. Instructions to Bidders.
3. Bidding will be conducted through open competitive bidding procedures using non-discretionary pass/fail criterion as specified in the Implementing Rules and Regulations (IRR) of Republic Act 9184 (RA 9184), otherwise known as the “Government Procurement Reform Act”.

Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least seventy five percent (75%) interest or outstanding capital stock belonging to citizens of the Philippines.

4. Interested bidders may obtain further information from City Government of Olongapo and inspect the Bidding Documents at the address given below from 8am to 5pm.
5. A complete set of Bidding Documents may be purchased by interested Bidders from the address below and upon payment of a nonrefundable fee for the Bidding Documents in the amount of **One Thousand Pesos Only (P1,000.00)** .

*It may also be downloaded* free of charge from the website of the Philippine Government Electronic Procurement System (PhilGEPS) and the website of the Procuring Entity, provided that bidders shall pay the fee for the Bidding Documents not later that the submission of their bids.

6. The City Government of Olongapo will post this project on **February 27, 2015** at 2<sup>nd</sup> Floor General Services Office Olongapo City Hall, which shall be open only to all interested parties who have purchased the Bidding Documents.

7. Bids must be delivered to the address below on or before **March 06, 2015 2 pm at General Services Office Olongapo City Hall**. All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 18.

Bids will be opened in the presence of the bidders' representatives who choose to attend at the address below. Late bids shall not be accepted.

8. The City Government of Olongapo reserves the right to accept or reject any bid, to annul the bidding process, and to reject all bids at any time prior to contract award, without thereby incurring any liability to the affected bidder or bidders.

**JOSEPH PEPE D. PADILLA**  
Head, BAC Secretariat

Noted By:

**ATTY. ANNA MARIN F. SISON**  
BAC Chairman

## ***Section II. Instructions to Bidders***

### **Notes on the Instructions to Bidders**

This Section of the Bidding Documents provides the information necessary for bidders to prepare responsive Bids, in accordance with the requirements of the Procuring Entity. It also provides information on the eligibility check, Bid submission, opening, and evaluation, and on the award of contract.

This Section contains provisions that are to be used unchanged. Section III. Bid Data Sheet consists of provisions that supplement, amend, or specify in detail information or requirements included in this Section and which are specific to each procurement.

Matters governing the performance of the Contractor, payments under the contract, or matters affecting the risks, rights, and obligations of the parties under the contract are not normally included in this section, but rather under Section IV. General Conditions of Contract (GCC), and/or Section V. Special Conditions of Contract (SCC). If duplication of a subject is inevitable in the other sections of the document prepared by the Procuring Entity, care must be exercised to avoid contradictions between clauses dealing with the same matter.

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## **A. General**

### **1. Scope of Bid**

- 1.1. The Procuring Entity as defined in the **BDS**, invites bids for the construction of Works, as described in Section VI. Specifications. The name and identification number of the Contract is provided in the **BDS**.
- 1.2. The successful bidder will be expected to complete the Works by the intended completion date specified in SCC Clause 1.16.

### **2. Source of Funds**

The Procuring Entity has a budget or has applied for or received funds from the Funding Source named in the **BDS**, and in the amount indicated in the **BDS**. It intends to apply part of the funds received for the Project, as defined in the **BDS**, to cover eligible payments under the Contract for the Works.

### **3. Corrupt, Fraudulent, Collusive, and Coercive Practices**

- 3.1. Unless otherwise specified in the BDS, the Procuring Entity, as well as bidders and contractors, shall observe the highest standard of ethics during the procurement and execution of the contract. In pursuance of this policy, the Funding Source:
  - (a) defines, for purposes of this provision, the terms set forth below as follows:
    - (i) "corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves, others, or induce others to do so, by misusing the position in which they are placed, and includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; entering, on behalf of the Procuring Entity, into any contract or transaction manifestly and grossly disadvantageous to the same, whether or not the public officer profited or will profit thereby, and similar acts as provided in Republic Act 3019;
    - (ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Procuring Entity, and includes collusive practices among Bidders (prior to or after Bid submission) designed to establish bid prices at artificial, non-competitive levels and to deprive the Procuring Entity of the benefits of free and open competition;
    - (iii) "collusive practices" means a scheme or arrangement between two or more bidders, with or without the knowledge of the



Procuring Entity, designed to establish bid prices at artificial, non-competitive levels; and

- (iv) “coercive practices” means harming or threatening to harm, directly or indirectly, persons, or their property to influence their participation in a procurement process, or affect the execution of a contract;
  - (v) “obstructive practice” is
    - (aa) deliberately destroying, falsifying, altering or concealing of evidence material to an administrative proceedings or investigation or making false statements to investigators in order to materially impede an administrative proceedings or investigation of the Procuring Entity or any foreign government/foreign or international financing institution into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the administrative proceedings or investigation or from pursuing such proceedings or investigation; or
    - (bb) acts intended to materially impede the exercise of the inspection and audit rights of the Procuring Entity or any foreign government/foreign or international financing institution herein.
  - (b) will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the Contract; and
  - (c) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded Contract funded by the Funding Source if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing or, or in executing, a Contract funded by the Funding Source.
- 3.2. Further, the Procuring Entity will seek to impose the maximum civil, administrative, and/or criminal penalties available under the applicable laws on individuals and organizations deemed to be involved in any of the practices mentioned in **ITB** Clause 3.1(a).
- 3.3. Furthermore, the Funding Source and the Procuring Entity reserve the right to inspect and audit records and accounts of a contractor in the bidding for and performance of a contract themselves or through independent auditors as reflected in the **GCC** Clause 34.

#### **4. Conflict of Interest**

4.1. All bidders found to have conflicting interests shall be disqualified to participate in the procurement at hand, without prejudice to the imposition of appropriate administrative, civil, and criminal sanctions. A Bidder may be considered to have conflicting interests with another Bidder in any of the events described in paragraphs (a) through (c) and a general conflict of interest in any of the circumstances set out in paragraphs (d) through (g) below:

- (a) A Bidder has controlling shareholders in common with another Bidder;
- (b) A Bidder receives or has received any direct or indirect subsidy from any other Bidder;
- (c) A Bidder has the same legal representative as that of another Bidder for purposes of this Bid;
- (d) A Bidder has a relationship, directly or through third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder or influence the decisions of the Procuring Entity regarding this bidding process. This will include a firm or an organization who lends, or temporarily seconds, its personnel to firms or organizations which are engaged in consulting services for the preparation related to procurement for or implementation of the project if the personnel would be involved in any capacity on the same project;
- (e) A Bidder submits more than one bid in this bidding process. However, this does not limit the participation of subcontractors in more than one bid;
- (f) A Bidder who participated as a consultant in the preparation of the design or technical specifications of the goods and related services that are the subject of the bid; or
- (g) A Bidder who lends, or temporary seconds, its personnel to firms or organizations which are engaged in consulting services for the preparation related to procurement for or implementation of the project, if the personnel would be involved in any capacity on the same project.

4.2. In accordance with Section 47 of the IRR of RA 9184, all Bidding Documents shall be accompanied by a sworn affidavit of the Bidder that it is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), members of the Technical Working Group (TWG), members of the BAC Secretariat, the head of the Project Management Office (PMO) or the end-user unit, and the project consultants, by consanguinity or affinity up to the third civil degree. On the part of the bidder, this Clause shall apply to the following persons:

- (a) If the Bidder is an individual or a sole proprietorship, to the Bidder himself;

- (b) If the Bidder is a partnership, to all its officers and members;
- (c) If the Bidder is a corporation, to all its officers, directors, and controlling stockholders; and
- (d) If the Bidder is a joint venture (JV), the provisions of items (a), (b), or (c) of this Clause shall correspondingly apply to each of the members of the said JV, as may be appropriate.

Relationship of the nature described above or failure to comply with this Clause will result in the automatic disqualification of a Bidder.

## **5. Eligible Bidders**

5.1. Unless otherwise indicated in the BDS, the following persons shall be eligible to participate in this Bidding:

- (a) Duly licensed Filipino citizens/sole proprietorships;
- (b) Partnerships duly organized under the laws of the Philippines and of which at least seventy five percent (75%) of the interest belongs to citizens of the Philippines;
- (c) Corporations duly organized under the laws of the Philippines, and of which at least seventy five percent (75%) of the outstanding capital stock belongs to citizens of the Philippines;
- (d) Cooperatives duly organized under the laws of the Philippines, and of which at least seventy five percent (75%) of the interest belongs to citizens of the Philippines; and
- (e) Persons/entities forming themselves into a JV, i.e., a group of two (2) or more persons/entities that intend to be jointly and severally responsible or liable for a particular contract: Provided, however, that, in accordance with Letter of Instructions No. 630, Filipino ownership or interest of the joint venture concerned shall be at least seventy five percent (75%): Provided, further, that joint ventures in which Filipino ownership or interest is less than seventy five percent (75%) may be eligible where the structures to be built require the application of techniques and/or technologies which are not adequately possessed by a person/entity meeting the seventy five percent (75%) Filipino ownership requirement: Provided, finally, that in the latter case, Filipino ownership or interest shall not be less than twenty five percent (25%). For this purpose Filipino ownership or interest shall be based on the contributions of each of the members of the joint venture as specified in their JVA.

5.2. The Procuring Entity may also invite foreign bidders when provided for under any Treaty or International or Executive Agreement as specified in the **BDS**.

- 5.3. Government Corporate Entities may be eligible to participate only if they can establish that they (a) are legally and financially autonomous, (b) operate under commercial law, and (c) are not dependent agencies of the GOP or the Procuring Entity.
- 5.4. (a) Unless otherwise provided in the **BDS**, the Bidder must have completed, within ten (10) years from the submission of bids, a single contract that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC adjusted to current prices using the National Statistics Office consumer price index.
- (b) 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 **BDS**.

For this purpose, contracts similar to the Project shall be those described in the **BDS**, and completed within the period stated in the Invitation to Bid and **ITB** Clause 12.1(a)(iii).

- 5.5. The Bidder must submit a computation of its Net Financial Contracting Capacity (NFCC) or a Commitment from a Universal or Commercial bank to extend a credit line in its favor if awarded the contract for this project (CLC).

The NFCC, computed using the following formula, must be at least equal to the ABC to be bid:

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

Where:

K = 10 for a contract duration of one year or less, 15 for a contract duration of more than one year up to two years, and 20 for a contract duration of more than two years.

The CLC must be at least equal to ten percent (10%) of the ABC for this Project. If issued by a foreign bank, it shall be confirmed or authenticated by a Universal or Commercial Bank. In the case of local government units (LGUs), the Bidder may also submit CLC from other banks certified by the *Bangko Sentral ng Pilipinas* (BSP) as authorized to issue such financial instrument.

## 6. Bidder's Responsibilities

- 6.1. The Bidder or its duly authorized representative shall submit a sworn statement in the form prescribed in Section IX. Bidding Forms as required in **ITB** Clause 12.1(b)(iii).
- 6.2. The Bidder is responsible for the following:

- (a) Having taken steps to carefully examine all of the Bidding Documents;
- (b) Having acknowledged all conditions, local or otherwise, affecting the implementation of the contract;
- (c) Having made an estimate of the facilities available and needed for the contract to be bid, if any;
- (d) Having complied with its responsibility to inquire or secure Supplemental/Bid Bulletin/s as provided under **ITB** Clause 10.3.
- (e) Ensuring that it is not “blacklisted” or barred from bidding by the GOP or any of its agencies, offices, corporations, or LGUs, including foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the GPPB;
- (f) Ensuring that 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;
- (g) Authorizing the Head of the Procuring Entity or its duly authorized representative/s to verify all the documents submitted;
- (h) Ensuring that the signatory is the duly authorized representative of the Bidder, and granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the Bidder in the bidding, with the duly notarized Secretary’s Certificate attesting to such fact, if the Bidder is a corporation, partnership, cooperative, or joint venture;
- (i) Complying with the disclosure provision under Section 47 of the Act in relation to other provisions of Republic Act 3019; and
- (j) Complying with existing labor laws and standards, if applicable.

Failure to observe any of the above responsibilities shall be at the risk of the Bidder concerned.

- 6.3. The Bidder, by the act of submitting its bid, shall be deemed to have inspected the site, determined the general characteristics of the contract works and the conditions for this Project and examine all instructions, forms, terms, and project requirements in the Bidding Documents.
- 6.4. It shall be the sole responsibility of the prospective bidder to determine and to satisfy itself by such means as it considers necessary or desirable as to all matters pertaining to this Project, including: (a) the location and the nature of the contract, project, or 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.

- 6.5. The Procuring Entity shall not assume any responsibility regarding erroneous interpretations or conclusions by the prospective or eligible bidder out of the data furnished by the procuring entity.
- 6.6. Before submitting their bids, the Bidders are deemed to have become familiar with all existing laws, decrees, ordinances, acts and regulations of the Philippines which may affect the contract in any way.
- 6.7. The Bidder shall bear all costs associated with the preparation and submission of his bid, and the Procuring Entity will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
- 6.8. Bidders should note that the Procuring Entity will only accept bids only from those that have paid the nonrefundable fee for the Bidding Documents at the office indicated in the Invitation to Bid.

## **7. Origin of GOODS and Services**

There is no restriction on the origin of Goods, or Contracting of Works or Services other than those prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations.

## **8. Subcontracts**

- 8.1. Unless otherwise specified in the **BDS**, the Bidder may subcontract portions of the Works to an extent as may be approved by the Procuring Entity and stated in the **BDS**. However, subcontracting of any portion shall not relieve the Bidder from any liability or obligation that may arise from the contract for this Project.
- 8.2. Subcontractors must submit the documentary requirements under **ITB** Clause 12 and comply with the eligibility criteria specified in the **BDS**. In the event that any subcontractor is found by the Procuring Entity to be ineligible, the subcontracting of such portion of the Works shall be disallowed.
- 8.3. The Bidder may identify the subcontractor to whom a portion of the Works will be subcontracted at any stage of the bidding process or during contract implementation. If the Bidder opts to disclose the name of the subcontractor during bid submission, the Bidder shall include the required documents as part of the technical component of its bid.

## **B. Contents of Bidding Documents**

## **9. Pre-Bid Conference**

- 9.1. (a) If so specified in the **BDS**, a pre-bid conference shall be held at the venue and on the date indicated therein, to clarify and address the Bidders' questions on the technical and financial components of this Project.

*(b) The pre-bid conference shall be held at least twelve (12) calendar days before the deadline for the submission of and receipt of bids. If the Procuring Entity determines that, by reason of the method, nature, or complexity of the contract to be bid, or when international participation will be more advantageous to the GOP, a longer period for the preparation of bids is necessary, the pre-bid conference shall be held at least thirty (30) calendar days before the deadline for the submission and receipt of bids, as specified in the **BDS**.*

- 9.2. Bidders are encouraged to attend the pre-bid conference to ensure that they fully understand the Procuring Entity's requirements. Non-attendance of the Bidder will in no way prejudice its bid; however, the Bidder is expected to know the changes and/or amendments to the Bidding Documents as recorded in the minutes of the pre-bid conference and the Supplemental/Bid Bulletin.
- 9.3. Any statement made at the pre-bid conference shall not modify the terms of the bidding documents unless such statement is specifically identified in writing as an amendment thereto and issued as a Supplemental/Bid Bulletin.

## **10. Clarification and Amendment of Bidding Documents**

- 10.1. Bidders who have purchased the Bidding Documents may request for clarification(s) on any part of the Bidding Documents or for an interpretation. Such a request must be in writing and submitted to the Procuring Entity at the address indicated in the **BDS** at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.
- 10.2. Supplemental/Bid Bulletins may be issued upon the Procuring Entity's initiative for purposes of clarifying or modifying any provision of the Bidding Documents not later than seven (7) calendar days before the deadline for the submission and receipt of Bids. Any modification to the Bidding Documents shall be identified as an amendment.
- 10.3. Any Supplemental/Bid Bulletin issued by the BAC shall also be posted on the Philippine Government Electronic Procurement System (PhilGEPS) and the website of the Procuring Entity concerned, if available. Unless, otherwise provided in the **BDS**, it shall be the responsibility of all Bidders who secure the Bidding Documents to inquire and secure Supplemental/Bid Bulletins that may be issued by the BAC. However, bidders who have submitted bids before the issuance of the Supplemental/Bid Bulletin must be informed and allowed to modify or withdraw their bids in accordance with **ITB** Clause 23.

### **C. Preparation of Bids**

## **11. Language of Bids**

The Bid, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Procuring Entity, shall be written in English. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation in English certified by the

appropriate embassy or consulate in the Philippines, in which case the English translation shall govern, for purposes of interpretation of the Bid.

## **12. Documents Comprising the Bid: Eligibility and Technical Components**

12.1. Unless otherwise indicated in the **BDS**, the first envelope shall contain the following eligibility and technical documents:

(a) Eligibility Documents –

### Class "A" Documents:

- (i) Registration certificate from the Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives, or any proof of such registration as stated in the **BDS**;
- (ii) Mayor's permit issued by the city or municipality where the principal place of business of the prospective bidder is located;
- (iii) Statement of all its ongoing and completed government and private contracts within ten (10) years from the submission of bids, including contracts awarded but not yet started, if any. The statement shall include, for each contract, the following:
  - (iii.1) name of the contract;
  - (iii.2) date of the contract;
  - (iii.3) contract duration;
  - (iii.4) owner's name and address;
  - (iii.5) nature of work;
  - (iii.6) contractor's role (whether sole contractor, subcontractor, or partner in a JV) and percentage of participation;
  - (iii.7) total contract value at award;
  - (iii.8) date of completion or estimated completion time;
  - (iii.9) total contract value at completion, if applicable;
  - (iii.10) percentages of planned and actual accomplishments, if applicable;
  - (iii.11) value of outstanding works, if applicable;



- (iii.12) the statement shall be supported by the notices of award and/or notices to proceed issued by the owners; and
- (iii.13) the statement shall be supported by the Constructors Performance Evaluation System (CPES) rating sheets, and/or certificates of completion and owner's acceptance, if applicable;
- (iv) Unless otherwise provided in the **BDS**, valid Philippine Contractors Accreditation Board (PCAB) license and registration for the type and cost of the contract for this Project;
- (v) Audited financial statements, showing, among others, the prospective 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;
- (vi) NFCC computation or CLC in accordance with ITB Clause 5.5; and

Class "B" Document:

- (vii) If applicable, valid Joint Venture Agreement (JVA) or, in lieu thereof, 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 shall be included in the bid.
- (b) Technical Documents –
- (i) Bid security as prescribed in **ITB** Clause 18. If the Bidder opts to submit the bid security in the form of:
    - (i.1) a bank draft/guarantee or an irrevocable letter of credit issued by a foreign bank, it shall be accompanied by a confirmation from a Universal or Commercial Bank; or
    - (i.2) a surety bond accompanied by a certification coming from an authorized Insurance Commission that a surety or insurance company is authorized to issue such instrument;
  - (ii) Project Requirements, which shall include the following:
    - (ii.1) Organizational chart for the contract to be bid;
    - (ii.2) List of contractor's personnel (*viz*, 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

- (ii.3) List of contractor's equipment units, which are owned, leased, and/or under purchase agreements, supported by certification of availability of equipment from the equipment lessor/vendor for the duration of the project; and
- (iii) Sworn statement in accordance with Section 25.2(b)(iv) of the IRR of RA 9184 and using the form prescribed in Section IX. Bidding Forms.

### **13. Documents Comprising the Bid: Financial Component**

13.1. Unless otherwise stated in the **BDS**, the financial component of the bid shall contain the following:

- (a) Financial Bid Form in accordance with the form prescribed in Section IX. Bidding Forms; and
- (b) Any other document related to the financial component of the bid as stated in the **BDS**.

13.2. (a) Unless indicated in the **BDS**, all Bids that exceed the ABC shall not be accepted.

(b) Unless otherwise indicated in the **BDS**, for foreign-funded procurement, a ceiling may be applied to bid prices provided the following conditions are met:

- (i) Bidding Documents are obtainable free of charge on a freely accessible website. If payment of Bidding Documents is required by the procuring entity, payment could be made upon the submission of bids.
- (ii) The procuring entity has procedures in place to ensure that the ABC is based on recent estimates made by the engineer or the responsible unit of the procuring entity and that the estimates are based on adequate detailed engineering (in the case of works) and reflect the quality, supervision and risk and inflationary factors, as well as prevailing market prices, associated with the types of works or goods to be procured.
- (iii) The procuring entity has trained cost estimators on estimating prices and analyzing bid variances. In the case of infrastructure projects, the procuring entity must also have trained quantity surveyors.
- (iv) The procuring entity has established a system to monitor and report bid prices relative to ABC and engineer's/procuring entity's estimate.

- (v) The procuring entity has established a monitoring and evaluation system for contract implementation to provide a feedback on actual total costs of goods and works.

## **14. Alternative Bids**

- 14.1. Alternative Bids shall be rejected. For this purpose, alternative bid is an offer made by a Bidder in addition or as a substitute to its original bid which may be included as part of its original bid or submitted separately therewith for purposes of bidding. A bid with options is considered an alternative bid regardless of whether said bid proposal is contained in a single envelope or submitted in two (2) or more separate bid envelopes.
- 14.2. 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.
- 14.3. Each Bidder shall submit only one Bid, either individually or as a partner in a JV. A Bidder who submits or participates in more than one bid (other than as a subcontractor if a subcontractor is permitted to participate in more than one bid) will cause all the proposals with the Bidder's participation to be disqualified. This shall be without prejudice to any applicable criminal, civil and administrative penalties that may be imposed upon the persons and entities concerned.

## **15. Bid Prices**

- 15.1. The contract shall be for the whole Works, as described in **ITB** Clause 1.1, based on the priced Bill of Quantities submitted by the Bidder.
- 15.2. The Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Bids not addressing or providing all of the required items in the Bidding Documents including, where applicable, bill of quantities, shall be considered non-responsive and, thus, automatically disqualified. In this regard, where a required item is provided, but no price is indicated, the same shall be considered as non-responsive, but specifying a "0" (zero) for the said item would mean that it is being offered for free to the Government.
- 15.3. All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, prior to the deadline for submission of bids, shall be included in the rates, prices, and total bid price submitted by the Bidder.
- 15.4. All bid prices for the given scope of work in the contract as awarded shall be considered as fixed prices, and therefore not subject to price escalation during contract implementation, except under extraordinary circumstances as specified in GCC Clause 48. Price escalation may be allowed in extraordinary circumstances as may be determined by the National Economic and Development Authority in accordance with the Civil Code of the Philippines, and upon the recommendation of the Procuring Entity. Furthermore, in cases

where the cost of the awarded contract is affected by any applicable new laws, ordinances, regulations, or other acts of the GOP, promulgated after the date of bid opening, a contract price adjustment shall be made or appropriate relief shall be applied on a no loss-no gain basis.

**16. Bid Currencies**

- 16.1. All bid prices shall be quoted in Philippine Pesos unless otherwise provided in the **BDS**. However, for purposes of bid evaluation, bids denominated in foreign currencies shall be converted to Philippine currency based on the exchange rate prevailing on the day of the Bid opening.
- 16.2. If so allowed in accordance with **ITB** Clause 16.1, the Procuring Entity for purposes of bid evaluation and comparing the bid prices will convert the amounts in various currencies in which the bid price is expressed to Philippine Pesos at the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.
- 16.3. Unless otherwise specified in the BDS, payment of the contract price shall be made in Philippine Pesos.

**17. Bid Validity**

- 17.1. Bids shall remain valid for the period specified in the **BDS** which shall not exceed one hundred twenty (120) calendar days from the date of the opening of bids.
- 17.2. In exceptional circumstances, prior to the expiration of the bid validity period, the Procuring Entity may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. The bid security described in **ITB** Clause 18 should also be extended corresponding to the extension of the bid validity period at the least. A Bidder may refuse the request without forfeiting its bid security, but his bid shall no longer be considered for further evaluation and award. A Bidder granting the request shall not be required or permitted to modify its bid.

**18. Bid Security**

- 18.1. The bid security in the amount stated in the **BDS** shall be equal to the percentage of the ABC in accordance with the following schedule:

Form of Bid Security	Amount of Bid Security (Equal to Percentage of the ABC)
(a) Cash or cashier's/manager's check issued by a Universal or Commercial Bank.	Two percent (2%)

(b) Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: Provided, however, that it shall be confirmed or authenticated by a Universal or Commercial Bank, if issued by a foreign bank.	
(c) Surety bond callable upon demand issued by a surety or insurance company duly certified by the Insurance Commission as authorized to issue such security; and/or	Five percent (5%)
(d) Any combination of the foregoing.	Proportionate to share of form with respect to total amount of security

For biddings conducted by local government units, the Bidder may also submit bid securities in the form of cashier's/manager's check, bank draft/guarantee, or irrevocable letter of credit from other banks certified by the BSP as authorized to issue such financial statement.

- 18.2. The bid security should be valid for the period specified in the **BDS**. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.
- 18.3. No bid securities shall be returned to bidders after the opening of bids and before contract signing, except to those that failed or declared as post-disqualified, upon submission of a written waiver of their right to file a motion for reconsideration and/or protest. Without prejudice on its forfeiture, Bid Securities shall be returned only after the bidder with the Lowest Calculated Responsive Bid has signed the contract and furnished the Performance Security, but in no case later than the expiration of the Bid Security validity period indicated in **ITB** Clause 18.2.
- 18.4. Upon signing and execution of the contract, pursuant to **ITB** Clause 31, and the posting of the performance security, pursuant to **ITB** Clause 32, the successful Bidder's Bid security will be discharged, but in no case later than the Bid security validity period as indicated in **ITB** Clause 18.2.
- 18.5. The bid security may be forfeited:
- (a) if a Bidder:
    - (i) withdraws its bid during the period of bid validity specified in **ITB** Clause 17;
    - (ii) does not accept the correction of errors pursuant to **ITB** Clause 27.3(b);

- (iii) fails to submit the requirements within the prescribed period, or a finding against their veracity, as stated in ITB Clause 28.2;
  - (iv) submission of eligibility requirements containing false information or falsified documents;
  - (v) submission of bids that contain false information or falsified documents, or the concealment of such information in the bids in order to influence the outcome of eligibility screening or any other stage of the public bidding;
  - (vi) allowing the use of one's name, or using the name of another for purposes of public bidding;
  - (vii) withdrawal of a bid, or refusal to accept an award, or enter into contract with the Government without justifiable cause, after the Bidder had been adjudged as having submitted the Lowest Calculated and Responsive Bid;
  - (viii) refusal or failure to post the required performance security within the prescribed time;
  - (ix) refusal to clarify or validate in writing its bid during post-qualification within a period of seven (7) calendar days from receipt of the request for clarification;
  - (x) any documented attempt by a bidder to unduly influence the outcome of the bidding in his favor;
  - (xi) failure of the potential joint venture partners to enter into the joint venture after the bid is declared successful; or
  - (xii) all other acts that tend to defeat the purpose of the competitive bidding, such as habitually withdrawing from bidding, submitting late Bids or patently insufficient bid, for at least three (3) times within a year, except for valid reasons.
- (b) if the successful Bidder:
- (i) fails to sign the contract in accordance with **ITB** Clause 31;
  - (ii) fails to furnish performance security in accordance with **ITB** Clause 32.

## **19. Format and Signing of Bids**

19.1. Bidders shall submit their bids through their duly authorized representative using the appropriate forms provided in Section IX. Bidding Forms on or before the deadline specified in the **ITB** Clause 21 in two (2) separate sealed bid envelopes, and which shall be submitted simultaneously. The first shall contain the technical component of the bid, including the eligibility

requirements under **ITB** Clause 12.1, and the second shall contain the financial component of the bid.

- 19.2. Forms as mentioned in **ITB** Clause 19.1 must be completed without any alterations to their format, and no substitute form shall be accepted. All blank spaces shall be filled in with the information requested.
- 19.3. The Bidder shall prepare an original of the first and second envelopes as described in **ITB** Clauses 12 and 13. In addition, the Bidder shall submit copies of the first and second envelopes. In the event of any discrepancy between the original and the copies, the original shall prevail.
- 19.4. The bid, except for unamended printed literature, shall be signed, and each and every page thereof shall be initialed, by the duly authorized representative/s of the Bidder.
- 19.5. Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the duly authorized representative/s of the Bidder.

## **20. Sealing and Marking of Bids**

- 20.1. Bidders shall enclose their original eligibility and technical documents described in **ITB** Clause 12, in one sealed envelope marked “ORIGINAL - TECHNICAL COMPONENT”, and the original of their financial component in another sealed envelope marked “ORIGINAL - FINANCIAL COMPONENT”, sealing them all in an outer envelope marked “ORIGINAL BID”.
- 20.2. 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. These envelopes containing the original and the copies shall then be enclosed in one single envelope.
- 20.3. The original and the number of copies of the Bid as indicated in the **BDS** shall be typed or written in indelible ink and shall be signed by the bidder or its duly authorized representative/s.
- 20.4. All envelopes shall:
  - (a) contain the name of the contract to be bid in capital letters;
  - (b) bear the name and address of the Bidder in capital letters;
  - (c) be addressed to the Procuring Entity’s BAC identified in **ITB** Clause 10.1;
  - (d) bear the specific identification of this bidding process indicated in the Invitation to Bid; and

- (e) bear a warning “DO NOT OPEN BEFORE...” the date and time for the opening of bids, in accordance with **ITB** Clause 21.
- 20.5. If bids are not sealed and marked as required, the Procuring Entity will assume no responsibility for the misplacement or premature opening of the bid.

#### **D. Submission and Opening of Bids**

##### **21. Deadline for Submission of Bids**

Bids must be received by the Procuring Entity’s BAC at the address and on or before the date and time indicated in the **BDS**.

##### **22. Late Bids**

Any bid submitted after the deadline for submission and receipt of bids prescribed by the Procuring Entity, pursuant to **ITB** Clause 21, shall be declared “Late” and shall not be accepted by the Procuring Entity.

##### **23. Modification and Withdrawal of Bids**

- 23.1. The Bidder may modify its bid after it has been submitted; provided that the modification is received by the Procuring Entity prior to the deadline prescribed for submission and receipt of bids. The Bidder shall not be allowed to retrieve its original bid, but shall be allowed to submit another bid equally sealed, properly identified, linked to its original bid marked as “TECHNICAL MODIFICATION” or “FINANCIAL MODIFICATION” and stamped “received” by the BAC. Bid modifications received after the applicable deadline shall not be considered and shall be returned to the Bidder unopened.
- 23.2. A Bidder may, through a letter of withdrawal, withdraw its bid after it has been submitted, for valid and justifiable reason; provided that the letter of withdrawal is received by the Procuring Entity prior to the deadline prescribed for submission and receipt of bids.
- 23.3. Bids requested to be withdrawn in accordance with **ITB** Clause 23.1 shall be returned unopened to the Bidders. A Bidder may also express its intention not to participate in the bidding through a letter which should reach and be stamped by the BAC before the deadline for submission and receipt of bids. A Bidder that withdraws its bid shall not be permitted to submit another bid, directly or indirectly, for the same contract.
- 23.4. No bid may be modified after the deadline for submission of bids. No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Financial Bid Form. Withdrawal of a bid during this interval shall result in the forfeiture of the Bidder’s bid security, pursuant to **ITB** Clause 18.5, and the imposition of administrative, civil, and criminal sanctions as prescribed by RA 9184 and its IRR.



## 24. Opening and Preliminary Examination of Bids

- 24.1. The BAC shall open the first bid envelopes of Bidders in public as specified in the **BDS** to determine each Bidder's compliance with the documents prescribed in **ITB** Clause 12. For this purpose, the BAC shall check the submitted documents of each bidder against a checklist of required documents to ascertain if they are all present, using a non-discretionary "pass/fail" criterion. If a bidder submits the required document, it shall be rated "passed" for that particular requirement. In this regard, bids that fail to include any requirement or are incomplete or patently insufficient shall be considered as "failed". Otherwise, the BAC shall rate the said first bid envelope as "passed".
- 24.2. Unless otherwise specified in the BDS, immediately after determining compliance with the requirements in the first envelope, the BAC shall forthwith open the second bid envelope of each remaining eligible bidder whose first bid envelope was rated "passed". The second envelope of each complying bidder shall be opened within the same day. In case one or more of the requirements in the second envelope of a particular bid is missing, incomplete or patently insufficient, and/or if the submitted total bid price exceeds the ABC unless otherwise provided in **ITB** Clause 13.1(b), the BAC shall rate the bid concerned as "failed". Only bids that are determined to contain all the bid requirements for both components shall be rated "passed" and shall immediately be considered for evaluation and comparison.
- 24.3. Letters of withdrawal shall be read out and recorded during bid opening, and the envelope containing the corresponding withdrawn bid shall be returned to the Bidder unopened. If the withdrawing Bidder's representative is in attendance, the original bid and all copies thereof shall be returned to the representative during the bid opening. If the representative is not in attendance, the Bid shall be returned unopened by registered mail. The Bidder may withdraw its bid prior to the deadline for the submission and receipt of bids, provided that the corresponding letter of withdrawal contains a valid authorization requesting for such withdrawal, subject to appropriate administrative sanctions.
- 24.4. If a Bidder has previously secured a certification from the Procuring Entity to the effect that it has previously submitted the above-enumerated Class "A" Documents, the said certification may be submitted in lieu of the requirements enumerated in **ITB** Clause 12.1(a), items (i) to (vi).
- 24.5. In the case of an eligible foreign Bidder as described in **ITB** Clause 5, the Class "A" Documents enumerated in **ITB** Clause 12.1(a) may be substituted with the appropriate equivalent documents, if any, issued by the country of the foreign Bidder concerned.
- 24.6. Each partner of a joint venture agreement shall likewise submit the documents required in **ITB** Clauses 12.1(a)(i) and 12.1(a)(ii). Submission of documents required under **ITB** Clauses 12.1(a)(iii) to 12.1(a)(vi) by any of the joint venture partners constitutes compliance.

- 24.7. A Bidder determined as “failed” has three (3) calendar days upon written notice or, if present at the time of bid opening, upon verbal notification within which to file a request for reconsideration with the BAC: Provided, however, that the request for reconsideration shall not be granted if it is established that the finding of failure is due to the fault of the Bidder concerned: Provided, further, that the BAC shall decide on the request for reconsideration within seven (7) calendar days from receipt thereof. If a failed Bidder signifies his intent to file a request for reconsideration, the BAC shall keep the bid envelopes of the said failed Bidder unopened and/or duly sealed until such time that the request for reconsideration or protest has been resolved.

## **E. Evaluation and Comparison of Bids**

### **25. Process to be Confidential**

- 25.1. Members of the BAC, including its staff and personnel, as well as its Secretariat and TWG, are prohibited from making or accepting any kind of communication with any bidder regarding the evaluation of their bids until the issuance of the Notice of Award, unless in the case of **ITB** Clause 26.
- 25.2. Any effort by a bidder to influence the Procuring Entity in the Procuring Entity’s decision in respect of Bid evaluation, Bid comparison or contract award will result in the rejection of the Bidder’s Bid.

### **26. Clarification of Bids**

To assist in the evaluation, comparison and post-qualification of the bids, the Procuring Entity may ask in writing any Bidder for a clarification of its bid. All responses to requests for clarification shall be in writing. Any clarification submitted by a Bidder in respect to its bid and that is not in response to a request by the Procuring Entity shall not be considered

### **27. Detailed Evaluation and Comparison of Bids**

- 27.1. The Procuring Entity will undertake the detailed evaluation and comparison of Bids which have passed the opening and preliminary examination of Bids, pursuant to **ITB** Clause 24, in order to determine the Lowest Calculated Bid.
- 27.2. In evaluating the Bids to get the Lowest Calculated Bid, the Procuring Entity shall undertake the following:
- (a) The detailed evaluation of the financial component of the bids, to establish the correct calculated prices of the bids; and
  - (b) The ranking of the total bid prices as so calculated from the lowest to highest. The bid with the lowest price shall be identified as the Lowest Calculated Bid.
- 27.3. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all bids rated “passed,” using non-discretionary “pass/fail” criterion. The BAC shall consider the following in the evaluation of bids:

- (a) Completeness of the bid. Unless the ITB specifically allows partial bids, bids not addressing or providing all of the required items in the Schedule of Requirements including, where applicable, bill of quantities, shall be considered non-responsive and, thus, automatically disqualified. In this regard, where a required item is provided, but no price is indicated, the same shall be considered as non-responsive, but specifying a "0" (zero) for the said item would mean that it is being offered for free to the Procuring Entity; and
  - (b) Arithmetical corrections. Consider computational errors and omissions to enable proper comparison of all eligible bids. It may also consider bid modifications if expressly allowed in the **BDS**. Any adjustment shall be calculated in monetary terms to determine the calculated prices.
- 27.4. Based on the detailed evaluation of bids, those that comply with the above-mentioned requirements shall be ranked in the ascending order of their total calculated bid prices, as evaluated and corrected for computational errors, discounts and other modifications, to identify the Lowest Calculated Bid. Total calculated bid prices, as evaluated and corrected for computational errors, discounts and other modifications, which exceed the ABC shall not be considered, unless otherwise indicated in the **BDS**.
- 27.5. The Procuring Entity's evaluation of bids shall only be based on the bid price quoted in the Financial Bid Form
- 27.6. Bids shall be evaluated on an equal footing to ensure fair competition. For this purpose, all bidders shall be required to include in their bids the cost of all taxes, such as, but not limited to, value added tax (VAT), income tax, local taxes, and other fiscal levies and duties which shall be itemized in the bid form and reflected in the detailed estimates. Such bids, including said taxes, shall be the basis for bid evaluation and comparison.

## **28. Post Qualification**

- 28.1. The Procuring Entity shall determine to its satisfaction whether the Bidder that is evaluated as having submitted the Lowest Calculated Bid (LCB) complies with and is responsive to all the requirements and conditions specified in **ITB** Clauses 5, 12, and 13.
- 28.2. Within a non-extendible period of three (3) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the LCB, the Bidder shall submit the following documentary requirements:
- (a) Tax clearance per Executive Order 398, Series of 2005;
  - (b) Latest income and business tax returns in the form specified in the **BDS**;
  - (c) Certificate of PhilGEPS Registration; and

- (d) Other appropriate licenses and permits required by law and stated in the **BDS**.

Failure of the Bidder declared as LCB to duly submit the requirements under this Clause or a finding against the veracity of such, shall be ground for forfeiture of the bid security and disqualification of the Bidder for award.

- 28.3. The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted pursuant to **ITB** Clauses 12 and 13, as well as other information as the Procuring Entity deems necessary and appropriate, using a non-discretionary "pass/fail" criterion.
- 28.4. If the BAC determines that the Bidder with the Lowest Calculated Bid passes all the criteria for post-qualification, it shall declare the said bid as the Lowest Calculated Responsive Bid, and recommend to the Head of the Procuring Entity the award of contract to the said Bidder at its submitted price or its calculated bid price, whichever is lower, subject to **ITB** Clause 30.3.
- 28.5. A negative determination shall result in rejection of the Bidder's Bid, in which event the Procuring Entity shall proceed to the next Lowest Calculated Bid to make a similar determination of that Bidder's capabilities to perform satisfactorily. If the second Bidder, however, fails the post qualification, the procedure for post qualification shall be repeated for the Bidder with the next Lowest Calculated Bid, and so on until the Lowest Calculated and Responsive Bid is determined for contract award.
- 28.6. Within a period not exceeding seven (7) calendar days from the date of receipt of the recommendation of the BAC, the Head of the Procuring Entity shall approve or disapprove the said recommendation. In the case of government owned and government-owned and/or -controlled corporations (GOCCs) and government financial institutions (GFIs), the period provided herein shall be fifteen (15) calendar days.

## **29. Reservation Clause**

- 29.1. Notwithstanding the eligibility or post-qualification of a bidder, the Procuring Entity concerned reserves the right to review its qualifications at any stage of the procurement process if it has reasonable grounds to believe that a misrepresentation has been made by the said bidder, or that there has been a change in the Bidder's capability to undertake the project from the time it submitted its eligibility requirements. Should such review uncover any misrepresentation made in the eligibility and bidding requirements, statements or documents, or any changes in the situation of the Bidder which will affect its capability to undertake the project so that it fails the preset eligibility or bid evaluation criteria, the Procuring Entity shall consider the said Bidder as ineligible and shall disqualify it from submitting a bid or from obtaining an award or contract.
- 29.2. Based on the following grounds, the Procuring Entity reserves the right to reject any and all Bids, declare a Failure of Bidding at any time prior to the contract award, or not to award the contract, without thereby incurring any

liability, and make no assurance that a contract shall be entered into as a result of the bidding:

- (a) if there is *prima facie* evidence of collusion between appropriate public officers or employees of the Procuring Entity, or between the BAC and any of the bidders, or if the collusion is between or among the bidders themselves, or between a bidder and a third party, including any act which restricts, suppresses or nullifies or tends to restrict, suppress or nullify competition;
- (b) if the Procuring Entity's BAC is found to have failed in following the prescribed bidding procedures; or
- (c) for any justifiable and reasonable ground where the award of the contract will not redound to the benefit of the Government as follows:
  - (i) If the physical and economic conditions have significantly changed so as to render the project no longer economically, financially or technically feasible as determined by the head of the procuring entity;
  - (ii) If the project is no longer necessary as determined by the head of the procuring entity; and
  - (iii) If the source of funds for the project has been withheld or reduced through no fault of the Procuring Entity.

29.3. In addition, the Procuring Entity may likewise declare a failure of bidding when:

- (a) No bids are received;
- (b) All prospective bidders are declared ineligible;
- (c) All bids fail to comply with all the bid requirements or fail post-qualification; or
- (d) The bidder with the Lowest Calculated Responsive Bid refuses, without justifiable cause to accept the award of contract, and no award is made.

## **F. Award of Contract**

### **30. Contract Award**

- 30.1. Subject to **ITB** Clause 28, the Procuring Entity shall award the contract to the Bidder whose Bid has been determined to be the Lowest Calculated and Responsive Bid (LCRB).
- 30.2. Prior to the expiration of the period of Bid validity, the Procuring Entity shall notify the successful Bidder in writing that its Bid has been accepted, through a Notice of Award received personally or sent by registered mail or

electronically, receipt of which must be confirmed in writing within two (2) days by the LCRB and submitted personally or sent by registered mail or electronically to the Procuring Entity.

- 30.3. Notwithstanding the issuance of the Notice of Award, award of contract shall be subject to the following conditions:
- (a) Submission of the following documents within the prescribed period from receipt by the Bidder of the notice that it has the Lowest Calculated and Responsive Bid:
    - (i) Valid JVA, if applicable, within ten (10) calendar days;
    - (ii) Valid PCAB license and registration for the type and cost of the contract to be bid for foreign bidders, within thirty (30) calendar days, if allowed under a Treaty or International or Executive Agreement mentioned in **ITB** Clause 12.1(a)(iv);
  - (b) Posting of the performance security in accordance with **ITB** Clause 32;
  - (c) Signing of the contract as provided in **ITB** Clause 31; and
  - (d) Approval by higher authority, if required.

### **31. Signing of the Contract**

- 31.1. At the same time as the Procuring Entity notifies the successful Bidder that its Bid has been accepted, the Procuring Entity shall send the Contract Form to the Bidder, which Contract has been provided in the Bidding Documents, incorporating therein all agreements between the parties.
- 31.2. Within ten (10) calendar days from receipt of the Notice of Award, the successful Bidder shall post the required performance security, sign and date the contract and return it to the Procuring Entity.
- 31.3. The Procuring Entity shall enter into contract with the successful Bidder within the same ten (10) calendar day period provided that all the documentary requirements are complied with.
- 31.4. The following documents shall form part of the contract:
- (a) Contract Agreement;
  - (b) Bidding Documents;
  - (c) Winning bidder's bid, including the Technical and Financial Proposals, and all other documents/statements submitted;
  - (d) Performance Security;
  - (e) Credit line in accordance with **ITB** Clause 5.5, if applicable;

- (f) Notice of Award of Contract; and
- (g) Other contract documents that may be required by existing laws and/or specified in the **BDS**.

### 32. Performance Security

- 32.1. To guarantee the faithful performance by the winning Bidder of its obligations under the contract, it shall post a performance security within a maximum period of ten (10) calendar days from the receipt of the Notice of Award from the Procuring Entity and in no case later than the signing of the contract.
- 32.2. The performance security shall be denominated in Philippine Pesos and posted in favor of the Procuring Entity in an amount equal to the percentage of the total contract price as stated in the **BDS** in accordance with the following schedule:

Form of Performance Security	Amount of Performance Security (Equal to Percentage of the Total Contract Price)
(a) Cash or cashier's/manager's check issued by a Universal or Commercial Bank.	Ten percent (10%)
(b) Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: Provided, however, that it shall be confirmed or authenticated by a Universal or Commercial Bank, if issued by a foreign bank.	
(c) Surety bond callable upon demand issued by a surety or insurance company duly certified by the Insurance Commission as authorized to issue such security; and/or	Thirty percent (30%)
(d) Any combination of the foregoing.	Proportionate to share of form with respect to total amount of security

- 32.3. Failure of the successful Bidder to comply with the above-mentioned requirement shall constitute sufficient ground for the annulment of the award and forfeiture of the bid security, in which event the Procuring Entity shall initiate and complete the post qualification of the second Lowest Calculated Bid. The procedure shall be repeated until the Lowest Calculated and Responsive Bid is identified and selected for contract award. However if no Bidder passed post-qualification, the BAC shall declare the bidding a failure and conduct a re-bidding with re-advertisement.

### **33. Notice to Proceed**

- 33.1. Within three (3) calendar days from the date of approval of the Contract by the appropriate government approving authority, the Procuring Entity shall issue its Notice to Proceed to the Bidder.
- 33.2. The contract effectivity date shall be provided in the Notice to Proceed by the Procuring Entity, which date shall not be later than seven (7) calendar days from the issuance of the Notice to Proceed.



## ***Section III. Bid Data Sheet***

### **Notes on the Bid Data Sheet**

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

The PROCURING ENTITY should specify in the BDS information and requirements specific to the circumstances of the Procuring Entity, the processing of the procurement, the applicable rules regarding Bid price and currency, and the Bid evaluation criteria that will apply to the Bids. In preparing this Section, the following aspects should be checked:

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

For foreign-assisted projects, the Bid Data Sheet to be used is provided in Section X- Foreign-Assisted Projects.

# Bid Data Sheet

ITB Clause	
1.1	<p>The PROCURING ENTITY is <i>Olongapo City Government</i>.</p> <p>The name of the Contract is <i>Proposed Communal Water System for Aeta in , Iram Barangay New Cabalan, Olongapo City</i></p> <p>The identification number of the Contract is <i>OC-14(CEO-03)15 CW</i>.</p>
2	<p>The Funding Source is:</p> <p>The Government of the Philippines (GOP) through <i>Olongapo City DILG Fund 2015</i> in the amount of <i>Php835,464.63</i></p> <p><i>NOTE: In the case of National Government Agencies, the General Appropriations Act and/or continuing appropriations; in the case of Government-Owned and/or –Controlled Corporations, Government Financial Institutions, and State Universities and Colleges, the Corporate Budget for the contract approved by the governing Boards; in the case of Local Government Units, the Budget for the contract approved by the respective Sanggunian.</i></p> <p>The name of the Project is <i>Proposed Communal Water System for Aeta in , Iram Barangay New Cabalan, Olongapo City</i></p>
3.1	No further instructions.
5.1	No further instructions.
5.2	Bidding is restricted to eligible bidders as defined in ITB Clause 5.1.
5.4	<p>No further instructions.</p> <p><i>If ADB, adopt the provision under Section X. Foreign-Assisted Projects, ADB Bid Data Sheet 5.4.</i></p> <p><i>If World Bank, adopt the provision under Section X. Foreign-Assisted Projects, World Bank Bid Data Sheet 5.4.</i></p> <p>For this purpose, similar contracts shall refer to <i>all the Works in Proposed Communal Water System for Aeta in , Iram Barangay New Cabalan, Olongapo City</i></p>
8.1	<b>“Subcontracting is not allowed.”</b>

	<i><b>NOTE:</b> The contractor shall undertake not less than 50% of the contracted works with its own resources.</i>
8.2	<i>“Not applicable”.</i>
9.1	<p>The Procuring Entity will hold post for this Project on <i>February 27, 2015</i> at <i>2<sup>nd</sup> Flr. BAC Secretariat GSO, Olongapo City.</i></p> <p><i>If ADB, adopt the provision under Section X. Foreign-Assisted Projects, ADB Bid Data Sheet 9.1.</i></p> <p><i>If World Bank, adopt the provision under Section X. Foreign-Assisted Projects, World Bank Bid Data Sheet 9.1.</i></p>
10.1	<p>The Procuring Entity’s address is:</p> <p><i>General Services Office, 2/F City Hall Complex</i></p> <p><i>Tel./Fax No. 047-222-2699</i></p> <p><i>Web: <a href="http://www.olongapocity.gov.ph">www.olongapocity.gov.ph</a></i></p> <p><i>Email: <a href="mailto:olongapo@subictel.com">olongapo@subictel.com</a></i></p>
10.3	No further instructions.
12.1	The first envelope shall contain the eligibility and technical documents stated in the <b>ITB</b> Clause. However, if the Bidder maintains a current and updated file of his Class “A” Documents with the Procuring Entity, a written letter of intent may be submitted in lieu of the Class “A” Documents; otherwise, it shall submit an application for eligibility and its latest Class “A” Documents on or before <i>March 06, 2015</i> . Any application for eligibility or updates submitted after the deadline for the submission of the letter of intent shall not be considered for the bidding at hand.
12.1(a)(i)	“No other acceptable proof of registration is recognized.”
12.1(a)(iv)	No further instructions.
13.1	“No additional Requirements”
13.1(b)	<p>The ABC is <i>Php835,464.63</i> Any bid with a financial component exceeding this amount shall not be accepted.</p> <p><i>If ADB, adopt the provision under Section X. Foreign-Assisted Projects, ADB Bid Data Sheet 13.2. The ABC cannot be used to reject bids without the prior concurrence of ADB.</i></p> <p><i>If World Bank, adopt the provision under Section X. Foreign-Assisted Projects, World Bank Bid Data Sheet 13.2.</i></p>

14.2	<i>Insert value engineering clause if allowed, otherwise state “No further instructions.”</i>
15.4	No further instruction.
16.1	The bid prices shall be quoted in Philippine Pesos.
17.1	Bids will be valid until <i>one hundred twenty (120) calendar days from the date of the opening of bids.</i>
18.1	The bid security shall be in the following amount: <ol style="list-style-type: none"> <li>1. The amount of <i>Php 16,709.29 [2% of ABC]</i>, if bid security is in cash, cashier’s/manager’s check, bank draft/guarantee or irrevocable letter of credit;</li> <li>2. The amount of <i>Php 19,398.30 [5% of ABC]</i> if bid security is in Surety Bond; or</li> <li>3. Any combination of the foregoing proportionate to the share of form with respect to total amount of security.</li> </ol>
18.2	The bid security shall be valid until <i>120 days after bid opening.</i>
20.3	Each Bidder shall submit <i>one</i> original and <i>one copy</i> of the first and second components of its bid.
21	The address for submission of bids is <i>2<sup>nd</sup>Flr. BAC Secretariat GSO, Olongapo City.</i>  The deadline for submission of bids is <i>on March 06, 2015 at 12:00 noon.</i>
24.1	The place of bid opening is <i>2<sup>nd</sup>Flr. BAC Secretariat GSO, Olongapo City.</i>  The date and time of bid opening is <i>on March 06, 2015 at 2:00 PM.</i>
24.2	No further instructions.
27.3(b)	<i>Bid Modification is allowed.</i>
27.4	No further instructions.
28.2(b)	<i>Bidders have option to submit manually filed tax returns or tax returns filed through the Electronic Filing and Payments System (EFPS).</i>  <i>NOTE: The latest income and business tax returns are those within the last six months preceding the date of bid submission.</i>
28.2(d)	<i>No further instructions.</i>

31.4(g)	<i>Construction schedule and S-curve, manpower schedule, construction methods, equipment utilization schedule, construction safety and health program approved by the Department of Labor and Employment, and PERT/CPM.</i>
32.2	<p>The performance security shall be in the following amount:</p> <ol style="list-style-type: none"> <li>1. The amount of <b>10% of Contract Price</b>, if performance security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;</li> <li>2. The amount of <b>30% of Contract Price</b> if performance security is in Surety Bond; or</li> <li>3. Any combination of the foregoing proportionate to the share of form with respect to total amount of security.</li> </ol>

## ***Section IV. General Conditions of Contract***

### **Notes on the General Conditions of Contract**

The details in the GCC and SCC, and submission thereof, along with other required documents listed therein, expressing all the rights and obligations of the parties, should be complete.

The GCC herein shall not be altered. Any changes and complementary information, which may be needed, shall be introduced only through the SCC.

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## 1. Definitions

For purposes of this Clause, boldface type is used to identify defined terms.

- 1.1. The **Arbiter** is the person appointed jointly by the Procuring Entity and the Contractor to resolve disputes in the first instance, as provided for in **GCC** Clause 21.
- 1.2. **Bill of Quantities** refers to a list of the specific items of the Work and their corresponding unit prices, lump sums, and/or provisional sums.
- 1.3. The **Completion Date** is the date of completion of the Works as certified by the Procuring Entity's Representative, in accordance with **GCC** Clause 49.
- 1.4. The **Contract** is the contract between the Procuring Entity and the Contractor to execute, complete, and maintain the Works.
- 1.5. The **Contract Price** is the price stated in the Letter of Acceptance and thereafter to be paid by the Procuring Entity to the Contractor for the execution of the Works in accordance with this Contract.
- 1.6. **Contract Time Extension** is the allowable period for the Contractor to complete the Works in addition to the original Completion Date stated in this Contract.
- 1.7. The **Contractor** is the juridical entity whose proposal has been accepted by the Procuring Entity and to whom the Contract to execute the Work was awarded.
- 1.8. The **Contractor's Bid** is the signed offer or proposal submitted by the Contractor to the Procuring Entity in response to the Bidding Documents.
- 1.9. **Days** are calendar days; months are calendar months.
- 1.10. **Dayworks** are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.
- 1.11. A **Defect** is any part of the Works not completed in accordance with the Contract.
- 1.12. The **Defects Liability Certificate** is the certificate issued by Procuring Entity's Representative upon correction of defects by the Contractor.
- 1.13. The **Defects Liability Period** is the one year period between contract completion and final acceptance within which the Contractor assumes the responsibility to undertake the repair of any damage to the Works at his own expense.
- 1.14. **Drawings** are graphical presentations of the Works. They include all supplementary details, shop drawings, calculations, and other information provided or approved for the execution of this Contract.

- 1.15. **Equipment** refers to all facilities, supplies, appliances, materials or things required for the execution and completion of the Work provided by the Contractor and which shall not form or are not intended to form part of the Permanent Works.
- 1.16. The **Intended Completion Date** refers to the date specified in the **SCC** when the Contractor is expected to have completed the Works. The Intended Completion Date may be revised only by the Procuring Entity's Representative by issuing an extension of time or an acceleration order.
- 1.17. **Materials** are all supplies, including consumables, used by the Contractor for incorporation in the Works.
- 1.18. The **Notice to Proceed** is a written notice issued by the Procuring Entity or the Procuring Entity's Representative to the Contractor requiring the latter to begin the commencement of the work not later than a specified or determinable date.
- 1.19. **Permanent Works** all permanent structures and all other project features and facilities required to be constructed and completed in accordance with this Contract which shall be delivered to the Procuring Entity and which shall remain at the Site after the removal of all Temporary Works.
- 1.20. **Plant** refers to the machinery, apparatus, and the like intended to form an integral part of the Permanent Works.
- 1.21. The **Procuring Entity** is the party who employs the Contractor to carry out the Works stated in the **SCC**.
- 1.22. The **Procuring Entity's Representative** refers to the Head of the Procuring Entity or his duly authorized representative, identified in the **SCC**, who shall be responsible for supervising the execution of the Works and administering this Contract.
- 1.23. The **Site** is the place provided by the Procuring Entity where the Works shall be executed and any other place or places which may be designated in the **SCC**, or notified to the Contractor by the Procuring Entity's Representative as forming part of the Site.
- 1.24. **Site Investigation Reports** are those that were included in the Bidding Documents and are factual and interpretative reports about the surface and subsurface conditions at the Site.
- 1.25. **Slippage** is a delay in work execution occurring when actual accomplishment falls below the target as measured by the difference between the scheduled and actual accomplishment of the Work by the Contractor as established from the work schedule. This is actually described as a percentage of the whole Works.
- 1.26. **Specifications** means the description of Works to be done and the qualities of materials to be used, the equipment to be installed and the mode of construction.

- 1.27. The **Start Date**, as specified in the **SCC**, is the date when the Contractor is obliged to commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.
- 1.28. A **Subcontractor** is any person or organization to whom a part of the Works has been subcontracted by the Contractor, as allowed by the Procuring Entity, but not any assignee of such person.
- 1.29. **Temporary Works** are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Permanent Works.
- 1.30. **Work(s)** refer to the Permanent Works and Temporary Works to be executed by the Contractor in accordance with this Contract, including (i) the furnishing of all labor, materials, equipment and others incidental, necessary or convenient to the complete execution of the Works; (ii) the passing of any tests before acceptance by the Procuring Entity's Representative; (iii) and the carrying out of all duties and obligations of the Contractor imposed by this Contract as described in the **SCC**.

## **2. Interpretation**

- 2.1. In interpreting the Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of this Contract unless specifically defined. The Procuring Entity's Representative will provide instructions clarifying queries about the Conditions of Contract.
- 2.2. If sectional completion is specified in the **SCC**, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date 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. Governing Language and Law**

- 3.1. This Contract has been executed in the English language, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract. All correspondence and other documents pertaining to this Contract which are exchanged by the parties shall be written in English.
- 3.2. This Contract shall be interpreted in accordance with the laws of the Republic of the Philippines.

## **4. Communications**

Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is received by the concerned party.

## **5. Possession of Site**

- 5.1. On the date specified in the SCC, the Procuring Entity shall grant the Contractor possession of so much of the Site as may be required to enable it to proceed with 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.
- 5.2. If possession of a portion is not given by the date stated in the SCC Clause 5.1, 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 shall be in accordance with **GCC** Clause 47.
- 5.3. The Contractor shall bear all costs and charges for special or temporary right-of-way required by it in connection with access to the Site. The Contractor shall also provide at his own cost any additional facilities outside the Site required by it for purposes of the Works.
- 5.4. The Contractor shall allow the Procuring Entity's Representative and any person authorized by the Procuring Entity's Representative access to the Site and to any place where work in connection with this Contract is being carried out or is intended to be carried out.

## **6. The Contractor's Obligations**

- 6.1. The Contractor shall carry out the Works properly and in accordance with this Contract. The Contractor shall provide all supervision, labor, Materials, Plant and Contractor's Equipment, which may be required. All Materials and Plant on Site shall be deemed to be the property of the Procuring Entity.
- 6.2. The Contractor shall commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program of Work submitted by the Contractor, as updated with the approval of the Procuring Entity's Representative, and complete them by the Intended Completion Date.
- 6.3. The Contractor shall be responsible for the safety of all activities on the Site.
- 6.4. The Contractor shall carry out all instructions of the Procuring Entity's Representative that comply with the applicable laws where the Site is located.
- 6.5. The Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the SCC, 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.
- 6.6. If the Procuring Entity's Representative asks the Contractor to remove a member of the Contractor's staff or work force, for justifiable cause, the

Contractor shall ensure that the person leaves the Site within seven (7) days and has no further connection with the Work in this Contract.

- 6.7. During Contract implementation, the Contractor and his subcontractors shall abide at all times by all labor laws, including child labor related enactments, and other relevant rules.
- 6.8. The Contractor shall submit to the Procuring Entity for consent the name and particulars of the person authorized to receive instructions on behalf of the Contractor.
- 6.9. The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Procuring Entity between the dates given in the schedule of other contractors particularly when they shall require access to the Site. The Contractor shall also provide facilities and services for them during this period. The Procuring Entity may modify the schedule of other contractors, and shall notify the Contractor of any such modification thereto.
- 6.10. Should anything of historical or other interest or of significant value be unexpectedly discovered on the Site, it shall be the property of the Procuring Entity. The Contractor shall notify the Procuring Entity's Representative of such discoveries and carry out the Procuring Entity's Representative's instructions in dealing with them.

## **7. Performance Security**

- 7.1. 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 Contractor shall furnish the performance security in any the forms prescribed in **ITB** Clause 32.2.
- 7.2. The performance security posted in favor of the Procuring Entity shall be forfeited in the event it is established that the Contractor is in default in any of its obligations under the Contract.
- 7.3. The performance security shall remain valid until issuance by the Procuring Entity of the Certificate of Final Acceptance.
- 7.4. The performance security may be released by the Procuring Entity and returned to the Contractor after the issuance of the Certificate of Final Acceptance subject to the following conditions:
  - (a) There are no pending claims against the Contractor or the surety company filed by the Procuring Entity;
  - (b) The Contractor has no pending claims for labor and materials filed against it; and
  - (c) Other terms specified in the **SCC**.
- 7.5. The Contractor shall post an additional performance security following the amount and form specified in **ITB** Clause 32.2 to cover any cumulative

increase of more than ten percent (10%) over the original value of the contract as a result of amendments to order or change orders, extra work orders and supplemental agreements, as the case may be. The Contractor shall cause the extension of the validity of the performance security to cover approved contract time extensions.

- 7.6. In case of a reduction in the contract value or for partially completed Works under the contract which are usable and accepted by the Procuring Entity the use of which, in the judgment of the implementing agency or the Procuring Entity, will not affect the structural integrity of the entire project, the Procuring Entity shall allow a proportional reduction in the original performance security, provided that any such reduction is more than ten percent (10%) and that the aggregate of such reductions is not more than fifty percent (50%) of the original performance security.
- 7.7. Unless otherwise indicated in the **SCC**, the Contractor, by entering into the Contract with the Procuring Entity, acknowledges the right of the Procuring Entity to institute action pursuant to Act 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.

## **8. Subcontracting**

- 8.1. Unless otherwise indicated in the **SCC**, the Contractor cannot subcontract Works more than the percentage specified in **ITB** Clause 8.1.
- 8.2. Subcontracting of any portion of the Works does not relieve the Contractor of any liability or obligation under this Contract. The Contractor 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.
- 8.3. Subcontractors disclosed and identified during the bidding may be changed during the implementation of this Contract, subject to compliance with the required qualifications and the approval of the Procuring Entity.

## **9. Liquidated Damages**

- 9.1. The Contractor shall pay liquidated damages to the Procuring Entity for each day that the Completion Date is later than the Intended Completion Date. The applicable liquidated damages is at least one-tenth (1/10) of a percent of the cost of the unperformed portion for every day of delay. The total amount of liquidated damages shall not exceed ten percent (10%) of the amount of the contract. The Procuring Entity may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor. Once the cumulative amount of liquidated damages reaches ten percent (10%) of the amount of this Contract, the Procuring Entity shall rescind this Contract, without prejudice to other courses of action and remedies open to it.

- 9.2. If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer of the Procuring Entity shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in GCC Clause 40.3.

## **10. 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.

## **11. The Procuring Entity, Licenses and Permits**

The Procuring Entity shall, if requested by the Contractor, assist him in applying for permits, licenses or approvals, which are required for the Works.

## **12. Contractor's Risk and Warranty Security**

- 12.1. The Contractor shall assume full responsibility for the Works from the time project construction commenced up to final acceptance by the Procuring Entity and shall be held responsible for any damage or destruction of the Works except those occasioned by *force majeure*. The Contractor shall be fully responsible for the safety, protection, security, and convenience of his personnel, third parties, and the public at large, as well as the Works, Equipment, installation, and the like to be affected by his construction work.
- 12.2. The defects liability period for infrastructure projects shall be one year from contract completion up to final acceptance by the Procuring Entity. During this period, the Contractor shall undertake the repair works, at his own expense, of any damage to the Works on account of the use of materials of inferior quality within ninety (90) days from the time the Head of the Procuring Entity has issued an order to undertake repair. In case of failure or refusal to comply with this mandate, the Procuring Entity shall undertake such repair works and shall be entitled to full reimbursement of expenses incurred therein upon demand.
- 12.3. Unless otherwise indicated in the SCC, in case the Contractor fails to comply with the preceding paragraph, 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.
- 12.4. After final acceptance of the Works by the Procuring Entity, the Contractor shall be held responsible for "Structural Defects", *i.e.*, major faults/flaws/deficiencies in one or more key structural elements of the project which may lead to structural failure of the completed elements or structure, or "Structural Failures", *i.e.*, where one or more key structural elements in an infrastructure facility fails or collapses, thereby rendering the facility or part

thereof incapable of withstanding the design loads, and/or endangering the safety of the users or the general public:

- (a) Contractor – Where Structural Defects/Failures arise due to faults attributable to improper construction, use of inferior quality/substandard materials, and any violation of the contract plans and specifications, the contractor shall be held liable;
- (b) Consultants – Where Structural Defects/Failures arise due to faulty and/or inadequate design and specifications as well as construction supervision, then the consultant who prepared the design or undertook construction supervision for the project shall be held liable;
- (c) Procuring Entity’s Representatives/Project Manager/Construction Managers and Supervisors – The project owner’s representative(s), project manager, construction manager, and supervisor(s) shall be held liable in cases where the Structural Defects/Failures are due to his/their willful intervention in altering the designs and other specifications; negligence or omission in not approving or acting on proposed changes to noted defects or deficiencies in the design and/or specifications; and the use of substandard construction materials in the project;
- (d) Third Parties - Third Parties shall be held liable in cases where Structural Defects/Failures are caused by work undertaken by them such as leaking pipes, diggings or excavations, underground cables and electrical wires, underground tunnel, mining shaft and the like, in which case the applicable warranty to such structure should be levied to third parties for their construction or restoration works.
- (e) Users - In cases where Structural Defects/Failures are due to abuse/misuse by the end user of the constructed facility and/or non-compliance by a user with the technical design limits and/or intended purpose of the same, then the user concerned shall be held liable.

12.5. The warranty against Structural Defects/Failures, except those occasioned on force majeure, shall cover the period specified in the SCC reckoned from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity.

12.6. The Contractor shall be required to put up a warranty security in the form of cash, bank guarantee, letter of credit, GSIS or surety bond callable on demand, in accordance with the following schedule:

Form of Warranty	Minimum Amount in Percentage (%) of Total Contract Price
(a) Cash or letter of credit issued by Universal or Commercial bank: provided, however, that the letter of credit shall be confirmed or authenticated by a Universal or Commercial bank, if issued by a	Five Percent (5%)



foreign bank	
(b) Bank guarantee confirmed by Universal or Commercial bank: provided, however, that the letter of credit shall be confirmed or authenticated by a Universal or Commercial bank, if issued by a foreign bank	Ten Percent (10%)
(c) Surety bond callable upon demand issued by GSIS or any surety or insurance company duly certified by the Insurance Commission	Thirty Percent (30%)

12.7. The warranty security shall be stated in Philippine Pesos and shall remain effective for one year from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity, and returned only after the lapse of said one year period.

12.8. In case of structural defects/failure occurring during the applicable warranty period provided in **GCC** Clause 12.5, the Procuring Entity shall undertake the necessary restoration or reconstruction works and shall be entitled to full reimbursement by the parties found to be liable for expenses incurred therein upon demand, without prejudice to the filing of appropriate administrative, civil, and/or criminal charges against the responsible persons as well as the forfeiture of the warranty security posted in favor of the Procuring Entity.

### **13. 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.

### **14. Procuring Entity’s Risk**

14.1. From the Start Date until the Certificate of Final Acceptance has been issued, the following are risks of the Procuring Entity:

- (a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to:
  - (i) any type of use or occupation of the Site authorized by the Procuring Entity after the official acceptance of the works; or
  - (ii) negligence, breach of statutory duty, or interference with any legal right by the Procuring Entity or by any person employed by or contracted to him except the Contractor.
- (b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Procuring Entity or in the

Procuring Entity's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.

## **15. Insurance**

- 15.1. The Contractor shall, under his name and at his own expense, obtain and maintain, for the duration of this Contract, the following insurance coverage:
- (a) Contractor's All Risk Insurance;
  - (b) Transportation to the project Site of Equipment, Machinery, and Supplies owned by the Contractor;
  - (c) Personal injury or death of Contractor's employees; and
  - (d) Comprehensive insurance for third party liability to Contractor's direct or indirect act or omission causing damage to third persons.

15.2. The Contractor shall provide evidence to the Procuring Entity's Representative that the insurances required under this Contract have been effected and shall, within a reasonable time, provide copies of the insurance policies to the Procuring Entity's Representative. Such evidence and such policies shall be provided to the Procuring Entity's through the Procuring Entity's Representative.

15.3. The Contractor shall notify the insurers of changes in the nature, extent, or program for the execution of the Works and ensure the adequacy of the insurances at all times in accordance with the terms of this Contract and shall produce to the Procuring Entity's Representative the insurance policies in force including the receipts for payment of the current premiums.

The above insurance policies shall be obtained from any reputable insurance company approved by the Procuring Entity's Representative.

15.4. If the Contractor fails to obtain and keep in force the insurances referred to herein or any other insurance which he may be required to obtain under the terms of this Contract, the Procuring Entity may obtain and keep in force any such insurances and pay such premiums as may be necessary for the purpose. From time to time, the Procuring Entity may deduct the amount it shall pay for said premiums including twenty five percent (25%) therein from any monies due, or which may become due, to the Contractor, without prejudice to the Procuring Entity exercising its right to impose other sanctions against the Contractor pursuant to the provisions of this Contract.

15.5. In the event the Contractor fails to observe the above safeguards, the Procuring Entity may, at the Contractor's expense, take whatever measure is deemed necessary for its protection and that of the Contractor's personnel and third parties, and/or order the interruption of dangerous Works. In addition, the Procuring Entity may refuse to make the payments under GCC Clause 40 until the Contractor complies with this Clause.

- 15.6. The Contractor shall immediately replace the insurance policy obtained as required in this Contract, without need of the Procuring Entity's demand, with a new policy issued by a new insurance company acceptable to the Procuring Entity for any of the following grounds:
- (a) The issuer of the insurance policy to be replaced has:
    - (i) become bankrupt;
    - (ii) been placed under receivership or under a management committee;
    - (iii) been sued for suspension of payment; or
    - (iv) been suspended by the Insurance Commission and its license to engage in business or its authority to issue insurance policies cancelled; or
    - (v) Where reasonable grounds exist that the insurer may not be able, fully and promptly, to fulfill its obligation under the insurance policy.

## **16. Termination for Default of Contractor**

- 16.1. The Procuring Entity shall terminate this Contract for default when any of the following conditions attend its implementation:
- 16.2. Due to the Contractor's fault and while the project is on-going, it has incurred negative slippage of fifteen percent (15%) or more in accordance with Presidential Decree 1870, regardless of whether or not previous warnings and notices have been issued for the Contractor to improve his performance;
- 16.3. Due to its own fault and after this Contract time has expired, the Contractor incurs delay in the completion of the Work after this Contract has expired; or
- 16.4. The Contractor:
- (a) abandons the contract Works, refuses or fails to comply with a valid instruction of the Procuring Entity or fails to proceed expeditiously and without delay despite a written notice by the Procuring Entity;
  - (b) does not actually have on the project Site the minimum essential equipment listed on the Bid necessary to prosecute the Works in accordance with the approved Program of Work and equipment deployment schedule as required for the project;
  - (c) does not execute the Works in accordance with this Contract or persistently or flagrantly neglects to carry out its obligations under this Contract;
  - (d) neglects or refuses to remove materials or to perform a new Work that has been rejected as defective or unsuitable; or

- (e) sub-lets any part of this Contract without approval by the Procuring Entity.

16.5. All materials on the Site, Plant, Equipment, and Works shall be deemed to be the property of the Procuring Entity if this Contract is rescinded because of the Contractor's default.

## **17. Termination for Default of Procuring Entity**

The Contractor may terminate this Contract with the Procuring Entity if the works are completely stopped for a continuous period of at least sixty (60) calendar days through no fault of its own, due to any of the following reasons:

- (a) Failure of the Procuring Entity to deliver, within a reasonable time, supplies, materials, right-of-way, or other items it is obligated to furnish under the terms of this Contract; or
- (b) The prosecution of the Work is disrupted by the adverse peace and order situation, as certified by the Armed Forces of the Philippines Provincial Commander and approved by the Secretary of National Defense.

## **18. Termination for Other Causes**

18.1. The Procuring Entity may terminate this Contract, in whole or in part, at any time for its convenience. The Head of the Procuring Entity may terminate this Contract for the convenience of the Procuring Entity if he has determined the existence of conditions that make Project Implementation economically, financially or technically impractical and/or unnecessary, such as, but not limited to, fortuitous event(s) or changes in law and National Government policies.

18.2. The Procuring Entity or the Contractor may terminate this Contract if the other party causes a fundamental breach of this Contract.

18.3. Fundamental breaches of Contract shall include, but shall not be limited to, the following:

- (a) The Contractor stops work for twenty eight (28) days when no stoppage of work is shown on the current Program of Work and the stoppage has not been authorized by the Procuring Entity's Representative;
- (b) The Procuring Entity's Representative instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within twenty eight (28) days;
- (c) The Procuring Entity shall terminate this Contract if the Contractor is declared bankrupt or insolvent as determined with finality by a court of competent jurisdiction. In this event, termination will be without compensation to the Contractor, provided that such termination will not prejudice or affect any right of action or remedy which has accrued

or will accrue thereafter to the Procuring Entity and/or the Contractor. In the case of the Contractor's insolvency, any Contractor's Equipment which the Procuring Entity instructs in the notice is to be used until the completion of the Works;

- (d) A payment certified by the Procuring Entity's Representative is not paid by the Procuring Entity to the Contractor within eighty four (84) days from the date of the Procuring Entity's Representative's certificate;
  - (e) The Procuring Entity's Representative gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Procuring Entity's Representative;
  - (f) The Contractor does not maintain a Security, which is required;
  - (g) The Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the **GCC** Clause 9; and
  - (h) 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, the following:
    - (i) corrupt, fraudulent, collusive, coercive, and obstructive practices as defined in **ITB** Clause 3.1(a), unless otherwise specified in the **SCC**;
    - (ii) drawing up or using forged documents;
    - (iii) using adulterated materials, means or methods, or engaging in production contrary to rules of science or the trade; and
    - (iv) any other act analogous to the foregoing.
- 18.4. The Funding Source or the Procuring Entity, as appropriate, will seek to impose the maximum civil, administrative and/or criminal penalties available under the applicable law on individuals and organizations deemed to be involved with corrupt, fraudulent, or coercive practices.
- 18.5. When persons from either party to this Contract gives notice of a fundamental breach to the Procuring Entity's Representative in order to terminate the existing contract for a cause other than those listed under **GCC** Clause 18.3, the Procuring Entity's Representative shall decide whether the breach is fundamental or not.
- 18.6. If this Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.

## 19. Procedures for Termination of Contracts

19.1. The following provisions shall govern the procedures for the termination of this Contract:

- (a) Upon receipt of a written report of acts or causes which may constitute ground(s) for termination as aforementioned, or upon its own initiative, the Procuring Entity shall, within a period of seven (7) calendar days, verify the existence of such ground(s) and cause the execution of a Verified Report, with all relevant evidence attached;
- (b) Upon recommendation by the Procuring Entity, the Head of the Procuring Entity shall terminate this Contract only by a written notice to the Contractor conveying the termination of this Contract. The notice shall state:
  - (i) that this Contract is being terminated for any of the ground(s) afore-mentioned, and a statement of the acts that constitute the ground(s) constituting the same;
  - (ii) the extent of termination, whether in whole or in part;
  - (iii) an instruction to the Contractor to show cause as to why this Contract should not be terminated; and
  - (iv) special instructions of the Procuring Entity, if any.

The Notice to Terminate shall be accompanied by a copy of the Verified Report;

- (c) Within a period of seven (7) calendar days from receipt of the Notice of Termination, the Contractor shall submit to the Head of the Procuring Entity a verified position paper stating why the contract should not be terminated. If the Contractor fails to show cause after the lapse of the seven (7) day period, either by inaction or by default, the Head of the Procuring Entity shall issue an order terminating the contract;
- (d) The Procuring Entity may, at anytime before receipt of the Bidder's verified position paper described in item (c) above withdraw the Notice to Terminate if it is determined that certain items or works subject of the notice had been completed, delivered, or performed before the Contractor's receipt of the notice;
- (e) Within a non-extendible period of ten (10) calendar days from receipt of the verified position paper, the Head of the Procuring Entity shall decide whether or not to terminate this Contract. It shall serve a written notice to the Contractor of its decision and, unless otherwise provided in the said notice, this Contract is deemed terminated from receipt of the Contractor of the notice of decision. The termination

shall only be based on the ground(s) stated in the Notice to Terminate; and

- (f) The Head of the Procuring Entity may create a Contract Termination Review Committee (CTRC) to assist him in the discharge of this function. All decisions recommended by the CTRC shall be subject to the approval of the Head of the Procuring Entity.

19.2. Pursuant to Section 69(f) of RA 9184 and without prejudice to the imposition of additional administrative sanctions as the internal rules of the agency may provide and/or further criminal prosecution as provided by applicable laws, the procuring entity shall impose on contractors after the termination of the contract the penalty of suspension for one (1) year for the first offense, suspension for two (2) years for the second offense from participating in the public bidding process, for violations committed during the contract implementation stage, which include but not limited to the following:

- (a) Failure of the contractor, due solely to his fault or negligence, to mobilize and start work or performance within the specified period in the Notice to Proceed (“NTP”);
- (b) Failure by the contractor to fully and faithfully comply with its contractual obligations without valid cause, or failure by the contractor to comply with any written lawful instruction of the procuring entity or its representative(s) pursuant to the implementation of the contract. For the procurement of infrastructure projects or consultancy contracts, lawful instructions include but are not limited to the following:
  - (i) Employment of competent technical personnel, competent engineers and/or work supervisors;
  - (ii) Provision of warning signs and barricades in accordance with approved plans and specifications and contract provisions;
  - (iii) Stockpiling in proper places of all materials and removal from the project site of waste and excess materials, including broken pavement and excavated debris in accordance with approved plans and specifications and contract provisions;
  - (iv) Deployment of committed equipment, facilities, support staff and manpower; and
  - (v) Renewal of the effectivity dates of the performance security after its expiration during the course of contract implementation.
- (c) Assignment and subcontracting of the contract or any part thereof or substitution of key personnel named in the proposal without prior written approval by the procuring entity.

- (d) Poor performance by the contractor or unsatisfactory quality and/or progress of work arising from his fault or negligence as reflected in the Constructor's Performance Evaluation System ("CPES") rating sheet. In the absence of the CPES rating sheet, the existing performance monitoring system of the procuring entity shall be applied. Any of the following acts by the Contractor shall be construed as poor performance:
  - (i) Negative slippage of 15% and above within the critical path of the project due entirely to the fault or negligence of the contractor; and
  - (ii) Quality of materials and workmanship not complying with the approved specifications arising from the contractor's fault or negligence.
- (e) Willful or deliberate abandonment or non-performance of the project or contract by the contractor resulting to substantial breach thereof without lawful and/or just cause.

In addition to the penalty of suspension, the performance security posted by the contractor shall also be forfeited.

## **20. Force Majeure, Release From Performance**

- 20.1. For purposes of this Contract the terms "*force majeure*" and "fortuitous event" may be used interchangeably. In this regard, a fortuitous event or *force majeure* shall be interpreted to mean an event which the Contractor could not have foreseen, or which though foreseen, was inevitable. It shall not include ordinary unfavorable weather conditions; and any other cause the effects of which could have been avoided with the exercise of reasonable diligence by the Contractor.
- 20.2. If this Contract is discontinued by an outbreak of war or by any other event entirely outside the control of either the Procuring Entity or the Contractor, the Procuring Entity's Representative shall certify that this Contract has been discontinued. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all works carried out before receiving it and for any Work carried out afterwards to which a commitment was made.
- 20.3. If the event continues for a period of eighty four (84) days, either party may then give notice of termination, which shall take effect twenty eight (28) days after the giving of the notice.
- 20.4. After termination, the Contractor shall be entitled to payment of the unpaid balance of the value of the Works executed and of the materials and Plant reasonably delivered to the Site, adjusted by the following:
  - (a) any sum to which the Contractor is entitled under GCC Clause 28;



- (b) the cost of his suspension and demobilization;
  - (c) any sum to which the Procuring Entity is entitled.
- 20.5. The net balance due shall be paid or repaid within a reasonable time period from the time of the notice of termination.

## **21. Resolution of Disputes**

- 21.1. If any dispute or difference of any kind whatsoever shall arise between the parties in connection with the implementation of the contract covered by the Act and this IRR, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.
- 21.2. If the Contractor believes that a decision taken by the PROCURING ENTITY's Representative was either outside the authority given to the PROCURING ENTITY's Representative by this Contract or that the decision was wrongly taken, the decision shall be referred to the Arbiter indicated in the SCC within fourteen (14) days of the notification of the PROCURING ENTITY's Representative's decision.
- 21.3. Any and all disputes arising from the implementation of this Contract covered by the R.A. 9184 and its IRR shall be submitted to arbitration in the Philippines according to the provisions of Republic Act No. 876, otherwise known as the "Arbitration Law" and Republic Act 9285, otherwise known as the "Alternative Dispute Resolution Act of 2004": *Provided, however*, That, disputes that are within the competence of the Construction Industry Arbitration Commission to resolve shall be referred thereto. The process of arbitration shall be incorporated as a provision in this Contract that will be executed pursuant to the provisions of the Act and its IRR: *Provided, further*, That, by mutual agreement, the parties may agree in writing to resort to other alternative modes of dispute resolution.

## **22. Suspension of Loan, Credit, Grant, or Appropriation**

In the event that the Funding Source suspends the Loan, Credit, Grant, or Appropriation to the Procuring Entity, from which part of the payments to the Contractor are being made:

- (a) The Procuring Entity is obligated to notify the Contractor of such suspension within seven (7) days of having received the suspension notice.
- (b) If the Contractor has not received sums due it for work already done within forty five (45) days from the time the Contractor's claim for payment has been certified by the Procuring Entity's Representative, the Contractor may immediately issue a suspension of work notice in accordance with **GCC** Clause 45.2.

## **23. Procuring Entity's Representative's Decisions**

- 23.1. Except where otherwise specifically stated, the Procuring Entity's Representative will decide contractual matters between the Procuring Entity and the Contractor in the role representing the Procuring Entity.
- 23.2. The Procuring Entity's Representative may delegate any of his duties and responsibilities to other people, except to the Arbitrator, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.

## **24. Approval of Drawings and Temporary Works by the Procuring Entity's Representative**

- 24.1. All Drawings prepared by the Contractor for the execution of the Temporary Works, are subject to prior approval by the Procuring Entity's Representative before its use.
- 24.2. The Contractor shall be responsible for design of Temporary Works.
- 24.3. The Procuring Entity's Representative's approval shall not alter the Contractor's responsibility for design of the Temporary Works.
- 24.4. The Contractor shall obtain approval of third parties to the design of the Temporary Works, when required by the Procuring Entity.

## **25. Acceleration and Delays Ordered by the Procuring Entity's Representative**

- 25.1. When the Procuring Entity wants the Contractor to finish before the Intended Completion Date, the Procuring Entity's Representative will obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Procuring Entity accepts these proposals, the Intended Completion Date will be adjusted accordingly and confirmed by both the Procuring Entity and the Contractor.
- 25.2. If the Contractor's Financial Proposals for an acceleration are accepted by the Procuring Entity, they are incorporated in the Contract Price and treated as a Variation.

## **26. Extension of the Intended Completion Date**

- 26.1. The Procuring Entity's Representative shall extend the Intended Completion Date if a Variation is issued which makes it impossible for the Intended Completion Date to be achieved by the Contractor without taking steps to accelerate the remaining work, which would cause the Contractor to incur additional costs. No payment shall be made for any event which may warrant the extension of the Intended Completion Date.
- 26.2. The Procuring Entity's Representative shall decide whether and by how much to extend the Intended Completion Date within twenty one (21) days of the Contractor asking the Procuring Entity's Representative for a decision thereto

after fully submitting all supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

## **27. Right to Vary**

- 27.1. The Procuring Entity's Representative with the prior approval of the Procuring Entity may instruct Variations, up to a maximum cumulative amount of ten percent (10%) of the original contract cost.
- 27.2. Variations shall be valued as follows:
- (a) At a lump sum price agreed between the parties;
  - (b) where appropriate, at rates in this Contract;
  - (c) in the absence of appropriate rates, the rates in this Contract shall be used as the basis for valuation; or failing which
  - (d) at appropriate new rates, equal to or lower than current industry rates and to be agreed upon by both parties and approved by the Head of the Procuring Entity.

## **28. Contractor's Right to Claim**

If the Contractor incurs cost as a result of any of the events under **GCC** Clause 13, the Contractor shall be entitled to the amount of such cost. If as a result of any of the said events, it is necessary to change the Works, this shall be dealt with as a Variation.

## **29. Dayworks**

- 29.1. Subject to **GCC** Clause 43 on Variation Order, 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.
- 29.2. All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Procuring Entity's Representative. Each completed form shall be verified and signed by the Procuring Entity's Representative within two days of the work being done.
- 29.3. The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

## **30. Early Warning**

- 30.1. The Contractor shall warn the Procuring Entity's Representative at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price, or delay

the execution of the Works. The Procuring Entity's Representative may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.

- 30.2. The Contractor shall cooperate with the Procuring Entity's Representative in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Procuring Entity's Representative.

### **31. Program of Work**

- 31.1. Within the time stated in the SCC, the Contractor shall submit to the Procuring Entity's Representative for approval a Program of Work showing the general methods, arrangements, order, and timing for all the activities in the Works.
- 31.2. An update of the Program of Work shall show the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.
- 31.3. 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.
- 31.4. The Procuring Entity's Representative's approval of the Program of Work shall not alter the Contractor's obligations. The Contractor may revise the Program of Work and submit it to the Procuring Entity's Representative again at any time. A revised Program of Work shall show the effect of any approved Variations.
- 31.5. When the Program of Work is updated, the Contractor shall provide the Procuring Entity's Representative with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.
- 31.6. All Variations shall be included in updated Program of Work produced by the Contractor.

### **32. Management Conferences**

- 32.1. Either the Procuring Entity's Representative or the Contractor may require the other to attend a Management Conference. The Management Conference shall review the plans for remaining work and deal with matters raised in accordance with the early warning procedure.

32.2. The Procuring Entity's Representative shall record the business of Management Conferences and provide copies of the record to those attending the Conference and to the Procuring Entity . The responsibility of the parties for actions to be taken shall be decided by the PROCURING ENTITY's Representative either at the Management Conference or after the Management Conference and stated in writing to all who attended the Conference.

### **33. Bill of Quantities**

33.1. The Bill of Quantities shall contain items of work for the construction, installation, testing, and commissioning of work to be done by the Contractor.

33.2. The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

33.3. If the final quantity of any work done differs from the quantity in the Bill of Quantities for the particular item and is not more than twenty five percent (25%) of the original quantity, provided the aggregate changes for all items do not exceed ten percent (10%) of the Contract price, the Procuring Entity's Representative shall make the necessary adjustments to allow for the changes subject to applicable laws, rules, and regulations.

33.4. If requested by the Procuring Entity's Representative, the Contractor shall provide the Procuring Entity's Representative with a detailed cost breakdown of any rate in the Bill of Quantities.

### **34. Instructions, Inspections and Audits**

34.1. The Procuring Entity's personnel shall at all reasonable times during construction of the Work be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of the construction.

34.2. If the Procuring Entity's Representative instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no defect, the test shall be a Compensation Event.

34.3. The Contractor shall permit the Funding Source named in the SCC to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the Funding Source, if so required by the Funding Source.

### **35. Identifying Defects**

The Procuring Entity's Representative shall check the Contractor's work and notify the Contractor of any defects that are found. Such checking shall not affect the Contractor's responsibilities. The Procuring Entity's Representative may instruct the Contractor to search uncover defects and test any work that the Procuring Entity's Representative considers below standards and defective.

### **36. Cost of Repairs**

Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Liability Periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

### **37. Correction of Defects**

- 37.1. The Procuring Entity's Representative shall give notice to the Contractor of any defects before the end of the Defects Liability Period, which is One (1) year from project completion up to final acceptance by the Procuring Entity's.
- 37.2. Every time notice of a defect is given, the Contractor shall correct the notified defect within the length of time specified in the Procuring Entity's Representative's notice.
- 37.3. The Contractor shall correct the defects which he notices himself before the end of the Defects Liability Period.
- 37.4. The Procuring Entity shall certify that all defects have been corrected. If the Procuring Entity considers that correction of a defect is not essential, he can request the Contractor to submit a quotation for the corresponding reduction in the Contract Price. If the Procuring Entity accepts the quotation, the corresponding change in the SCC is a Variation.

### **38. Uncorrected Defects**

- 38.1. The Procuring Entity shall give the Contractor at least fourteen (14) days notice of his intention to use a third party to correct a Defect. If the Contractor does not correct the Defect himself within the period, the Procuring Entity may have the Defect corrected by the third party. The cost of the correction will be deducted from the Contract Price.
- 38.2. The use of a third party to correct defects that are uncorrected by the Contractor will in no way relieve the Contractor of its liabilities and warranties under the Contract.

### **39. Advance Payment**

- 39.1. 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.
- 39.2. The advance payment shall be made only upon the submission to and acceptance by the Procuring Entity of an irrevocable standby letter of credit of equivalent value from a commercial bank, a bank guarantee or a surety bond callable upon demand, issued by a surety or insurance company duly licensed by the Insurance Commission and confirmed by the Procuring Entity.

- 39.3. The advance payment shall be repaid by the Contractor by an amount equal to the percentage of the total contract price used for the advance payment.
- 39.4. The contractor may reduce his standby letter of credit or guarantee instrument by the amounts refunded by the Monthly Certificates in the advance payment.
- 39.5. The Procuring Entity will provide an Advance Payment on the Contract Price as stipulated in the Conditions of Contract, subject to the maximum amount stated in SCC Clause 39.1.

#### **40. Progress Payments**

- 40.1. The Contractor may submit a request for payment for Work accomplished. Such request 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.
- 40.2. The Procuring Entity shall deduct the following from the certified gross amounts to be paid to the contractor as progress payment:
  - (a) Cumulative value of the work previously certified and paid for.
  - (b) Portion of the advance payment to be recouped for the month.
  - (c) Retention money in accordance with the condition of contract.
  - (d) Amount to cover third party liabilities.
  - (e) Amount to cover uncorrected discovered defects in the works.
- 40.3. Payments shall be adjusted by deducting therefrom the amounts for advance payments and retention. The Procuring Entity shall pay the Contractor the amounts certified by the Procuring Entity's Representative within twenty eight (28) days from the date each certificate was issued. No payment of interest for delayed payments and adjustments shall be made by the Procuring Entity.
- 40.4. The first progress payment may be paid by the Procuring Entity to the Contractor provided that at least twenty percent (20%) of the work has been accomplished as certified by the Procuring Entity's Representative.
- 40.5. Items of the Works for which a price of "0" (zero) has been entered will not be paid for by the Procuring Entity and shall be deemed covered by other rates and prices in the Contract.

#### **41. Payment Certificates**

- 41.1. The Contractor shall submit to the Procuring Entity's Representative monthly statements of the estimated value of the work executed less the cumulative amount certified previously.

- 41.2. The Procuring Entity's Representative shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.
- 41.3. The value of Work executed shall:
- (a) be determined by the Procuring Entity's Representative;
  - (b) comprise the value of the quantities of the items in the Bill of Quantities completed; and
  - (c) include the valuations of approved variations.
- 41.4. The Procuring Entity's Representative may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

## **42. Retention**

- 42.1. The Procuring Entity shall retain from each payment due to the Contractor an amount equal to a percentage thereof using the rate as specified in **ITB Sub-Clause 42.2**.
- 42.2. Progress payments are subject to retention of ten percent (10%), referred to as the "retention money." Such retention shall be based on the total amount due to the Contractor prior to any deduction and shall be retained from every progress payment until fifty percent (50%) of the value of Works, as determined by the Procuring Entity, are completed. If, after fifty percent (50%) completion, the Work is satisfactorily done and on schedule, no additional retention shall be made; otherwise, the ten percent (10%) retention shall again be imposed using the rate specified therefor.
- 42.3. The total "retention money" shall be due for release upon final acceptance of the Works. The Contractor may, however, request the substitution of the retention money for each progress billing with irrevocable standby letters of credit from a commercial bank, bank guarantees or surety bonds callable on demand, of amounts equivalent to the retention money substituted for and acceptable to the Procuring Entity, provided that the project is on schedule and is satisfactorily undertaken. Otherwise, the ten (10%) percent retention shall be made. Said irrevocable standby letters of credit, bank guarantees and/or surety bonds, to be posted in favor of the Government shall be valid for a duration to be determined by the concerned implementing office/agency or Procuring Entity and will answer for the purpose for which the ten (10%) percent retention is intended, *i.e.*, to cover uncorrected discovered defects and third party liabilities.
- 42.4. On completion of the whole Works, the Contractor may substitute retention money with an "on demand" Bank guarantee in a form acceptable to the Procuring Entity.



### 43. Variation Orders

- 43.1. Variation Orders may be issued by the Procuring Entity to cover any increase/decrease in quantities, including the introduction of new work items that are not included in the original contract or reclassification of work items that are either due to change of plans, design or alignment to suit actual field conditions resulting in disparity between the preconstruction plans used for purposes of bidding and the “as staked plans” or construction drawings prepared after a joint survey by the Contractor and the Procuring Entity after award of the contract, provided that the cumulative amount of the Variation Order does not exceed ten percent (10%) of the original project cost. The addition/deletion of Works should be within the general scope of the project as bid and awarded. The scope of works shall not be reduced so as to accommodate a positive Variation Order. A Variation Order may either be in the form of a Change Order or Extra Work Order.
- 43.2. A Change Order may be issued by the Procuring Entity to cover any increase/decrease in quantities of original Work items in the contract.
- 43.3. An Extra Work Order may be issued by the Procuring Entity to cover the introduction of new work necessary for the completion, improvement or protection of the project which were not included as items of Work in the original contract, such as, where there are subsurface or latent physical conditions at the site differing materially from those indicated in the contract, or where there are duly unknown physical conditions at the site of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in the Work or character provided for in the contract.
- 43.4. Any cumulative Variation Order beyond ten percent (10%) shall be subject of another contract to be bid out if the works are separable from the original contract. In exceptional cases where it is urgently necessary to complete the original scope of work, the Head of the Procuring Entity may authorize a positive Variation Order go beyond ten percent (10%) but not more than twenty percent (20%) of the original contract price, subject to the guidelines to be determined by the GPPB: *Provided, however,* That appropriate sanctions shall be imposed on the designer, consultant or official responsible for the original detailed engineering design which failed to consider the Variation Order beyond ten percent (10%).
- 43.5. In claiming for any Variation Order, the Contractor shall, within seven (7) calendar days after such work has been commenced or after the circumstances leading to such condition(s) leading to the extra cost, and within twenty-eight (28) calendar days deliver a written communication giving full and detailed particulars of any extra cost in order that it may be investigated at that time. Failure to provide either of such notices in the time stipulated shall constitute a waiver by the contractor for any claim. The preparation and submission of Variation Orders are as follows:
- (a) If the Procuring Entity’s representative/Project Engineer believes that a Change Order or Extra Work Order should be issued, he shall prepare the proposed Order accompanied with the notices submitted by the

Contractor, the plans therefore, his computations as to the quantities of the additional works involved per item indicating the specific stations where such works are needed, the date of his inspections and investigations thereon, and the log book thereof, and a detailed estimate of the unit cost of such items of work, together with his justifications for the need of such Change Order or Extra Work Order, and shall submit the same to the Head of the Procuring Entity for approval.

- (b) The Head of the Procuring Entity or his duly authorized representative, upon receipt of the proposed Change Order or Extra Work Order shall immediately instruct the technical staff of the Procuring Entity's to conduct an on-the-spot investigation to verify the need for the Work to be prosecuted. A report of such verification shall be submitted directly to the Head of the Procuring Entity or his duly authorized representative.
- (c) The, Head of the Procuring Entity or his duly authorized representative, after being satisfied that such Change Order or Extra Work Order is justified and necessary, shall review the estimated quantities and prices and forward the proposal with the supporting documentation to the Head of Procuring Entity for consideration.
- (d) If, after review of the plans, quantities and estimated unit cost of the items of work involved, the proper office of the procuring entity empowered to review and evaluate Change Orders or Extra Work Orders recommends approval thereof, Head of the Procuring Entity or his duly authorized representative, believing the Change Order or Extra Work Order to be in order, shall approve the same.
- (e) The timeframe for the processing of Variation Orders from the preparation up to the approval by the Head of the Procuring Entity concerned shall not exceed thirty (30) calendar days.

#### **44. Contract Completion**

Once the project reaches an accomplishment of ninety five (95%) of the total contract amount, the Procuring Entity may create an inspectorate team to make preliminary inspection and submit a punch-list to the Contractor in preparation for the final turnover of the project. Said punch-list will contain, among others, the remaining Works, Work deficiencies for necessary corrections, and the specific duration/time to fully complete the project considering the approved remaining contract time. This, however, shall not preclude the claim of the Procuring Entity for liquidated damages.

#### **45. Suspension of Work**

45.1. The Procuring Entity shall have the authority to suspend the work wholly or partly by written order for such period as may be deemed necessary, due to *force majeure* or any fortuitous events or for failure on the part of the Contractor to correct bad conditions which are unsafe for workers or for the general public, to carry out valid orders given by the Procuring Entity or to

perform any provisions of the contract, or due to adjustment of plans to suit field conditions as found necessary during construction. The Contractor shall immediately comply with such order to suspend the work wholly or partly.

- 45.2. The Contractor or its duly authorized representative shall have the right to suspend work operation on any or all projects/activities along the critical path of activities after fifteen (15) calendar days from date of receipt of written notice from the Contractor to the district engineer/regional director/consultant or equivalent official, as the case may be, due to the following:
- (a) There exist right-of-way problems which prohibit the Contractor from performing work in accordance with the approved construction schedule.
  - (b) Requisite construction plans which must be owner-furnished are not issued to the contractor precluding any work called for by such plans.
  - (c) Peace and order conditions make it extremely dangerous, if not possible, to work. However, this condition must be certified in writing by the Philippine National Police (PNP) station which has responsibility over the affected area and confirmed by the Department of Interior and Local Government (DILG) Regional Director.
  - (d) There is failure on the part of the Procuring Entity to deliver government-furnished materials and equipment as stipulated in the contract.
  - (e) Delay in the payment of Contractor's claim for progress billing beyond forty-five (45) calendar days from the time the Contractor's claim has been certified to by the procuring entity's authorized representative that the documents are complete unless there are justifiable reasons thereof which shall be communicated in writing to the Contractor.
- 45.3. In case of total suspension, or suspension of activities along the critical path, which is not due to any fault of the Contractor, the elapsed time between the effective order of suspending operation and the order to resume work shall be allowed the Contractor by adjusting the contract time accordingly.

## **46. Payment on Termination**

- 46.1. If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Procuring Entity's Representative shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the SCC. Additional Liquidated Damages shall not apply. If the total amount due to the Procuring Entity exceeds any payment due to the Contractor, the difference shall be a debt payable to the Procuring Entity.
- 46.2. If the Contract is terminated for the Procuring Entity's convenience or because of a fundamental breach of Contract by the Procuring Entity, the Procuring

Entity's Representative shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.

- 46.3. The net balance due shall be paid or repaid within twenty eight (28) days from the notice of termination.
- 46.4. If the Contractor has terminated the Contract under GCC Clauses 17 or 18, the Procuring Entity shall promptly return the Performance Security to the Contractor.

#### **47. Extension of Contract Time**

- 47.1. Should the amount of additional work of any kind or other special circumstances of any kind whatsoever occur such as to fairly entitle the contractor to an extension of contract time, the Procuring Entity shall determine the amount of such extension; provided that the Procuring Entity is not bound to take into account any claim for an extension of time unless the Contractor has, prior to the expiration of the contract time and within thirty (30) calendar days after such work has been commenced or after the circumstances leading to such claim have arisen, delivered to the Procuring Entity notices in order that it could have investigated them at that time. Failure to provide such notice shall constitute a waiver by the Contractor of any claim. Upon receipt of full and detailed particulars, the Procuring Entity shall examine the facts and extent of the delay and shall extend the contract time completing the contract work when, in the Procuring Entity's opinion, the findings of facts justify an extension.
- 47.2. No extension of contract time shall be granted the Contractor due to (a) ordinary unfavorable weather conditions and (b) inexcusable failure or negligence of Contractor to provide the required equipment, supplies or materials.
- 47.3. Extension of contract time may be granted only when the affected activities fall within the critical path of the PERT/CPM network.
- 47.4. No extension of contract time shall be granted when the reason given to support the request for extension was already considered in the determination of the original contract time during the conduct of detailed engineering and in the preparation of the contract documents as agreed upon by the parties before contract perfection.
- 47.5. Extension of contract time shall be granted for rainy/unworkable days considered unfavorable for the prosecution of the works at the site, based on the actual conditions obtained at the site, in excess of the number of rainy/unworkable days pre-determined by the Procuring Entity in relation to the original contract time during the conduct of detailed engineering and in the preparation of the contract documents as agreed upon by the parties before contract perfection, and/or for equivalent period of delay due to major

calamities such as exceptionally destructive typhoons, floods and earthquakes, and epidemics, and for causes such as non-delivery on time of materials, working drawings, or written information to be furnished by the Procuring Entity, non-acquisition of permit to enter private properties within the right-of-way resulting in complete paralyzation of construction activities, and other meritorious causes as determined by the Procuring Entity's Representative and approved by the Head of the Procuring Entity. Shortage of construction materials, general labor strikes, and peace and order problems that disrupt construction operations through no fault of the Contractor may be considered as additional grounds for extension of contract time provided they are publicly felt and certified by appropriate government agencies such as DTI, DOLE, DILG, and DND, among others. The written consent of bondsmen must be attached to any request of the Contractor for extension of contract time and submitted to the Procuring Entity for consideration and the validity of the Performance Security shall be correspondingly extended.

#### **48. Price Adjustment**

Except for extraordinary circumstances as determined by NEDA and approved by the GPPB, no price adjustment shall be allowed. Nevertheless, in cases where the cost of the awarded contract is affected by any applicable new laws, ordinances, regulations, or other acts of the GOP, promulgated after the date of bid opening, a contract price adjustment shall be made or appropriate relief shall be applied on a no loss-no gain basis.

#### **49. Completion**

The Contractor shall request the Procuring Entity's Representative to issue a certificate of Completion of the Works, and the Procuring Entity's Representative will do so upon deciding that the work is completed.

#### **50. Taking Over**

The Procuring Entity shall take over the Site and the Works within seven (7) days from the date the Procuring Entity's Representative issues a certificate of Completion.

#### **51. Operating and Maintenance Manuals**

- 51.1. If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the **SCC**.
- 51.2. If the Contractor does not supply the Drawings and/or manuals by the dates stated in the **SCC**, or they do not receive the Procuring Entity's Representative's approval, the Procuring Entity's Representative shall withhold the amount stated in the **SCC** from payments due to the Contractor.

## ***Section V. Special Conditions of Contract***

### **Notes on the Special Conditions of Contract**

Similar to the Section III. Bid Data Sheet, the clauses in this Section are intended to assist the Procuring Entity in providing contract-specific information in relation to corresponding clauses in the GCC.

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

- (a) Information that complements provisions of Section IV. General Conditions of Contract must be incorporated.
- (b) Amendments and/or supplements to provisions of Section IV. General Conditions of Contract, as necessitated by the circumstances of the specific project, must also be incorporated.

However, no special condition which defeats or negates the general intent and purpose of the provisions of Section IV. General Conditions of Contract should be incorporated herein.

For foreign-assisted projects, the Special Conditions of Contract to be used is provided in Section X-Foreign-Assisted Projects.

# Special Conditions of Contract

GCC Clause	
1.16	The <b>Intended Completion Date</b> is <i>May 22, 2015</i>
1.21	The <b>Procuring Entity</b> is <i>OLONGAPO CITY GOVERNMENT, OLONGAPO CITY.</i>
1.22	The <b>Procuring Entity's Representative</b> is <i>Engr. Eduardo Santos.</i>
1.23	The <b>Site</b> is located at <i>iram Brgy. New Cabalan, Olongapo City.</i>
1.27	The <b>Start Date</b> is <i>March 24, 2015</i>
1.30	The <b>Works</b> consist of <i>Earthworks, Concrete Works, Installation of lines.</i>
2.2	<i>If different dates are specified for completion of the Works by section ("sectional completion"), these dates should be listed here----N/A</i>
5.1	The <b>Procuring Entity</b> shall give possession of all parts of the Site to the Contractor <i>March 24, 2015.</i>
6.5	The Contractor shall employ the following <b>Key Personnel:</b>  <i>[List key personnel by name and designation]</i>
7.4(c)	"No further instructions".
7.7	No further instructions.
8.1	No further instructions.
10	The site investigation reports are: <i>[list here or state none]</i>
12.3	No further instructions.
12.5	<p><i>In case of permanent structures, such as buildings of types 4 and 5 as classified under the National Building Code of the Philippines and other structures made of steel, iron, or concrete which comply with relevant structural codes (e.g., DPWH Standard Specifications), such as, but not limited to, steel/concrete bridges, flyovers, aircraft movement areas, ports, dams, tunnels, filtration and treatment plants, sewerage systems, power plants, transmission and communication towers, railway system, and other similar permanent structures: Fifteen (15) years.</i></p> <p><i>In case of semi-permanent structures, such as buildings of types 1, 2, and 3 as classified under the National Building Code of the Philippines, concrete/asphalt roads, concrete river control, drainage, irrigation lined canals, river landing, deep wells, rock causeway, pedestrian overpass, and other similar semi-permanent structures: Five (5) years.</i></p> <p><i>In case of other structures, such as Bailey and wooden bridges, shallow wells, spring developments, and other similar structures: Two (2) years.</i></p>

13	“No additional provision.”
18.3(h)(i)	No further instructions.
21.2	The Arbiter is: <i>BAC Chairman</i> <i>Olongapo City Government, Olongapo City</i>
29.1	Dayworks are applicable at the rate shown in the Contractor’s original Bid.
31.1	The Contractor shall submit the Program of Work to the Procuring Entity’s Representative within <i>seven</i> days of delivery of the Letter of Acceptance.
31.3	The period between Program of Work updates is <i>seven</i> days.  The amount to be withheld for late submission of an updated Program of Work is <i>83,546.46</i> .
34.3	The Funding Source is the <i>Government of the Philippines(DILG), Olongapo City</i> .
39.1	The amount of the advance payment is <i>15% of the contract price</i>
40.1	Materials and equipment delivered on the site but not completely put in place shall be included for payment.
51.1	The date by which operating and maintenance manuals are required is <i>[date].---N/A</i>  The date by which “as built” drawings are required is <i>June 2, 2015</i>
51.2	The amount to be withheld for failing to produce “as built” drawings and/or operating and maintenance manuals by the date required is <i>Php 83,546.46</i> .



## ***Section VI. Specifications***

### **Notes on Specifications**

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

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

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

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

#### **Sample Clause: Equivalency of Standards and Codes**

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

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

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

## **TECHNICAL SPECIFICATIONS**

### **DIVISION I GENERAL REQUIREMENTS**

#### **SECTION 1A SUMMARY OF WORKS**

##### **1A.1 General**

1A.1.1 All Work specified under the various sections of the Technical Specifications shall be subject to the General Conditions which forms and integral part of these Specifications.

##### **1A.2 Scope of Work**

1A.2.1 The works contemplated under this contract shall consist of furnishing all necessary materials, labor, tools equipment, plant facilities, and the satisfactory performances of all works necessary for the complete construction of the work indicated in the Contract Documents and specified herein.

1A.2.2 Materials deemed necessary to complete the Works but not specifically mentioned in the Specifications, drawings or in the other Contract Documents, shall be supplied and installed by the Contractor without extra cost to the Owner.

1A.2.3 The Contractor shall verify all governing condition at the site under which the work is to be performed, the obstacles which may be encountered and shall become fully informed as to the extent and the character of the work required. No consideration will be granted for any alleged misunderstanding of the materials to be furnished or work to be done, it being understood, that the submission of the proposal is in agreement to all items and conditions referred to herein or indicated on the accompanying drawings. No increase in cost or extension of performance will be considered for failure to know actual site conditions.

1A.2.4 Owner – supplied finishing accessories, furnishings and fixtures, such as wall clocks, picture frames, fixed furniture, etc. shall be installed by the Contractor at no cost to the Owner whenever required by the Owner.

1A.2.5 Off-site improvements and activities necessary to completely finish the project shall be part of the Contractor's work under the contract and generally as follows: permanent connections to the local utility lines for electrical, water drainage and telephone lines including equipment, facilities, materials, and/or work which the utility companies or authorities may require of the Applicant/Owner. This works shall be inclusive of all permits

forms and fees to pertinent authorities particularly when tapping sources are not directly adjacent to the site and which has to be accessed by going across other properties.

#### **1A.3.0 Contract Documents:**

1A.3.1 The Contractor shall check all drawings furnished him and immediately upon their receipts and shall promptly notify the Architect of any discrepancies. Figures marked on drawings shall in general be followed in preference to scale in measurements. Large-scale drawings shall govern small-scale drawings. The Contractor shall compare all drawings and verify the figures before laying out the work and will be responsible for any errors which might have been avoided thereby.

1A.3.2 Omissions from the drawings or specifications or the mis-description of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or mis-described in the drawings and specifications.

1A.3.3 All works to be done shall be in accordance with the National and local laws and ordinances that are in force.

1A.3.4 Applicable provisions of codes and standards of different organizations as referenced in the different Divisions.

1A.3.5 The Contractor shall secure all necessary permits from duly authorized government agencies and shall also secure the necessary certificate of inspections and permits to operate from same agencies. All construction permits and fees required for this work shall be obtained by and at the expense of the contractor.

1A.3.6 Submittals: The Contractor shall prepare and submit the following documents to ensure proper coordination and timely completion of the works:

1A.3.6 a. CPM Network.

1A.3.6 b. Bar chart schedule.

1A.3.6 c. Detailed shop drawings as required by the different sections of these Specifications.

1A.3.6 d. Samples of materials as required.

1A.3.6 e. As built drawings within fifteen (15) calendar days from the date of acceptance by the Owner of installation..

## **2 SITE WORK**

### **SECTION 2A EARTHWORK**

2A.1 **Scope.** This section includes the following:

2A.1.1 a Complete clearing of site, general site grading, and provision of backfill and garden soil, as indicated.

2A.1.2 b. Complete excavating, filling and backfilling for building as well as for utilities within the building and to the points of connection with the building utility or to terminal points indicated.

2A.2 **General.** Bids shall be based on the following:

2A.2.1 a. That the surface elevations are as indicated;

2A.2.2 b. That no pipes or other artificial obstructions, except those indicated, will be encountered.

In case the actual conditions differ substantially from those stated and/or shown, the provisions of the contract respecting an adjustment for changed conditions shall apply, subject to the requirement of notification thereunder being given. Hard material shall be defined as solid ledge rock, firmly cemented unsatisfied masses or conglomerate deposits possessing the characteristics of solid rock not ordinarily removed without systematic drilling and blasting and any shoulder, masonry or concrete except pavements, exceeding 1/2 cubic meter in volume.

2A.2.3 **Excavation, general** The Contractor shall perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevation indicated and as specified herein. Grading shall be in conformity with the typical sections shown and shall be finished within a tolerance of 25/100 0.30 m of the grades indicated. Satisfactory excavated materials shall be transported to and placed in fill areas within work limits. Unsatisfactory materials encountered below the established sub-grade shown under building or paved areas shall be excavated 300 mm or 31 cm below grade and replaced with satisfactory materials to a greater depth than specified, an adjustment in the contract price will be made in accordance with the contract. Surplus satisfactory excavated material not required for fill or embankment shall be disposed of to the designated waste or spoil areas. Unsatisfactory excavated materials shall be disposed of in designated wastes or spoil areas. Excavation and filling shall performed in manner and sequence that will provide proper drainage at all times.

2A.3 **Excavating, for Drainage System**

2A.3.1 **General.** Excavations shall conform to dimensions and elevations indicated for the drainage structure, and shall extend a sufficient distance from walls to surfaces, except where the concrete for walls is authorized to be deposited directly against excavation surface

2A.3.2 **Excess excavation.** Excavations carried below indicated depths will not be permitted except to remove unsatisfactory material. Unsatisfactory materials encountered below grades shown shall be removed and replace as directed with satisfactory materials. Unauthorized materials removed below depths indicated shall be replaced, at no additional cost to the owners, to the indicated excavation grade with satisfactory materials placed and compacted to 100% maximum density except under concrete walls.

2A.3.3 **Drainage and pumping.** Excavate in such a manner that the site area, and immediate surrounding will be continually drained. Water shall not be permitted to accumulate in excavation. Do all necessary pumping required to keep excavations dry. Provide well point system if needed.

2A.3.3a Shoring during excavation shall be furnished and installed as necessary to protect workers, banks, adjacent paving, structures, and utilities. Shoring, bracing, and sheeting shall be removed as excavations are backfilled in such a manner as to prevent injurious caving.

2A.3.4 **Excavated materials.** Satisfactory excavated materials required for fill or backfill be separately stockpiled as directed. Unsatisfactory and surplus excavated materials not required for fill and backfill shall be disposed of in designated waste area. Stockpiles and wasted materials shall be graded and sloped for proper drainage.

2A.3.5 Backfilling shall not begin until construction below finish grade has been approved, underground utilities systems have been inspected, tested and approved, formed removed, and the excavation cleaned of trash and debris. Backfill shall be brought to indicated finish sub-grade. Backfill shall not be placed in wet areas. Backfill materials shall be satisfactory materials, free from roots and other organic matter, trash, debris, and stones larger than 75 cm in any dimension. Place backfill in 23 cm maximum layers loose depth. Compaction shall be as in Paragraph 2A.5. Fill shall be compacted by power-driven hand tampers suitable for the materials being compacted. Backfill shall not be placed against foundation walls prior to 7 days after placement of concrete or masonry. As far as practicable, backfill shall be brought up evenly on each side of the wall and sloped to drain away from the wall. Brace inside of the wall before backfill is placed on the outside of basement.

2A.3.6 **Protection.** Settlement that occurs in backfill areas prior to acceptance of the work shall be repaired and grades re-established to the required elevation and slope.

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

#### 2A.4 **Excavation, trenching, and backfilling for utilities.**

2A.4.1 **General.** Perform all excavation of every description and of whatever substance encountered to depths indicated or specified. Pile materials suitable for backfilling a sufficient distance from banks of 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. All excavated materials not required or suitable for backfill shall be wasted as directed. Water shall be removed by pumping or other approved method and shall be discharged at a safe distance from the excavation. Sheathing and shoring shall be done as necessary for protection of work and for safety of personnel.

2A.4.2 **Trench excavation.** Trenches shall be of necessary width for proper laying of pipe, while concrete lining, duct, or cable, and banks shall be as nearly vertical as practicable. Trench excavation shall be coordinated to avoid open trenches for prolonged periods. Bottoms of trenches shall be accurately graded to provided uniform bearing and support for each section of pipe on undisturbed soil at every point along its entire length, except for portion of pipe sections where it is necessary to excavate for bell holes and for proper making of pipe joints. Bell bottom has been graded and shall be only 12 mm greater in length, depth,

and width than the bell, as required properly making the particular type of joints, and to insure that the bell does not bear on the bottom of the hole.

2A.4.3 Backfilling shall be coordinated with testing of utilities. Where damage is likely to result from withdrawing sheeting, it shall be left in place and contract price will be adjusted accordingly. Trenches shall be carefully backfilled with satisfactory materials, consisting of earth, loam, sandy clay, sand and gravel, or soft shale, free from large clod of earth or stones not over 25 mm in size and deposited in 23 cm maximum layer, loose depth. Backfill shall be brought up evenly on both sides of pipe for a cover of not less than 31 cm for storm drains. Care shall be taken not to damage pipe. The remainder of backfill materials shall be deposited in the trench in 31 cm maximum layers and compacted by mechanical means. Trenches and excavation pits improperly backfilled, or where settlement occurs, shall be reopened to the depth required for proper compaction, then refilled and compacted, with the surface restored to the required grade and compaction.

## **SECTION 2B REMOVAL AND DISPOSAL**

2B.1 **Scope.** This section includes removal and disposal including salvaging of materials, complete.

### **2B.2 General**

2B.2.1 **Availability of work areas.** Areas in which salvage and demolition work are to be accomplished will be available upon receipt by the Contractor of the notice to proceed.

2B.2.2 **Procedures.** The procedures proposed for the accomplishment of salvage and demolition or removal work shall be submitted for approval. The procedure shall for safe conduct of the work, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services.

2B.2.3 **Disconnection of utility services.** Utilities shall be disconnected at the points directed. Where such disconnection will interrupt the utility services to an area not included in the contract, arrangements for such interruption shall be made with the Construction Architect/Engineer at least 24 hours in advance of the interruption.

2B.2.4 **Dust Control.** The amount of dust resulting from the salvage and the removal operations shall be controlled to prevent the spread of dust to occupied portions of the building and to avoid creation of a nuisance in the surrounding area.

2B.2.5 **Use of explosives.** The use of explosives will not be permitted.

2B.2.6 **Burning.** The use of burning at the project site for the disposal of refuse debris will not be permitted.

2B.2.7 **Salvage.** Items designated to be salvaged or saved shall be carefully removed, cleaned of all dust, dirt and foreign matter, and delivered to the Owner's storage area.

### **2B.3 Demolition**

**2B.3.1 Extent of demolition**

**2B.3.1.1 Existing structures.** After removal of items to be salvaged as directed, all existing structures shall be demolished or removed.

**2B.3.1.2 Disposition of materials.** Materials not indicated or specified to be salvaged shall be disposed of by the Contractor outside the limits of property at his responsibility.

**2B.3.1.3 Utilities.** Existing utility lines shall be removed to the extent that they would project into or interfere with the new construction.

**2B.4.1 Grades.** Cutting, filling and grading will be done to bring all areas of the respective surfacing as fixed by the finished grade.

**2B.4.2 Degree of compaction.** Required compaction is expressed as percentage of the maximum density obtained by test procedure of ASTM D1557.

**2B.4.3 Sub-grade preparation** Sub-grade shall be shaped to line, grade, and cross section, and compacted as specified. This operation shall include plowing, dusting, 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 elevations shown.

**2B.4.4 Compaction** shall be by rolling with approved tamping rollers, vibratory rollers, pneumatic-tired rollers, three-wheel power rollers, or other approved equipment well-suited to the particular soil being compacted. Materials shall be moistened or aerated as necessary to provide the moisture content that will facilitate obtaining the specified compaction with the equipment utilized. Each layer shall be compacted to not less than percentage of maximum density specified below, determined in accordance with ASTM D1557, method D:

Fills, Embankments, Backfill and Sub-grade Preparation	Cohesionless Soil	Cohesive Soil
Under proposed structures and building slabs	100	95
Under paved areas, top 31 cm	100	95
Under paved areas, below top 300 mm or 31 cm	100	95
Backfill adjacent to structures	100	90

**ITEM 202 – CRUSHED AGGREGATE BASE COURSE**

**202.1 Description**

This item shall consist of furnishing, placing and compacting crushed gravel, crushed stone or crushed rock on a prepared subgrade/subbase in one or more layers in accordance with this Specification and lines, grades thickness and typical cross-sections shown on the Plans or as established by the Engineer.

## 202.2 Material Requirements

### 202.2.1 Crushed Aggregate

It shall consist of hard, durable pieces or fragments of stone or gravel crushed to the size and of the quality requirements of this Item. It shall be clean and free from vegetable matters, lumps or balls of clay and other deleterious substances. The material shall be of such nature that it can be compacted readily to form a firm, stable base.

The base material shall conform to the grading requirements of Table 202.1, whichever is called in for the Bill of Quantities.

**Table 201.1 – Grading Requirements**

Sieve Designation		Mass Percent Passing	
Standard, mm	Alternate US Standard	Grading A	Grading B
37.5	1 – ½ “	100	
25	1”	-	100
19	¾”	60 – 85	-
12.5	½”	-	60 – 90
4.75	No.4	30 – 55	35 – 65
0.425	No.40	8 – 25	10 – 30
0.075	No.200	2 - 14	5 - 15

The portion of the material passing the 0.075 mm (No. 200) sieve shall not be greater than 0.66 (two thirds) of the fraction passing the 0.425 mm (No. 40) sieve.

The portion of the material passing the 0.425 mm (No. 40) sieve shall have a liquid limit of not more than 25 and plasticity index of not more than 6 as determined by AASHTO T 89 and T 90, respectively. The coarse aggregate retained on a 2.00 mm (No. 10) sieve shall have a mass percent of wear not exceeding 45 by the Los Angeles Abrasion Test as determined by AASHTO T 96, and not less than 50 mass percent shall have at least one (1) fractured face.

The material passing the 19 mm (¾ inch) shall have a minimum soaked CBR-value of 80% tested according to AASHTO T 193. The CBR-value shall be obtained at the maximum dry density determined according to AASHTO T 180, Method D.



If filler, in addition to that naturally present, is necessary for meeting the grading requirements or for satisfactory bonding, it shall be uniformly blended with the crushed base course material on the road or in a pug mill unless otherwise specified or approved. Filler shall be obtained from sources approved by the Engineer, free from hard lumps and not contain more than 15 percent of material retained on the 4.75 mm (No. 4) sieve.

**202.3 Construction Requirements**

Same as Subsection 201.3.1 through 201.3.5

**202.4 Method of Measurement**

Crushed Aggregate Base Course will be measured by the cubic meter (m<sup>3</sup>). The quantity to be paid for shall be the design volume compacted in-place as shown on the Plans, and accepted in the completed course. No allowance shall be given for materials placed outside the design limits shown on the cross-sections. Trial sections shall not be measured separately but shall be included in the quantity of crushed aggregate base course.

**202.5 Basis of Payment**

The accepted quantities, measured as prescribed in Section 202.4, shall be paid for at the contract unit price for Crushed Aggregate Base Course which price and payment shall be full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
202	Crushed Aggregate Base Course	Cubic Meter

**2A.6.1 Construction.** Sub-grade shall be shaped to line, grade, and cross section, and compacted as specified. This operation shall include plowing, dusting, 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 elevations shown.

**2A.6.2 Protection.** During construction any excavation shall be kept shaped and drained. Ditches and drains shall be maintained in such manner as to drain effectively at all times. Storage or stockpiling of materials on the sub-grade will not be permitted. Graded areas shall be protected against action of the elements prior to acceptance of the work. Settlement or washing that may have occurred shall be repaired and grades shall be re-established to the required elevations and slopes immediately prior to installation of paving.

**DIVISION 3 CONCRETE**

## **SECTION 3A CAST – IN - PLACE CONCRETE**

3A.1 **Scope.** This section includes cast-in-place concrete, complete.

3A.2 **Delivery and storage.**

3A.2.1 **Cement.** Cement shall be stored immediately upon receipt at the site of the work. Cement in bags shall be stored in a suitable weatherproof structure which shall be as airtight as practicable. Floors shall be elevated above the ground, a distance sufficient to prevent the absorption of moisture. Bags shall be stacked close together to reduce circulation of air but shall not be stacked against outside walls. The manner of storage shall permit easy access for inspection and identification of each shipment. Bulk cement shall be transferred to elevated airtight and weatherproof bins. At the time of use, all cement shall be free flowing, and free of lumps. Cement that has been in storage longer than 6 months will be tested by standard mortar test or other test as deemed necessary by the Construction Architect/Engineer to determine its suitability for use.

3A.2.2 **Aggregates.** Aggregates shall be stored on areas covered with tightly laid wood planks, sheet metal, or other hard and clean surface, and in manner that will preclude the inclusion of foreign materials. Aggregates of different sizes shall be stored in separate piles.

3A.2.3 **Reinforcement.** Reinforcement shall be stored in a manner that will avoid excessive rusting or coating with grease, oil, dirt and other objectionable materials. Storage shall be in separate piles or racks so as to avoid confusion and loss of identification after bundles are broken.

3A.3 **Materials.**

3A.3.1 **Cement.** Portland cement shall conform to PNS 07, type 1. Cement for exposed concrete surfaces shall be from the same mill.

3A.3.2 **Reinforcement.** All reinforcing steel bars, except No. 2, shall be deformed conforming to PNS grade 230, 275, and 415 (ASTM A615, grade 40, and 60 respectively)

3A.3.3 Fine aggregates shall be hard, durable, uncoated gravel, crushed gravel, or a combination thereof conforming to PNS 18, type 1.

3A.3.3 Coarse aggregates shall be hard, durable, uncoated gravel, crushed gravel, or a combination thereof conforming to PNS 18, type 2.

3A.3.4 Water. Mixing water for concrete shall be fresh, clean, and potable.

3A.3.5 Curing materials. Materials shall conform to one of the following unless otherwise designated:

3A.3.6.1 Polyethylene sheeting for curing, 6 mils minimum thickness, clear and conforming to commercial standard CS-238 as distributed by "The Elastomark Corporation" or Equivalent

3A.3.6.2 Waterproof kraft paper or polyethylene-coated waterproof paper for concrete curing shall be of commercial quality.

3A.3.6.3 Burlap, plain or polyethylene-coated burlap shall be of commercial quality.

3A.3.7 Expansion joint filler shall be elastomeric pre-molded type.

3A.3.8 Sealing materials for expansion joint shall be single component urethane or acrylic type sealant.

3A.3.9 Forms coating shall be non-staining type mineral oil.

3A.3.10 Vapor barrier shall be polyethylene sheets, 6 mils minimum thickness, clear, conforming to commercial standard CS-238 as distributed by "The Elastomark Corporation" or Equivalent.

3A.3.11 Water-stop shall be rubber, neoprene or PVC with applicable jointing vulcanizing agent.

#### 3A.4 Forms

**3A.4.1 General requirements.** Forms shall be provided for all concrete not indicated or specified otherwise. Forms shall be set true to line and grade and maintained so as to ensure completed work within the allowable tolerance specified, and shall be mortar tight. The Contractor shall be responsible for the adequacy of forms and form support. Wire ties shall not be used where the 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 after all reinforcement has been placed. Where forms for continuous surfaces are placed in successive units, these shall be fitted over the completed surface to obtain accurate alignment of the surface and to prevent leakages of mortar. Panel forms shall be constructed to provide tight joints between panels. All forms shall be constructed so that they can be removed without damaging the concrete. All exposed joints, edges, and external corners shall be chamfered a minimum of 20 mm unless specified otherwise hereinafter.

**3A.4.2 Material for forms.** Forms shall be of wood, plywood, steel, or other suitable materials. Wood forms for surfaces exposed to view in the finished structure and requiring a standard finish, shall be plywood. For unexposed surface, undressed square-edged lumber may be used. Forms for surfaces requiring special finishes shall be plywood or hard-pressed fiberboard not less than 12 mm thick. Surfaces of steel forms shall be free from irregularities, dents, and sags.

**3A.4.3 Coating.** Before placing the concrete, the contact surfaces of forms shall be coated with non-staining mineral oil or suitable non-staining form coating compound, or shall be given two coats of nitrocellulose lacquer, except as specified otherwise. Mineral oil shall be used on forms for surfaces which are to be painted. For surfaces not exposed to view in the finished structure and when temperature is above 10 degrees C, sheeting may be wetted thoroughly with clean water. All excess coating shall be removed by wiping with cloths. Re-used forms shall have the contact surfaces cleaned thoroughly; those which have been coated shall be given an additional application of the coating. Plaster waste molds shall be sized with two coats of thin shellac or lacquer and coated with soft or thinned non-staining grease.

**3A.4.4 Tolerance and variations.** The Contractor shall set and maintain concrete forms to insure that after removal of the forms and prior to patching and finishing, no portion of the concrete work will exceed any of the tolerances specified. Variation in floor levels shall be

measured before removal of supporting shore. The 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 allowable variations. Except as otherwise specified hereinafter, tolerances shall conform to ACI-347.

**3A.5 Classes of concrete and usage:**

**3A.5.1 Strength requirements.** Concrete of the various classes, if not indicated in the drawings and as specified under other sections, shall be proportioned and mixed for the following strengths:

Class A	Specified compressive strength		Class	Specified flexural	
	psi	mpa		psi	mpa
AA	4,000	27.57	600	4.136	
A	3,000	20.68			
B	2,500	17.23			
C	2,000	13.78			

Concrete made with early-strength cement shall have a 7-day strength equal to the specified 28-day strength for concrete of the class specified made with type or II portland cement.

**3A.5.2 Usage.** Concrete of the various classes shall be used as follows:

**3A.5.2.1 Class AA concrete.** For water storage tanks, septic tanks and other work as indicated.

**3A.5.2.2 Class A concrete.** For pre-cast concrete items, slabs, beams, and walls above grade, columns, stairs, lintels, and for all reinforced work not otherwise indicated or specified.

**3A.5.2.3 Class B concrete.** For slabs on grade, grade and tie beams, footings, and for such concrete work as indicated or specified.

**3A.5.2.4 Class C concrete.** For all concrete not reinforced except as otherwise indicated or specified.

**3A.5.2.5 Class P Concrete.** For slabs on grade subject to vehicular load and as indicated or specified.

**3A.6 Proportioning, measurement and mixing.**

**3A.6.1 Concrete design mix.** Concrete mixed except otherwise indicated shall be designed by the Contractor. The proportions shall be changed whenever necessary to maintain the workability, strength, and standard of quality for the concrete covered by these specifications,

and to meet the varying conditions encountered during construction. Test for slump and unit weight shall be performed under the supervision of the Construction Architect/Engineer.

3A.6.2 Slump shall be determined in conformance with ASTM C 143 and shall be within the following limits, provided the required strength is obtained:

Structural element	Slump for vibrated concrete	
	Minimum	Maximum
Walls, columns, and grade beams, 250 mm maximum thickness	75 mm	100 mm
Other construction*	50 mm	75 mm

\*Non-vibrated concrete will be placed only upon written approval.

3A.6.3 **Proportioning** of materials shall be accomplished by weighing, except as otherwise provided herein. In urgent situation, volumetric proportioning may be temporarily, if permitted by the Construction Architect/Engineer who will stipulate the length of the period during which volumetric proportioning may be used. The Contractor shall furnish the necessary equipment and shall establish accurate procedures, subject to the approval of the Construction Architect/Engineer for determining the quantities of free moisture in the aggregates, the true volume of the fine aggregate, if volumetric proportioning is used, and the air content of the freshly mixed concrete if air- entrained concrete is used. Moisture, volumetric and air determinations shall be made at intervals as directed by the Construction Architect/Engineer as specified hereinafter under field testing requirements. Allowable tolerances for measuring cement and water shall be done (1%) percent; for aggregates, two (2%) percent; and three (3%) percent for admixtures.

3A.6.3.1 **Weight measurement.** The fine aggregate and each size of coarse aggregate shall each be weighed separately. Cement in standard packages (bags) need not be weighed, but bulk cement or fractional packages shall be weighed on a scale separate from the used for weighing other materials.

3A.6.3.2 **Volumetric measurement.** The weight proportions shall be transposed into equivalent volumetric proportions by weighing representative samples of the aggregates in the conditions in which they will be measured and in accordance with ASTM C29. In determining the true volume of the fine aggregate allowance shall be made for the bulking effect from the moisture contained therein. Suitable allowances shall also be made for variations in the moisture conditions of the aggregates.

3A.6.4 **Mixing.** All concrete shall be machine-mixed. In emergencies, the mixing may be done by hand if so authorized by the Construction Architect/Engineer. Mixing shall begin within 30 minutes after the cement has been added to the aggregates. The time of mixing after all cement and aggregates are in the mixer drum shall be not less than one minute for mixers having a capacity of one cubic meter or less; for mixers of larger capacities, the minimum time shall be increased 15 second for each additional cubic meter or fraction thereof of additional capacity for continuous mixers conforming to ASTM C685 as

prescribed by the equipment manufacturer. A reduction in the aforementioned mixing time shall be permitted in accordance with ASTM C94 if mixer performance tests made at the contractor's option and at his expense, indicate adequate mixing with the reduced time. All mixing water shall be introduced in the drum before one-fourth of the mixing time has elapsed. The entire content of the mixer drum shall be discharged before recharging. The time elapsing between the introduction of the mixing water to the cement and aggregates or the cement to the aggregates and placing of the concrete in final position in the forms shall not exceed 60 minutes, if the air temperature is less than 29 degrees C and 45 minutes, if the air temperature is equal or greater than 29 degrees C. The re-tampering of concrete, i.e., re-mixing with or without additional cement, aggregate or water, will not be permitted.

**3A.6.5 Ready-mixed concrete.** Ready-mixed concrete shall conform to ASTM C94 modified herein. Ready-mixed concrete is defined in this specification as concrete produced regularly by a commercial establishment and delivered to the purchaser in the plastic state. Subject to the approval of the Construction Architect/Engineer, ready-mixed concrete may be used provided that (a) the plant has sufficient capacity and transportation equipment to deliver the concrete at the rate desired, and (b) the plant meets the requirements specified herein before the 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 the following methods:

**3A.6.5.1 Truck mixing.** Concrete shall be mixed and delivered in a truck mixer. Mixer shall be charged with a ribbon-fed mixture of aggregates shall be charged before the cement. When mixing has begun during or immediately after charging a portion of the mixing water not in excess of that required to produce the minimum acceptable slump shall be added of or with the other ingredients. Total mixing shall be for not less than 50 nor more than 100 revolutions of the drum at the manufacturer's rated mixing speed after all ingredients including water are in the drum, except as follows; after 30 to 75 revolutions of the drum the slump shall be tested and additional water shall be added if necessary to produce the required slump, if additional water is necessary, mixing shall be continued for at least 20 revolutions of the drum after the water is added. Mixing speed shall not be less than 4 rpm for revolving drum mixers, and not less than 4 rpm nor more than 16 rpm for open-top mixers. Any turning of the drum during transportation of the drum during transportation shall be at the speed designated by the manufacturer of the equipment, as agitating speed. Each batch of concrete delivered at the job site shall be accompanied by a time slip issued at the batching plant, bearing the time of departure therefrom and the signature of the inspector. Discharged of concrete from the drum shall be completed within 1 hour or before the drum completes 250 revolutions after the introduction of water to the cement and aggregates.

**3A.6.5.2 Combination central plant and truck mixing (Shrink Mixing).** Concrete shall be mixed in a central plant mixer and the mixing completed in a truck mixer. The mixing time in a central plant mixer shall be the minimum required intermingle the ingredients and shall not exceed 30 seconds. The mixing shall be completed in a truck mixer as specified herein before under truck missing.

**3A.6.5.3 Central plant mixing.** Concrete shall be mixed completely in a stationary mixer at a plant and transported to the site of the work in a truck agitator or a truck mixer operating at a speed of rotation designated by the manufacturer as agitating speed. Mixing shall begin within 30 minutes after cement has been added to aggregates. When authorized in writing by the Construction Architect/Engineer non-agitation equipment approved by him may be used

for transporting concrete. The time lapse between the introduction of the mixing water to the cement and aggregates and the placing of concrete in final position in the forms shall not exceed: (a) for agitating equipment - 60 minutes, air temperature less than 26 degrees C. 45 minutes, air temperature equal or greater than 29 degrees C., (b) for non-agitating equipment - 30 minutes.

**3A.6.6 Consistency of concrete.** Except as specified otherwise, the slump shall be from 50 mm to 100 mm and will be determined in accordance with ASTM C143.

**3A.7** Placing reinforcement and miscellaneous materials.

**3A.7.1** General requirements. All reinforcement bars, stirrups, hanger bars, wire fabric, spiral, and other reinforcing materials shall be provided as indicated on the drawing or required by this specification, 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 rust, scales, oil, grease, clay, and other coatings, and foreign substances that would reduce or destroy the bond. Rusting of reinforcement shall not be a basis of rejection, provided that the rusting has not reduced the effective cross sectional area of the reinforcement to the extent that the strength is reduced beyond specified value. Heavy, thick rust or loose, flaky rust shall be removed by rubbing with burlap or other approved method, prior to placing. Reinforcement which has bends not shown on the project drawings or approved shop drawings or is reduced in section by rusting such that its weight is not within permissible ASTM tolerances shall not be used. All herein p73 for cement shall be supported and wired together to prevent displacement by construction loads or by the placing of concrete. Unless directed otherwise by the Construction Architect/Engineer, reinforcement shall not be bent after being partially embedded in hardened concrete. Detailing of reinforcing shall conform to ACI315. Where cover over reinforcing steel is not specified it shall be in accordance with ACI 318.

**3A.7.2 Placing.** Reinforcement shall be placed accurately and secured. It shall be supported by suitable chairs or spaces or by metal hangers. On the ground, and where otherwise subject to corrosion, concrete or other suitable non-corrodible material shall be used for supporting reinforcement. Where the concrete surface will be exposed to the weather in the finished structure or where rust would impair the appearance or finish of the structure, all reinforcement supports, within specified concrete cover, shall be galvanized or made of a suitable non-corrodible material.

**3A.7.3** Splicing of reinforcement. Splicing of reinforcement shall be in accordance with ACI 318, except as indicated otherwise or modified herein. Where splices in addition to those indicated on the drawings are necessary, they shall be approved by the Construction Architect/Engineers prior to their use. Except as indicated or specified otherwise herein, in lieu of lapping, but splicing of reinforcement may be permitted provided the splicing material, equal or greater in cross sectional area to the spliced steel, shall possess a minimum of 125 percent of the yield strength or 90 percent of the ultimate strength of reinforcing steel, whichever is the greater. But splicing shall preferably use over lapping for bar sizes No. 11 and above.

**3A.7.4** Moving reinforcing steel. All placement or movement of reinforcing steel after placement to positions other than that indicated or specified shall be subject to the approval of the Construction Architect/Engineer.

3A.7.5 Setting miscellaneous material. Anchors and bolts, including but no limited to those for machine and equipment bases, frames or edgings, hangers and inserts, door bucks, pipe supports, pipe sleeves, metal ties, conduits, drains and all other materials in connection with concrete construction, shall, where practicable, be placed and secured in position when the concrete is placed. Anchor bolts for machines shall be set to templates, plumbed carefully and checked for location and elevation with an instrument, and shall be held in position rigidly to prevent displacement while concrete is being placed.

### 3A.8 Conveying and placing concrete.

**3A.8.1 Conveying.** Concrete shall be conveyed from the mixer to the forms as rapidly as practicable by proper methods which will not cause segregation or loss of ingredients. It shall be deposited as nearly as practicable in its final positions in the forms. At any point in the conveying, the free vertical drop of the concrete shall not exceed 91 cm. Chutting will be permitted only where the concrete is deposited into a hopper before it is placed in the forms. Conveying equipment shall be cleaned thoroughly before each run. All concrete shall be deposited as soon as practicable after the forms and reinforcements have been inspected and approved by the Construction Architect/Engineer. Concrete which has been segregated in conveying shall be removed and disposed of as directed by the Construction Architect/Engineer.

**3A.8.2 Placing concrete.** No concrete shall be placed after there is evidence of initial set. All concrete placing equipment and methods shall be subject to approval of the Construction Architect/Engineer. Concrete placement will not be permitted when weather conditions prevent proper placement and consolidation. Before placing concrete on porous sub-grades, they shall be dampened as directed by the Construction Architects/Engineer. Forms shall be clean and free from dirt, construction debris and water. Concrete shall be deposited in horizontal layers approximately 31 to 51 cm deep in a manner to preclude the formation of cold joints between successive layers. The method of depositing concrete shall be such as to avoid displacing the reinforcement and segregating the aggregate. Concrete shall be worked about the reinforcement and embedded fixtures and avoid overworking which may result in segregation. On the bottom of slabs, the girders where the congestion of steel near the forms makes placing difficult, a layer of mortar equal to the approved slump shall be deposited to cover the surface to a depth of approximately 25 mm before placing the concrete. Water which accumulates on the surface of the concrete during the placing shall be removed by absorption with porous materials in a manner that prevents removal of cement. Pumping of concrete through aluminum pipe shall not be permitted.

**3A.8.3 Vibration.** All concrete, except for concrete slabs 100 mm or less in depth, shall be compacted with high frequency, internal, mechanical vibrating equipment supplemented by hand spading and tamping. Concrete slabs 100 mm or less in depth shall be consolidated by wood tamper, spading and settling with a heavy leveling straight edge. Vibrator shall be designated to operate with vibratory element submerged in the concrete and shall have a frequency of not less than 6,000 impulse per minute when submerged. The vibrating equipment shall be adequate at all times. Vibration of forms and reinforcement shall not be employed except when authorized specifically by the Construction Architect/Engineer. Vibrators shall not be used to transport the concrete in the forms. Vibration shall be discontinued when the concrete has been compacted thoroughly and ceased to decrease in volume.



**3A.8.4 Construction joints.** Joints not shown on the drawings shall be made and located so as to least impair the strength of the structure and shall be subject to approval of the Construction Architect/Engineer. In general, they shall be located near the middle of the spans of slabs, grade beams. Horizontal joints in walls shall be at the underside of floor, slabs, grade beams, or girders and at p73 the top of footings or grade slabs. Grade beams, brackets, and drop panels shall be placed at the same time as slabs. Joints shall be perpendicular to the main reinforcement. All construction joints in contact with the grade or earth, roof deck, canopies, open terraces and balconies shall be provided with an approved type rubber or PVC water-stop to minimize water leakage. Water-stop shall be installed so as to form a continuous watertight diaphragm. Joints and splices shall be vulcanized or heart-sealed and as recommended by the manufacturer as approved.

**3A.8.4.1 Reinforcement in construction joints.** All reinforcing steel shall be continued across joints. Keys and inclined dowels shall be provided as directed by the Construction Architect/Engineer. Longitudinal keys at least 38 mm deep shall be provided in all joints in walls and between walls and slabs or footings.

**3A.8.5 Expansion joints and cleavage joints.**

**3A.8.5.1** Expansion joints and cleavage joints shall not be less than 12 mm wide except as indicated otherwise. Expansion joints not exposed to weather shall be filled completely with pre-formed joint materials. Expansion joints exposed to weather and cleavage joints between vertical masonry surfaces and floor slabs laid on earth shall be filled to a depth of 25 mm from the surface or face of the concrete with pre-formed joints material. The 25 mm deep space above the performed material shall be cleaned after the concrete has been cured, and when dry, filled with flush with joint-sealing material. Reinforcement or the embedded metal items bonded to the concrete shall not be permitted to extend continuously through any expansion joints.

**3A.8.5.2** Sealing materials for expansion joints shall be single component urethane sealant or equal.

**3A.8.5.3 Other embedded items.** All sleeves, inserts, anchors, and embedded items required for adjoining work for its support shall be placed prior to concreting. 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 the concrete is placed. All ferrous metal sleeves, inserts, anchors and other embedded ferrous items exposed the weather or where rust would impair the appearance of finish or the structure shall be galvanized.

**3A.8.6.Placing embedded items.** Expansion joint material and embedded items shall be positioned accurately and supported against displacement. Voids in sleeves, inserts and anchors in slab shall be filled temporarily with readily removable material to prevent the entry of concrete into the voids.

**3A.8.7 Placing concrete in hot weather.** Placing concrete in hot weather shall be in accordance with C1305 except as modified herein. In hot weather, extra care shall be taken to reduce the temperature of the concrete being placed, and to prevent rapid drying of newly placed concrete. When the outdoor ambient temperature is more than 90 percent degrees F., the fresh concrete shall be shaded as soon as possible after the placing and curing shall be

started as soon as the surface of the fresh concrete is sufficiently hard to permit it without damage.

**3A.9.1 Slabs on grade.** Capillary water barrier or sub-grades shall conform to Section Earthwork.

**3A.9.2 Vapor barrier.** Immediately prior to placing concrete, the capillary water barrier or sub-grades under slabs within the building shall be covered with vapor barrier. Puncture and tear shall be patched. Edges shall be lapped not less than 100 mm and end joints shall be lapped not less than 150 mm. Edges and lapped joints shall be sealed with a pressure-sensitive tape not less than 50 mm wide, compatible with the membrane.

**3A.10 Surface finish (except Floor finish).**

**3A.10.1 General requirement.** All formed surface shall be repaired by patching minor honeycombed or otherwise defective areas and tie holes with cement mortar. Cement mortar for patching shall be the same composition as that used in the concrete, except that for exposed surfaces' part of the cement shall be white portland cement to provide a finish color matching the surrounding concrete. Patching shall be done as soon as the forms are removed. Area of surfaces which are to be cured with a curing compound. All areas to be patched shall be cleaned thoroughly. Minor honeycomb or otherwise defective areas shall be cut out to solid concrete but to a depth of not less than 25mm. The edges of the cut shall be perpendicular to the surface of the concrete. The area to be patched and at least 150 mm adjacent hereto shall be saturated with water before placing the mortar. The mortar shall be mixed approximately one hour before placing and shall be re-mixed occasionally during this period with a trowel without the addition of water. A grout of cement and water mixed to a consistency of paint shall then be brushed on to the surfaces to which the mortar is to be bonded. The mortar shall be compacted into the place and screeded slightly higher than the surrounding surface. Patches on exposed surfaces shall be finished to match the adjoining surfaces, after they have set for an hour or more. Patches shall be cured as specified for the concrete. Holes extending through the concrete shall be filled by means of a plunger type gun or other suitable device from the unexposed patch. The excess mortar shall be wiped off the exposed face with a cloth. Finished surfaces shall be protected from stains and abrasions. Standard finish against, plywood and wood forms, shall be equal in workmanship, texture and general appearance to that of approved sample panels. Concrete with excessive honeycombing, which exposes the reinforcing steel or other defects which affect the structural strength of the member will be rejected and the defects shall be corrected as directed by the Construction Architect/Engineer, and at the expense of the Contractor.

**3A.10.2 Rubbed-finish.** Rubbed-finish shall be provided for all exposed concrete beams and ceiling. The surface of the concrete shall not vary more than 16mm when measured from a five-foot template. Exposed surfaces shall be rubbed with carborandum or other abrasives to a smooth even finish or uniform appearance. Upon completion of the rubbing the surface shall be washed thoroughly with clean water.

**3A.10.3 Broom-finish** shall be given to exterior parking area or as approved. The concrete shall be screeded and floated to the required finish level with no coarse aggregate visible. After the surface moisture has disappeared and laitance has been removed, surface be steel-troweled to an even, smooth finish. The troweled surfaces shall be broomed with a fiber-bristle brush in a direction traversing to that of the main traffic.

### 3A.11 Floor Finishes.

3A.11.1 **General requirement.** The finishes included herein shall be surface finishes and treatments for floor slab. Concrete topping except where indicated shall not be allowed for all slabs having steel-trowel finish. For roof deck floors in which drains occur, special care shall be exercised to slope the floors uniformly to the drains. Deck roof floors shall receive a single steel troweling prior to the application of waterproofing.

3A.11.2 **Placing and screeding** normal concrete slab or base slab. Concrete of slump within the limits specified herein before shall be placed, consolidated and immediately struck off the bring the top surface of the slab proper contour, grade elevation. This operation may be followed immediately by a darbying or bull floating of the surface with wooden tools so as to correct any unevenness. Striking off and darbying shall be completed before bleed water appears on the surface of the freshly placed concrete. No further work shall then be performed until the concrete has attained a set sufficient for floating and sufficient to support the weight of the finisher and/or equipment. If the bleed water has not disappeared by the time floating of the surface is to start, the excess water shall be first dragged off on the surface by using a rubber hose. At no time shall dry cement will be used to absorb bleed water.

3A.11.2.1 **Rough - finish** shall be provided for all floors to receive future floor finish which will be provided by tenants. Allow 50 mm below finish floor line.

3A.11.2.2 **Non - slip finish** shall be provided for ramps allocated for disabled persons. Type of finish shall be as approved.

3A.11.2.3 **Cleaning.** Upon completion of the work, all concrete floors shall be cleaned as follows; after sweeping with an ordinary broom to remove the loose dirt, the finish surface shall be wetted with soap suds and rubbed with a scrubbing machine fitted with a wire brush or fine steel wool. The suds shall be mopped up, and the surface shall be flushed with clean warm water, after which a final scrubbing by hand instead of the machine scrubbing will be permitted when authorized specifically.

### 3A.12 Curing.

3A.12.1 **General requirements.** Curing for all concrete shall be accomplished by preventing loss of moisture, rapid temperature change, mechanical injury, or injury from rain or flowing water for a period of 7 days when normal portland cement has been used. Curing shall be started as soon after placing and finishing as free water has disappeared from the surface of the concrete. Curing may be accomplished by any of the following methods or combination thereof, as approved.

3A.12.2 **Moist curing.** Unformed surfaces shall be covered with burlap or other approved fabric-type mats and shall be kept continually wet. Forms shall be kept continually wet. If forms are removed before the end of the curing period, curing shall be continued on unformed surfaces that will be exposed in the finished work.

3A.12.3 **Impervious sheet curing.** Surfaces shall be covered with waterproof paper, polyethylene coats waterproof paper or burlap, or polyethylene sheets, lapped 100mm at edges and ends, and sealed with an adhesive tape suitable for the type off covering used. The

covering shall be weighed to prevent displacement, and kept in place and in repair during the curing period.

3A.12.4 **Curing periods.** When 7-day compression test cylinders, representative of parts of a structure already placed, indicate that the 28-day strengths may be less than 90% of the design strengths, those parts of the structure shall be given additional curing, as directed by the Construction Architect/Engineer. Curing shall be as follows:

Time (minimum)	Concrete Element
7 days	All concrete not specified otherwise.
10 days	Pavement not undercover.

3A.12.5 **Removal of forms and protection.** Forms shall be removed in a manner which will prevent damage to the concrete. Forms shall not be removed without approval of the Construction Architect/Engineer.

### 3A.13 **Sampling.**

3A.13.1 **Concrete.** The strengths specified and the design mix shall be verified during the progress of the work at intervals by testing standard cylinders of samples taken at the job site. Three test cylinders shall be taken for each 60 cubic meter or fraction thereof of each class of concrete placed, by at least 3 test cylinders shall be taken each day for each class of concrete placed that day, or as directed by the Construction Architect/Engineer. No more than 3 cylinders shall be taken from any one batch. The making curing and curing of test specimen's shall be in accordance with ASTM C31. The Contractor shall furnish the necessary labor, materials, and facilities for taking the samples, handling, storing the cylinders at the site of the work, and shipping the cylinders for testing to the authorized and designated testing laboratory at his expense.

3A.13.2 **Sample identification.** Each sample shall be contained in a clean container which shall be securely fastened to prevent loss of material. It shall be tagged for identification. The tag shall contain the following information.

Contact No. \_\_\_\_\_

Sample No. \_\_\_\_\_ Quantity \_\_\_\_\_

Date of Sample \_\_\_\_\_

Sample \_\_\_\_\_

Intended Use \_\_\_\_\_

For testing \_\_\_\_\_

3A.13.3 **Concrete testing.**

3A.13.3.1 Testing consistency of concrete slump shall be determined in accordance with ASTM C 143. Samples for a slump determination will be taken from the concrete during placing in the forms. Tests shall be made.

3A.13.3.2 At the beginning of a concrete placement operation and at subsequent intervals to insure that the specification requirements are met, tests shall likewise be made.

3A.13.3.3 Concrete testing shall also be done whenever test cylinders are made.

3A.13.3.4 **Compressive tests.** Testing of specimens for compressive strength shall be in accordance with ASTM C39. Test will be made at 7 and 28 days from time of molding. When a satisfactory relationship between 7 and 28-day strengths has been established, the 7-day tests' results may be used as an indicator of the 28-day strength. Each test shall be the average of the strengths of the three test specimens of a set except that if one specimen in a set of three shows evidence, other than low strength, or improper sampling, molding, handling or curing, the remaining two specimens shall be considered the test result. No more than 10 percent of the cylinders tested shall have compressive strengths less than that specified.

3A.13.4 **Contractor-furnished mix design.** If test results of any concrete to be used in the project show that the concrete strength is below the specified limits and does not meet other requirements of this specification, the Contractor shall make all necessary adjustments, as directed by the Construction Architect/Engineer at the Contractor's expense. Concrete which, at the end of 28 days, does not meet the specified strength shall be removed or otherwise corrected at the Contractor's expense, with corrective method's subject to the approval of the Construction Architect/ Engineer.

## **ITEM 202 – CRUSHED AGGREGATE BASE COURSE**

### **202.1 Description**

This item shall consist of furnishing, placing and compacting crushed gravel, crushed stone or crushed rock on a prepared subgrade/subbase in one or more layers in accordance with this Specification and lines, grades thickness and typical cross-sections shown on the Plans or as established by the Engineer.

### **202.2 Material Requirements**

#### **202.2.1 Crushed Aggregate**

It shall consist of hard, durable pieces or fragments of stone or gravel crushed to the size and of the quality requirements of this Item. It shall be clean and free from vegetable matters, lumps or balls of clay and other deleterious substances. The material shall be of such nature that it can be compacted readily to form a firm, stable base.

The base material shall conform to the grading requirements of Table 202.1, whichever is called in for the Bill of Quantities.

**Table 201.1 – Grading Requirements**

Sieve Designation		Mass Percent Passing	
Standard, mm	Alternate US Standard	Grading A	Grading B
37.5	1 – ½ “	100	
25	1”	-	100
19	¾”	60 – 85	-
12.5	½”	-	60 – 90
4.75	No.4	30 – 55	35 – 65
0.425	No.40	8 – 25	10 – 30
0.075	No.200	2 - 14	5 - 15

The portion of the material passing the 0.075 mm (No. 200) sieve shall not be greater than 0.66 (two thirds) of the fraction passing the 0.425 mm (No. 40) sieve.

The portion of the material passing the 0.425 mm (No. 40) sieve shall have a liquid limit of not more than 25 and plasticity index of not more than 6 as determined by AASHTO T 89 and T 90, respectively. The coarse aggregate retained on a 2.00 mm (No. 10) sieve shall have a mass percent of wear not exceeding 45 by the Los Angeles Abrasion Test as determined by AASHTO T 96, and not less than 50 mass percent shall have at least one (1) fractured face.

The material passing the 19 mm (¾ inch) shall have a minimum soaked CBR-value of 80% tested according to AASHTO T 193. The CBR-value shall be obtained at the maximum dry density determined according to AASHTO T 180, Method D.

If filler, in addition to that naturally present, is necessary for meeting the grading requirements or for satisfactory bonding, it shall be uniformly blended with the crushed base course material on the road or in a pug mill unless otherwise specified or approved. Filler shall be obtained from sources approved by the Engineer, free from hard lumps and not contain more than 15 percent of material retained on the 4.75 mm (No. 4) sieve.

### **202.3 Construction Requirements**

Same as Subsection 201.3.1 through 201.3.5

### **202.4 Method of Measurement**

Crushed Aggregate Base Course will be measured by the cubic meter (m<sup>3</sup>). The quantity to be paid for shall be the design volume compacted in-place as shown on the Plans, and accepted in the completed course. No allowance shall be given for materials placed outside the design limits shown on the cross-sections. Trial sections shall not be measured separately but shall be included in the quantity of crushed aggregate base course.

**202.5 Basis of Payment**

The accepted quantities, measured as prescribed in Section 202.4, shall be paid for at the contract unit price for Crushed Aggregate Base Course which price and payment shall be full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
202	Crushed Aggregate Base Course	Cubic Meter

**ITEM 311 – PORTLAND CEMENT CONCRETE PAVEMENT**

**311.1 Description**

This Item shall consist of pavement of Portland Cement Concrete, with or without reinforcement, constructed on the prepared base in accordance with this Specification and in conformity with lines, grades, thickness and typical cross-sections shown on the Plans.

**311.2 Material Requirements**

**311.2.1 Portland Cement**

It shall conform to the applicable requirements of Item 700, Hydraulic Cement. Only type I Portland Cement shall be used unless otherwise provided for in the Special Provisions. Different brands or the same brands from different mills shall not be mixed nor shall they be used alternatively unless the mix is approved by the Engineer. However, the use of Portland Pozzolan Cement Type IP meeting the requirements of ASSHTO M 240/ASTM C 695, Specifications for Blended Hydraulic Cement shall be allowed, provided that the trial mixes shall be done and that the mixes meet the concrete strength requirements, the AASHTO/ASTM provisions pertinent to the use of Portland Pozzolan Type IP shall be adopted.

Cement which for any reason has become partially set or which contain lumps of caked cement will be rejected. Cement salvaged from discarded or used bags shall not be used.

Samples of Cement shall be obtained in accordance with AASHTO T 127.

**311.2.2 Fine Aggregate**

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

It shall contain more than three (3) mass percent of material passing the 0.075 mm (No. 200 sieve) by washing nor more than one (1) mass percent each clay lumps or shale. The use of beach sand will not be allowed without the approval of the Engineer.

If the fine aggregate is subjected to five (5) 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. If subjected to the colorimetric test for organic impurities and 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 aggregate shall be well-graded from coarse to fine and shall conform to Table 311.1

**Table 311.1 – Grading Requirements for Fine Aggregate**

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

**311.2.3 Coarse Aggregate**

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 not more than one (1) mass percent of material passing the 0.075 mm (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 (5) cycles of 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 the slag is used, its density shall not be less than 1120 kg/m<sup>3</sup> (70 lb. /cu. ft.). The gradation of the coarse aggregate shall conform to Table 311.2

Only one grading specification shall be used from any one source.

**Table 311.2 – Grading Requirement for Coarse Aggregate**

Sieve Designation		Mass Percent Passing		
Standard mm	Alternate U.S. Standard	Grading A	Grading B	Grading C
75.00	3 in.	100	-	-
63.00	2-1/2 in.	90 – 100	100	100
50.00	2 in.	-	90 – 100	95 – 100
37.5	1-1/2 in.	25 – 60	35 – 70	-
25.0	1	-	0 – 15	35 – 70
19.0	¾ in.	0 – 10	-	-
12.5	½ in.	0 – 5	0 – 5	10 – 30
4.75	No. 4	-	-	0 – 5

#### **311.2.4 Water**

Water is used in mixing; curing or other designated application shall be reasonably clean and free of oil, slat, 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 excluded silt, mud, grass or other foreign materials.

#### **311.2.5 Reinforcing Steel**

It shall conform to the requirements of item 404, Reinforcing Steel. Dowels and tie bars shall conform to the requirements of AASHTO M 31 or M 42, except that rail steel shall not be used for tie bars that are to be bent and restraightened during construction. Tie bars shall be deformed bars. Dowels shall be plain round bars. Before delivery to the site of work, one-half of the length of each dowel shall be painted with one coat of approved lead or tar paint.

The sleeves for dowel bars shall be metal of approved design to cover 50 mm (2 inches), plus or minus 5 mm (1/4 inch) of the dowel, with a closed end, and with a suitable stop to hold the end of the sleeve at least 25 mm (1 inch) from the end of the dowel. Sleeves shall be of such design that they do not collapse during construction.

### **311.2.6 Joint Fillers**

Poured joint fillers shall be mixed asphalt and mineral or rubber filler conforming to the applicable requirements of Item 705, Joint Materials.

Preformed joint fillers shall conform to the applicable requirements of Item 705. It shall be punched to admit the dowels where called in the Plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint.

### **311.2.7 Admixtures**

Air-entraining admixture shall conform to the requirements of AASHTO M 154.

Chemical admixtures, if specified or permitted, shall conform to the requirements of AASHTO M 194.

Fly Ash, if specified or permitted as a mineral admixture and as 20% partial replacement of Portland cement in concrete mix shall conform to the requirements of ASTM C 618.

Admixture should be added only to the concrete mix to produce some desired modifications to the properties of concrete where necessary, but not as partial replacement of cement.

### **311.2.8 Curing Materials**

Curing materials shall conform to the following requirements as specified;

- a) Burlap Cloth - AASHTO M 182
- b) Liquid membrane forming compounds - AASHTO M 148
- c) Sheeting (film) materials - AASHTO M 171

Cotton mats and water-proof paper can be used.

### **311.2.9 Calcium Chloride/Calcium Nitrate**

It shall conform to AASHTO M 144, if specified or permitted by the Engineer, as accelerator.

### **311.2.10 Storage of Cement and Aggregate**

All cement shall be stored, immediately upon delivery at the Site, in weather proof 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 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 allow 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 (12) days before the cement is to be used. Bulk cement, if used, shall be transferred to elevated air tight and weatherproof bins. Stored cements shall meet the test requirements at any time after storage when retest is ordered by the Engineer. At the time of use, all cement shall be free-flowing and free of lumps.

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

In order to secure uniformity of concrete mix, the 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 removed from each other to prevent the material at the edges of the piles from becoming intermixed.

### **311.2.11 Proportioning, Consistency and Strength of Concrete**

The Contractor shall prepare the design mix based on the absolute volume method as outlined in the American Concrete Institute (ACI) Standard 211.1, "Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete".

It is the intent of this Specification to require at least 364 kg of cement per cubic meter of concrete to meet the minimum strength requirements. The Engineer shall determine from laboratory tests of the materials to be used, the cement content and the proportions of aggregate and water that will produce workable concrete having slump of between 40 and 75 mm (1 – ½ and 3 inches) if not vibrated or between 10 and 40 mm (1/2 and 1 – 1/2 inches) if vibrated, and a flexural strength of not less than 3.8 MPa (550 psi) when tested by the third-point method or 4.5 MPa (650 psi) when tested by the mid point-method at fourteen (14) days and tested in accordance with AASHTO T 24.

Slump shall be determined using AASHTO T 119.

The designer shall consider the use of lean concrete (econocrete) mixtures using local materials or specifically modified conventional concrete mixes in base course and in the lower course composite, monolithic concrete pavements using a minimum 75 mm (3 inches) of conventional concrete as the surface course.

The mix design shall be submitted to the Engineer for approval and shall be accompanied with certified test data from an approved laboratory demonstrating the adequacy of the mix design. A change in the source of materials during the progress of work may necessitate a new mix.

### **311.3 Construction Requirements**

#### **311.3.1 Quality Control of Concrete**

##### **1. General**

The Contractor shall be responsible for the quality control of all materials during the handling, blending, and mixing and placing operations.

## 2. Quality Control Plan

The Contractor shall furnish the Engineer a Quality Control Plan detailing his production control procedures and the type and frequency of sampling and testing to insure that the concrete produces complies with the Specifications. The Engineer shall be provided free access to recent plant productions records, and if requested, informational copies of mix design, materials certifications and sampling and testing reports.

## 3. Qualification of Workmen

Experienced and qualified personnel shall perform all batching or mixing operation for the concrete mix, and shall be present at the plant and job site to control the concrete productions whenever the plant is in operation. They shall be identified and duties defined as follows:

- a. Concrete Batchers. The person performing the batching or mixing operation shall be capable of accurately conducting aggregate surface moisture determination and establishing correct scale weights for concrete materials. He shall be capable of assuring that the proportioned batch weights of materials are in accordance with the mix design.
- b. Concrete Technician. The person responsible for concrete production control and sampling and testing for quality control shall be proficient in concrete technology and shall have a sound knowledge of the Specifications as they relate to concrete production. He shall be capable of conducting tests on concrete and concrete materials in accordance with these Specifications. He shall be capable of adjusting concrete mix designs for improving workability and Specification compliance and preparing trial mix designs. He shall be qualified to act as the concrete batcher in the batcher's absence.

## 4. Quality Control Testing

The Contractor shall perform all sampling, testing and inspection necessary to assure quality control of the component materials and the concrete.

The Contractor shall be responsible for determining the gradation of fine and coarse aggregates and for testing the concrete mixture for slump, air content, water-cement ratio and temperature. He shall conduct his operations as to produce a mix conforming to the approved mix design.

## 5. Documentation

The Contractor shall maintain adequate records of all inspections and tests. The records shall indicate the nature and number of observations made the number and type of deficiencies found, the quantities approved and rejected, and nature of any corrective actions taken.

The Engineer may take independent assurance samples at random location for acceptance purposes as he deems necessary.

### **311.3.2 Equipment**

Equipment and tools necessary for handling materials and performing all parts of the work shall be approved by the Engineer as to design, capacity and mechanical condition. The equipment shall be at the jobsite sufficiently ahead of the start of the construction operations to be examined thoroughly and approved.

#### 1. Batching Plant and Equipment

- a. General. The batching shall include bins, weighing hoppers, and scales for fine aggregate and for each size of coarse aggregate. If cement is used in bulk, a bin, a hopper, and separate scale for cement shall be included. The weighing hopper shall be properly sealed and vented to preclude dusting operation. The batch plant shall be equipped with a suitable non-resettable batch counter which will correctly indicate the number of batches proportioned.
- b. Bins and Hoppers. Bins with adequate separate compartments for fine aggregate and for each size of coarse aggregate shall be provided in the batching plant.
- c. Scales. Scales for weighing aggregate and cement shall be of either the beam type or the spring less-dial type. They shall be accurate within one-half percent (0.5%) throughout the range of use. Poises shall be designated to be locked in any position and to prevent unauthorized change. Scales shall be inspected and sealed as often as the Engineer may deem necessary to assure their continued accuracy.
- d. Automatic Weighing Devices. Unless otherwise allowed on the Contract, batching plants shall be equipped with automatic weighing devices of an approved type proportion aggregates and bulk cement.

#### 2. Mixers.

- a. General. Concrete may be mixed at the Site of construction or at a central plant, or wholly or in part in truck mixers. Each mixer shall have a manufacturer's plate attached in a prominent place showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drums or blades.
- b. Mixers at Site of Construction. Mixing shall be done in an approved mixer capable of combining the aggregates, cement and water into a thoroughly mixed and uniform mass within the specified mixing period and discharging and distributing the mixture without segregation on the prepared grade. The mixer shall be equipped with an approved timing device which will automatically lock the discharge lever when the drum has been charged and release it at the end of the mixing period. In case of failure of timing device, the mixer may be used for the balance of the day while it is being repaired, provided that each batch is mixed 90 seconds. The mixer shall be equipped with a suitable non-resettable batch counter which shall correctly indicate the number of batches mixed.

- c. Truck Mixer and Truck Agitators. Truck mixers used for mixing and hauling concrete, and truck agitators used for hauling central-mixed concretes, shall conform to the requirements of AASHTO M 157.
- d. Non-Agitator Truck. Bodies of non-agitating hauling equipment for concrete shall be smooth, mortar-light metal containers and shall be capable of discharging the concrete at a satisfactory controlled rate without segregation.

### 3. Paving and Finishing Equipment

The concrete shall be placed with an approved paver designed to spread, consolidate, screed and float finish the freshly placed concrete in one complete pass of the machine in such a manner that a minimum of hand finishing will be necessary to provide a dense and homogeneous pavement in conformance with the Plans and Specifications.

The finishing machine shall be equipped with at least two (2) oscillating type transverse screed.

Vibrators shall operate at a frequency of 8,300 to 9,600 impulses per minute under load at a maximum spacing of 60 cm.

### 4. Concrete Saw

The Contractor shall provide sawing equipment in adequate number of units and power to complete the sawing with a water-cooled diamond edge saw blade or an abrasive wheel to the required dimensions and at the required rate. He shall provide at least one (1) stand-by saw in good working condition and with an ample supply of saw blades.

### 5. Forms

Forms shall be of steel, of an approved section, and depth equal to the thickness of the pavement at the edge. The base of the forms shall be of sufficient width to provide necessary stability in all directions. The flange braces must extend outward to the base to not less than  $\frac{2}{3}$  the height of the form.

#### **311.3.3 Preparation of Grade**

After the subgrade of base has been placed and compacted to the required density, the areas which will support the paving machine and the grade on which the pavement is to be constructed shall be trimmed to the proper elevation by means of a properly designed machine extending the prepared work areas compacted at least 60 cm beyond each edge of the proposed concrete pavement. If loss of density results from the trimming operations, it shall be restored by additional compaction before concrete is placed. If any traffic is allowed to use the prepared subgrade or base, the surface shall be checked and corrected immediately ahead of the placing concrete.

The subgrade or base shall be uniformly moist when the concrete is placed.

#### **311.3.4 Setting Forms**

##### 1. Base Support.

The foundation under the forms shall be hard and true to grade so that the form when set will be firmly in contact for its whole length and at the specified grade. (Any roadbed, which at the form line is found below established grade, shall be filled with approved granular materials to grade in lifts of three (3) cm or less, and thoroughly rerolled and tamped.). Imperfections or variations above grade shall be corrected by tamping or by cutting as necessary.

## 2. Form Setting

Forms shall be set sufficiently in advance of the point where concrete is being placed. After the forms have been set to correct grade, the grade shall be thoroughly tamped, mechanically or by hand, at both the inside and outside edges of the base of the forms. The forms shall not deviate from true line by more than one (1) cm at any point.

## 3. Grade and Alignment

The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete. Testing as to crown and elevation, prior to placing of concrete can be made by means of holding an approved template in a vertical position and moved backward and forward on the forms.

When any form has been disturbed or any grade has become unstable, the form shall be reset and rechecked.

### **311.3.5 Conditioning of Subgrade or Base Course**

When side forms have been securely set to grade, the subgrade or base course shall be brought to proper cross-section. High areas shall be trimmed to proper elevation. Low areas shall be filled and compacted to a condition similar to that of surrounding grade. The finished grade shall be maintained in a smooth and compacted condition until the pavement is placed.

Unless waterproof subgrade or base course cover material is specified, the subgrade or base course shall be uniformly moist when the concrete is placed. If it subsequently becomes too dry, the subgrade or base course shall be sprinkled, but the method of sprinkling shall not be such as to form mud or pools of water.

### **311.3.6 Handling, measuring and Batching Materials**

The batch plant site, layout, equipment and provisions for transporting materials shall be such that to assure a continuous supply of material to the work. Stockpiles shall be built up in layers of not more than one (1) meter in thickness. Each layer shall be completely in place before beginning the next which shall not be allowed to “cone” down over the next lower layer. Aggregates from different sources and of different grading shall not be stockpiled together.

All washed aggregates and aggregates produced or handled by hydraulic methods, shall be stockpiled or binned for draining at least twelve (12) hours before being batched.

When mixing is done at the side of the work, aggregates shall be transported from the batching plant to the mixer in batch boxes, vehicle bodies, or other containers of adequate capacity and construction to properly carry the volume required. Partitions separating batches shall be adequate and effective to prevent spilling from one compartment to another while in

transit or being dumped. When bulk cement is used, the Contractor shall use a suitable method of handling the cement from weighing hopper to transporting container or into the batch itself for transportation to the mixer, with chute, boot or other approved device, to prevent loss of cement, and to provide positive assurance of the actual presence in each batch of the entire cement content specified.

Bulk cement shall be transported to the mixer in tight compartments carrying the full amount of cement required for the batch. However, if allowed in the Special Provisions, it may be transported between the fine and coarse aggregate. When cement is placed in contact with the aggregates, batches may be rejected unless it is mixed within 1-1/2 hours of such contact. Cement in original shipping packages may be transported on top of the aggregates, each batch containing the number of sacks required by the job mix.

The mixer shall be charged without loss of cement, batching shall be conducted as to result in the weight to each material required within a tolerance of one percent for the cement and two (2) percent for aggregates.

Water may be measured either by volume or by weight. The accuracy of measuring the water shall be within a range of error of not over than one (1) percent. Unless the water is to be weighed, the water-measuring equipment shall include an auxiliary tank from which the measuring tank shall be equipped with an outside tap and valve to provide checking the setting, unless other means are provided for readily and accurately determining the amount of water in the tank. The volume of the auxiliary tank shall be at least equal to that of the measuring tank.

### **311.3.7 Mixing Concrete**

The concrete may be mixed at the site of the work in a central-mix plant, or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time will be measured from the time all materials, except water, are in the drum. Ready-mixed concrete shall be mixed and delivered in accordance with the requirements of AASHTO M 157, except that the minimum required revolutions at the mixing speed for transit-mixed concrete may be reduced to not less than that recommended by the mixer manufacturer. The number of revolutions recommended by the mixer manufacturer shall be indicated in the manufacturer's serial plate attached to the mixer. The Contractor shall furnish test data acceptable to the Engineer verifying that the make and model of the mixer will produce concrete conforming to the provision of AASHTO M 157 at the reduced number of revolutions shown on the serial plate.

When mixed at the site or in a central mixing plant, the mixing time shall not be less than fifty (50) seconds or more than ninety (90) seconds, unless mixer performance tests prove adequate mixing of the concrete is a shorter time period.

Four (4) seconds shall be added to the specified mixing time if timing starts the instant the skip reaches its maximum raised positions. Mixing time ends when the discharged chute opens. Transfer time in multiple drum mixers is included in mixing time. The contents of an individual mixer shall be removed before a succeeding batch is emptied therein.

The mixer shall be operated at drum speed as shown on the manufacturer's name plate attached on the mixer. Any concrete mixed less than the specified time shall be discarded and disposed off by Contractor at his expense. The volume of concrete mixed per batch shall not exceed the mixer's nominal capacity in cubic meter, as shown on the manufacturer's standard



rating plate on the mixer, except that an overload up to ten (10) percent above the mixer's nominal capacity may be permitted provided concrete test data for strength, segregation and uniform consistency are satisfactory, and provided no spillage of concrete takes place.

The batches shall be so charged into the drum that a portion of the mixing water shall be entered in advance of the cement and aggregates. The flow of water shall be uniform and all water shall be in the drum by the end of the first fifteen (15) seconds of the mixing period. The throat of the drum shall be kept free of such accumulations as may restrict the free flow of materials into the drum.

Mixed concrete from the central mixing plant shall be transported in truck mixers, trucks agitators or non-agitating trucks specified in Subsection 311.3.2, Equipment. The time elapsed for the time water is added to the mix until the concrete is deposited in place at the Site shall not exceed forty five (45) minutes when the concrete is hauled in non-agitating trucks, nor ninety (90) minutes when the concrete is hauled in truck mixers or truck agitators, except that in hot water or in other conditions contributing to quick hardening of the concrete, the maximum allowable time may be reduced by the Engineer.

In exceptional cases and when volumetric measurements are authorized for small project requiring less than 75 cu.m. concrete 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.

Concrete mixing by chute is allowed provided that weighing scales for determining the batch weight will be used.

Retempering concrete by adding water or by other means shall not be permitted, except that when concrete is delivered in truck mixers, additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements, if permitted by the Engineer, provided that these operations are performed within forty-five (45) minutes after the initial mixing operation and the water-cement ratio is not exceeded. Concrete that is not within the specified slump limits at the time of placement shall not be used. Admixtures for increasing the workability or for accelerating the setting of the concrete will be permitted only when specifically approved by the Engineer.

### **311.3.8 Limitation of Mixing**

No concrete shall be mixed, placed or finished when natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

During hot weather, the Engineer shall require that steps be taken to prevent the temperature of mixed concrete from exceeding a maximum temperature of 90°F (32°C).

Concrete not in place within ninety (90) minutes from the time the ingredients were changed into the mixing drum or that has developed initial set shall not be used. Retempering of concrete or mortar which has partially hardened, that is remixing with or without additional cement, aggregate, or water, shall not be permitted.

In order that the concrete may be properly protected against the effects of rain before the concrete is sufficiently hardened, the Contractor will be required to have available at all times materials for the protection of the edges and surface of the unhardened concrete.

### **311.3.9 Placing Concrete**

Concrete shall be deposited in such a manner to require minimal rehandling. Unless truck mixers or non-agitating hauling equipment are equipped with means to discharge concrete without segregation of the materials, the concrete shall be unloaded into an approved spreading device and mechanically spread into the grade in such a manner as to prevent segregation. Placing shall be continuous between transverse joints without the use of intermediate bulkheads. Necessary hand spreading shall be done in shovels, not rakes. Workmen shall not be allowed to walk in the freshly mixed concrete with boots or shoes coated with earth or foreign substances.

When the concrete is to be placed adjoining a previously constructed lane and mechanical equipment will be operated upon the existing lane, that previously constructed lane shall have attained the strength for fourteen (14) day concrete. If only finishing equipment is carried on the existing lane, paving and adjoining lanes may be permitted after three (3) days.

Concrete shall be thoroughly consolidated against and along the faces of all forms and along the full length and on both sides of all joint assemblies, by means of vibrators inserted in the concrete. Vibrators shall not be permitted to come in contact with a joint assembly, the grade, or a side form. In no case shall the vibrator be operated longer than fifteen (15) seconds in any one location.

Concrete shall be deposited as near as possible to the expansion and contracting joints without disturbing them, but shall not be dumped from the discharge bucket or hopper into a joint assembly unless the hopper is well centered on the joint assembly. Should any concrete fall on or be worked into the surface of a complete slab, it shall be removed immediately.

### **311.3.10 Test Specimens**

As work progresses, at least one (1) set of consisting three (3) concrete beam test specimens, 150 mm x 150 mm x 525 mm or 900 mm shall be taken from each 330 m<sup>2</sup> of pavement, 230 mm depth, or fraction thereof placed each day. Test specimens shall be made under the supervision of the Engineer, and the Contractor shall provide all concrete and other facilities necessary in the making the test specimens' samples shall not be used as substitute for determining the adequacy of the strength of concrete.

The beams shall be made, cured, and tested in accordance with AASHTO T 23 and T 27.

### **311.3.11 Strike-off Concrete and Placement of Reinforcement**

Following the placing of concrete, it shall be struck off to conform the cross-section shown on the Plans and to an elevation such that when the concrete is properly consolidated and finished, the surface of the pavement will be at the elevation shown on the Plans. When

the reinforced concrete pavement is placed in two (2) layers, the bottom layer shall be struck off and consolidated to such length and depth that the sheet of fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off and screeded. Any portion of the bottom layer of concrete which has been placed more than 30 minutes without being covered with the top layer shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be firmly positioned in advance of concrete placement or it may be placed at the depth shown on the Plans in plastic concrete, after spreading by mechanical or vibratory means.

Reinforcing steel shall be free from dirt, oil, paint, grease, mill scale and loose or thick rust which could impair bond of steel with the concrete.

### **311.3.12 Joints**

Joints shall be constructed of the type and dimensions, and at the locations required by the Plans or Special Provisions. All joints shall be protected from the intrusion of injurious foreign material until sealed.

#### **1. Longitudinal Joint**

Deformed steel tie bars of specific length, size, spacing and materials shall be placed perpendicular to the longitudinal joints, they shall be placed by approved mechanical equipment or rigidly secured by chair or other approved supports to prevent displacement. Tie bars shall not be painted or coated with asphalt or other materials or enclosed in tubes or sleeves. When shown on the Plans and when adjacent lanes of pavement are constructed separately, steel side forms shall be used which will form a keyway along the construction joint. Tie bars, except those made of rail steel, may be bent at right angles against the form of the first lane constructed and straightened into final position before the concrete of the adjacent lane is placed, or in lieu of bent tie bars, approved two-piece connectors may be used.

Longitudinal formed joints shall consist of a groove or cleft, extending downward and normal to, the surface of the pavement. These joints shall be effected or formed by an approved mechanically or manually operated device to the dimensions and line indicated on the Plans and while the concrete is in a plastic state. The groove or cleft shall be filled with either a premolded strip or poured material as required.

The longitudinal joints shall be continuous; there shall be no gaps between in either transverse or longitudinal joints at the intersection of the joints.

Longitudinal sawed joints shall be cut by means of approved concrete saws to the depth, width and line shown on the Plans. Suitable guidelines or devices shall be used to assure cutting the longitudinal joint on the true line. The longitudinal line shall be sawed before the end of the curing period or shortly thereafter or before any equipment or vehicles are allowed on the pavement. The sawed area shall be thoroughly cleaned and, if required, the joint shall be immediately filled with sealer.

Longitudinal pavement insert type joints shall be formed by placing a continuous strip of plastic materials which will not react adversely with the chemical constituent of the concrete.

## 2. Transverse Expansion Joint

The expansion joint filler shall be continuous from form to form, shaped to subgrade and to the keyway along the form. Preformed joint filler shall be furnished in lengths equal to the pavement width or equal to the width of one lane. Damaged or repaired joint filler shall not be used.

The expansion joint filler shall be held in a vertical position. An approved installing bar, or other device, shall be used if required to secure preformed expansion joint filler at the proper grade and alignment during placing and finishing of the concrete. Finished joint shall not deviate more than 6 mm from a straight line. If joint fillers are assembled in sections, there shall be no offsets between adjacent units. No plugs of concrete shall be permitted anywhere within the expansion space.

## 3. Transverse Contraction Joint/Weakened Joint

When shown on the Plans, it shall consist of planes of weakness created by forming or cutting grooves in the surface of the pavement and shall include load transfer assemblies. The depth of the weakened plane joint should at all times not be less than 50 mm, while the width should not be more than 6 mm.

- a. Transverse Strip Contraction Joint. It shall be formed by installing a parting strip to be left in place as shown on the Plans.
- b. Formed Groove. It shall be made by depressing an approved tool or device into the plastic concrete. The tool or device shall remain in place at least until the concrete has attained its initial set and shall then be removed without disturbing the adjacent concrete, unless the device is designed to remain in the joint.
- c. Sawed Contraction Joint. It shall be created by sawing grooves in the surface of the pavement of the width not more than 6mm, depth should at all times not be less than 50 mm, and at the spacing and lines shown on the Plans, with an approved concrete saw. After each joint is sawed, it shall be thoroughly cleaned including the adjacent concrete surface.

Sawing of the joint shall commence as soon as the concrete has hardened sufficiently to permit sawing without excessive raveling, usually 4 to 24 hours. All joints shall be sawed before uncontrolled shrinkage cracking takes place. If necessary, the sawing operations shall be carried on during the day or night, regardless of weather conditions. The sawing of any joint shall be omitted if crack occurs at or near the joint location prior to the time of sawing. Sawing shall be discontinued when a crack develops ahead of the saw. In general, all joints should be sawed in sequence. If extreme condition exist which make it impractical to prevent erratic cracking by early sawing, the contraction joint groove shall be formed prior to initial set of concrete as provided above.

## 4. Transverse Construction Joint

It shall be constructed when there is an interruption of more than 30 minutes in the concreting operations. No transverse joint shall be constructed within 1.50 m of an expansion joint, contraction joint, or plane of weakness. If sufficient concrete has been mixed at the time

of interruption to form a slab of at least 1.5 m long, the excess concrete from the last preceding joint shall be removed and disposed off as directed.

## 5. Load Transfer Device

Dowel, when used, shall be held in parallel to the surface and center line of the slab by a metal device that is left in the pavement.

The portion of each dowel painted with one coat of lead or tar, in conformance with the requirements of Item 404, Reinforcing Steel, shall be thoroughly coated with approved bituminous materials, e.g., MC-70, or an approved lubricant, to prevent the concrete from binding to that portion of the dowel. The sleeves for dowels shall be metal designed to cover 50 mm plus or minus 5 mm (1/4 inch), of the dowel, with a water tight closed end and with a suitable stop to hold the end of the sleeves at least 25 mm (1 inch) from the end of the dowel.

In lieu of using dowel assemblies at contraction joints, dowel may be placed in the full thickness of pavement by a mechanical device approved by the Engineer.

### **311.3.13 Final Strike-off (Consolidation and Finishing)**

#### 1. Sequence

The sequence of operations shall be the strike-off and consolidation, floating and removal of laitance, straight-edging and final surface finish. Work bridges or other devices necessary to provide access to the pavement surface for the purpose of finishing straight-edging, and make corrections as hereinafter specified, shall be provided by the Contractor.

In general, the addition of water to the surface of the concrete to assist in finishing operations will not be permitted. If the application of water to the surface is permitted, it shall be applied as fog spray by means of approved spraying equipment.

#### 2. Finishing Joints

The concrete adjacent to joints shall be compacted or firmly placed without voids or segregation against the joint material assembly, also under and around all load transfer devices, joint assembly units, and other features designed to extend into the pavement. Concrete adjacent to joints shall be mechanically vibrated as required in Subsection 311.3.9, Placing Concrete.

After the concrete has been placed and vibrated adjacent to the joints as required in Subsection 311.3.9, the finishing machine shall be brought forward, operating in a manner to avoid damage or misalignment of joints. If uninterrupted operation of the finishing machine, to over and beyond the joint causes segregation of concrete, damage to, or misalignment of joints, the finishing machine shall be stopped when the front screed is approximately 20 cm (8 inches) from the joint. Segregated concrete shall be removed from in front of and off the joint. The front screed shall be lifted and set directly on top of the joint and the forward motion of the finishing machine resumed. When the second screed is close enough to permit the excess mortar in front of it to flow over the joint, it shall be lifted and carried over the joint. Thereafter, the finishing machine may be run over the joint without lifting the screeds,

provided there is no segregated concrete immediately between the joint and the screed or on top of the joint.

### 3. Machine Finishing

- a. Non-vibratory Method. The concrete shall be distributed or spread as soon as placed. As soon as the concrete has been placed, it shall be struck off and screeded by an approved finishing machine. The machine shall go over each area of pavement as many times and at such intervals as necessary to give the proper compaction and leave a surface of uniform texture. Excessive operation over a given area shall be avoided. The tops of the forms shall be kept clean by an effective device attached to the machine on the forms shall be maintained true without wobbling or other variation tending to affect the precision finish.

During the first pass of the finishing machine, a uniform ridge of concrete shall be maintained ahead of the front screed in its entire length.

- b. Vibratory Method. Vibration is specified, vibrators for full width vibration of concrete paving slabs, shall meet the requirements in Subsection 311.3.2, Equipment. If uniform and satisfactory density of the concrete is not obtained by the vibratory method at joints, along forms, at structures, and throughout the pavement, the Contractor will be required to furnish equipment and method which will produce pavement conforming to the Specifications. All provisions in item (a) above not in conflict with the provisions for the vibratory method shall govern.

### 4. Hand Finishing

Hand finishing may only be used under the following conditions:

- a. In the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade.
- b. In narrow widths or areas of irregular dimensions where operations of the mechanical equipment is impractical, hand methods may be used.

Concrete, as soon as placed, shall be struck off and screeded. An approved portable screed shall be used. A second screed shall be provided for striking off the bottom layer of concrete if reinforcement is used.

The screed for the surface shall be at least 60 cm (2 feet) longer than the maximum width of the slab to be struck off. It shall be of approved design, sufficiently rigid to retain its shape, and constructed either of metal or other suitable material shod with metal.

Consolidation shall be attained by the use of suitable vibrator or other approved equipment.

In operation, the screed shall be moved forward on the forms with a combined longitudinal and transverse shearing motion, moving always in the direction in which the

work is progressing and so manipulated that neither end is raised from side forms during the striking off process. If necessary, this shall be repeated until the surface is of uniform texture, true to grade and cross-section, free from porous areas.

## 5. Floating

After the concrete has been struck off and consolidated, it shall be further smoothed, trued, and consolidated by means of a longitudinal float, either by hand or mechanical method.

- a. Hand Method. The hand-operated longitudinal float shall be not less than 365 cm (12 feet) in length and 15 cm (6 inches) in width, properly stiffened to prevent flexibility and warping. The longitudinal float, operated from foot bridges resting on the side forms and spanning but not touching the concrete, shall be worked with a sawing motion while held in a floating position parallel to the road center line, and moving gradually from one side of the pavement to the other. Movement ahead along the center line of the pavement shall be in successive advances of not more than one-half the length of the float. Any excess water or soupy material shall be wasted over the side forms on each pass.
- b. Mechanical Method. The mechanical longitudinal float shall be of a good design approved by the Engineer, and shall be in good working condition. The tracks from which the float operates shall be accurately adjusted to the required crown. The float shall be accurately adjusted and coordinated with the adjustment of the transverse finishing machine so that a small amount of mortar is carried ahead of the float at all times. The forward screed shall be adjusted so that the float will lap the distance specified by the Engineer on each transverse trip. The float shall pass over the areas of pavement at least two times, but excessive operation over a given area will not be permitted. Any excess water or soupy material shall be wasted over the side forms on each pass.
- c. Alternative Mechanical Method. As an alternative, the Contractor may use a machine composed of a cutting and smoothing float or floats suspended from and guided by a rigid frame. The frame shall be carried by four or more visible wheels riding on, and constantly in contact with the side forms. If necessary, following one of the preceding method of floating, long handled floats having blades not less than 150 cm (5 feet) in length and 15 cm (6 inches) in width may be used to smooth and fill in open-textured areas in the pavement. Long-handled floats shall not be used to float the entire surface of the pavement in lieu of, or supplementing, one of the preceding methods of floating. When strike off and consolidations are done by the hand method and the crown of the pavement will not permit the use of the longitudinal float, the surface shall be floated transversely by means of the long-handled float. Care shall be taken not to work the crown out of the pavement during the operation. After floating, any excess water and laitance shall be removed from the surface of the pavement by a 3-m straight-edge or more in length. Successive drags shall be lapped one-half of the blade.

## 6. Straight-edge Testing and Surface Condition

After the floating has been completed and the excess water removed, but while the concrete is still plastic, the surface of the concrete shall be tested for trueness with a 300 cm long straight-edge. For this purpose, the Contractor shall furnish and use an accurate 300-cm straight-edge swung from handles 100 cm (3 feet) longer than one-half width of the slab. The straight-edge shall be held in contact with the surface in successive positions parallel to the road center line and the whole area gone over from one side of the slab to the other as necessary. Advances along the road shall be in successive stages of not more than one-half the length of the straight-edge. Any depressions found shall be immediately filled with freshly mixed concrete, struck off, consolidated and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the requirements for smoothness. Straight-edge testing and surface corrections shall continue until the surface is found to be free from observable departures from the straight-edge and the slab conforms to the required grade and cross-section.

## 7. Final Finish

If the surface texture is broom finished, it shall be applied when the water sheen has practically disappeared. The broom shall be drawn from the center to the edge of the pavement with adjacent strokes slightly overlapping. The brooming operation should be so executed that the corrugations produced in the surface shall be uniform in appearance and not more than 1.5 mm in depth. Brooming shall be completed before the concrete is in such conditions that the surface will be unduly roughened by the operation. The surface thus finished shall be free from rough and porous areas, irregularities, and depressions resulting from improper handling of the broom. Brooms shall be of the quality size and construction and be operated as to produce a surface finish meeting the approval of the Engineer. Subject to satisfactory results being obtained and approval of the Engineer, the Contractor will be permitted to substitute mechanical brooming in lieu of the manual brooming herein described.

If the surface texture is belt finished, when straight-edging is complete and water sheen has practically disappeared and just before the concrete becomes non-plastic, the surface shall be belted with 2-ply canvass belt not less than 20 cm wide and at least 100 cm longer than the pavement width. Hand belts shall have suitable handles to permit controlled, uniform manipulation. The belt shall be operated with short strokes transverse to the center line and with rapid advances parallel to the center line.

If the surface texture is drag finished, a drag shall be used which consists of a seamless strip of damp burlap or cotton fabric, which shall produce a uniform of gritty texture after dragging it longitudinally along the full width of the pavement. For pavement five m or more in width, the drag shall be mounted on a bridge which travels on the forms. The dimensions of the drag shall be such that a strip of burlap or fabric at least 100 cm wide is in contact with the full width of pavement surface while the drag is used. The shall consist of not more than 2 layers of burlap with the bottom layer approximately 15 cm wider than the layer. The drag shall be maintained in such condition that the resultant surface is of uniform appearance and reasonably free from grooves over 1.5 mm in depth. Drag shall be maintained clean and free from encrusted mortar. Drags that cannot be cleaned shall be discarded and new drags be substituted.



Regardless of the method used for final finish, the hardened surface of pavement shall have a coefficient of friction of 0.35 or more. Completed pavement that is found to have a coefficient of friction less than 0.25 shall be grounded or scored by the Contractor at his own expense to provide the required coefficient of friction.

#### 8. Edging at Forms and Joints

After the final finish, but before the concrete has taken its initial set, the edges of the pavement along each side of each slab, and on each side of transverse expansion joints, formed joints, transverse construction joints, and emergency construction joints, shall be worked with an approved tool and rounded to the radius required by the Plans. A well-defined and continuous radius shall be produced and a smooth, dense mortar finish obtained. The surface of the slab shall not be unduly disturbed by lifting the tool during the use.

At all joints, any tool marks appearing on the slab adjacent to the joints shall be eliminated by brooming the surface. In doing this, the rounding of the corner of the slab shall not be disturbed. All concrete on top of the joint filler shall be completely removed.

**All joints shall be tested with a straight-edge before the concrete has set and correction made if one edge of the joint is higher than the other**

### **DIVISION 4 MASONRY**

#### **SECTION 4A MASONRY WORK**

4A.1 **Scope.** This section includes concrete masonry unit work, complete.

4A.2 **Materials.** Cement and other cementitious materials shall be delivered to the site and stored in unbroken bags, barrels, or other approved containers, plainly marked and labeled with the manufacturer's name and brand. Mortar materials shall be stored in dry, weathertight sheds or enclosures, and shall be stored and handled in a manner which will prevent the inclusion of foreign material and damage by water or dampness. Concrete masonry units shall be handled with care to avoid chipping and breakage, and shall be stored as directed. Materials stored in newly constructed floors shall be stacked in such manner that the uniformly distributed loading does not exceed 50 psi. Concrete masonry materials shall be protected from contact with the earth and exposure to the weather, and shall be kept dry until used.

4A.2.1 Concrete masonry units shall be 2 or 3-core steam-cured modular blocks. Exterior and interior masonry units shall be load-bearing and non load bearing units with compressive strength of 5.52 mpa and 2.75 mpa respectively. However, load-bearing units may be provided in lieu of non-loadbearing units. Surfaces of units which are to be plastered shall be sufficiently rough to provide a suitable bond.

4A.2.2 Portland cement shall be type 1 conforming to PNS O7.

4A.2.3 Sand shall conform to PNS 18, type 1.

4A.2.4 Water for mixing shall be potable.

4A.2.5 Reinforcing steel bars shall be corrugated structural grade, as manufactured by "Pag-Asa Steel Works, Inc."

### 4A.3 Erection.

4A.3.1 **Workmanship** Concrete masonry walls shall be carried up level and plumb all around. One section of the walls shall not be carried up in advance of the others unless specifically approved. Unfinished work shall be stepped back for joining with new work. Heights of masonry shall be checked with an instrument at each floor, and at sills and heads of openings to maintain the level of the walls. Door and window frames, louvered opening to maintain the level of the walls. Door and window frames, louvered openings, anchors pipes, ducts and conduits shall be built-in carefully and in a neat manner as the masonry work progresses. Spaces around metal door frames shall be filled solidly with mortar. Concrete masonry units shall be handled with care to avoid chipping, backing inserts, plugs, ties, lintels, and miscellaneous metal work specified elsewhere shall be placed in position as the work progresses. Unless indicated otherwise, partitions shall extend from the floor to the bottom of the floor or roof construction above. Non-load-bearing partitions and interior walls shall be securely anchored to the construction above in a manner that provides lateral stability while permitting unrestricted deflection of construction above, scaffolding well-braced and securely tied in position. Overloading of scaffolding will not be permitted.

4A.4 Mortar mixing. Mortar materials shall be measured by volumetric proportioning in approved containers that will insure that the specified proportions of materials will be controlled and accurately maintained during the progress of the work. Measuring materials with shovels will not be permitted. Unless specified otherwise, mortar shall be mixed in such a manner that the materials will be distributed uniformly throughout the mass. A sufficient amount of water shall be added gradually and the mass further mixed not less than 3 minutes until a mortar of the plasticity necessary for the purposes intended is obtained. Mortar boxes, pans and/or mixer drums shall be kept clean and free of debris of dried mortar. The mortar shall be used before the initial setting of the cement has taken place; re-tempering of mortar in which cement has started to set will not be permitted. Mortar shall be mixed in the proportions of one part portland cement and 3 parts sand.

4A.5 Grout shall consist of a mixture of cementitious materials aggregate as specified hereinafter; water shall be added in sufficient quantity to produce a fluid mixture. Fine grout shall be provided in grout spaces less than 50 mm in any horizontal dimension or in which clearance between reinforcing and masonry is less than 20 mm. Coarse grout shall be provided in grout spaces 50 mm or greater in all horizontal dimensions and clearance between reinforcement and masonry is not less than 20 mm.

4A.5.2 Coarse grout shall be mixed in proportions of one part portland cement, 3 parts sand and 3 parts pea gravel passing a 10mm sieve.

4A.6 Mortar joints shall be uniform in thickness and the average thickness of any three consecutive joints shall be 10 mm to 12 mm. Changes in coursing or bonding after the work is started will not be permitted. Exposed joints shall be rolled slightly concave with a round or other approved jointer when the mortar is thumbprint hard. The jointer shall be slightly larger than the width of the joint so that complete contact is made along the edges of the units, compressing and sealing the surface of the joint. Joints shall be struck flush. Horizontal joints shall be rolled first. Joints shall be brushed to remove all loose and excess mortar. All horizontal joints shall be level; vertical joints shall be plumb and in alignment from top to bottom of wall, within a tolerance of plus or minus 12 mm.

**4A.7 Concrete masonry unit work.** The first course of concrete masonry units shall be laid in a full bed of mortar for the full width of the unit; the succeeding courses shall be laid with broken joints. The bed-joints of concrete masonry unit shall be formed by applying the mortar to the entire top surfaces of the inner and outer face shell, and the head joints shall be formed by applying the mortar for a width of about 25 mm to the ends of the adjoining units laid previously. The mortar for joints shall be smooth, not furrowed, and shall be of such thickness that it will be forced out of the joints as the units are being placed in positions. Where anchors, bolts, and ties occur within the cells of the units, such cells shall be filled with mortar or grout as the work progresses. Concrete masonry units shall not be damped before or during laying.

**4A.8 Reinforcing** shall be positioned accurately as indicated. As masonry work progresses, vertical reinforcing shall be rigidly secured in place at vertical intervals as indicated. Reinforcing shall be embedded in grout as grouting proceeds. The minimum clear distance between masonry and vertical reinforcement shall not less than 12 mm. Unless indicated or specified otherwise, splices shall be formed by lapping bars not less than 20 bar diameters and wire tying them together.

**4A.9 Bonding and anchoring.** Masonry walls and partitions shall be accurately anchored or bonded at points where they intersect, and where they abut or adjoin the concrete frame of a building. All anchors shall be completely embedded in mortar.

**4A.10 Grout placement.** Grouting shall be performed from interior side of walls, except as approved otherwise. Sills, ledges, offsets and other surfaces to be left exposed shall be protected from grout droppings, grout falling on such surfaces shall be removed immediately. Grout shall be stirred before placing to avoid segregation of the aggregate and shall be sufficiently fluid to flow into joints and around reinforcing without leaving voids. Grout shall be placed by pumping or pouring from buckets equipped with spouts, not exceeding 1.22 m; pours shall be kept at 38 mm below the top of masonry units in top course. Grout shall be puddled or agitated thoroughly to eliminate voids without displacing masonry from its original position. Masonry displaced by grouting operation shall be removed and laid in re-alignment with fresh mortar.

## **SECTION 4B PLASTERING**

**4B.1 Scope.** This section includes plastering, complete

**4B.2 General.** All masonry unit work or concrete work not specifically specified with a finish, exposed to view shall be cement plastered. Plastering work shall be coordinated properly with the work of other trades. The work of other trades shall be protected properly from damage during plastering operations. Floors and finished work shall be properly protected with a covering of polyethylene sheets or heavy kraft waterproof paper, with taped and sealed joints. Scaffolding shall be amply strong, well braced, tied securely and inspected regularly. Overloading of scaffolding will not be permitted.

**4B.3 Delivery and storage of materials.** Manufactured materials shall be delivered in the original packages and containers bearing the name and brand of the manufacturer. Cement and lime shall be stored off the ground under watertight cover, and away from sweating walls and damp surfaces until ready for use. Damaged or deteriorated materials shall be removed from the premises.

#### 4B.4 Materials

4B.4.1 Portland cement shall conform to PNS 07-1992. type 1.

4B.4.2 Sand shall be clean natural sand or manufactured sand passing a 3 mm screen and retained in a No. 100 mesh

4B.4.3 Water for mixing shall be potable.

4B.4.4 Lime shall be hydrated lime with the requirement that the free (unhydrated) calcium oxide (CaO) and magnesium oxide (MgO) in the hydrated product shall not exceed 8 percent by weight calculated on the "as received" basis

**4B.5 Mixing of plaster.** Except where hand mixing of small patches is approved, mechanical mixers of an approved type shall be used for the mixing of plaster. Materials shall be accurately measured in a device that will maintain the specified proportions within a plus or minus tolerance not in excess of 5 percent by volume. Caked or lumped materials shall not be used. Mechanical mixers, mixing boxes, and tools shall be cleaned after mixing each batch and kept freely of plaster from previous mixes. Plaster shall be thoroughly mixed with the proper amount of water, until uniform in color and consistency. Re-tempering will not be permitted, and all plaster that has begun to stiffen shall be discarded.

**4B.6 Proportioning of plaster.** Portland cement plaster shall be a two coat application. Each coat shall be proportioned as follows: one part portland cement, three parts sand, and 1/5 part lime putty.

#### 4B.7 Application of plaster.

**4B.7.1 Workmanship.** Base coats shall be applied with sufficient pressure and the plaster shall be sufficiently plastic to provide good bond on masonry or concrete base. Plaster work shall be finished level, plumb, squared, and true, within a tolerance of 3mm in 3 m, without eaves, cracks, blisters, pits, grazing, discoloration, projections or other imperfections. Plaster work shall have no visible junction marks where one day's work adjoins another. Finished work shall be covered and protected in an approved manner to prevent damage.

4B.7.2 Portland cement plaster shall be applied in two coats double-up method on masonry or concrete to a thickness of not less than 12mm. Base coats shall be applied with sufficient pressure to lessen excessive evaporation during the hot or dry weather conditions. Care shall be taken to prevent staining the finished plaster.

4B.8 Patching and pointing. Upon completion of the building and when directed, all loose, cracked, damaged, or defective plastering shall be cut out and re-patched in a satisfactory and approved manner. All points-patching of plastered surfaces, and plaster work abutting or adjoining any other finish work, shall be done in a neat and skillful manner. Plaster dropping or splattering shall be removed from all surfaces. Exposed plastered surfaces shall be left in a clean unblemished condition ready to receive paint or other finish. Protective coverings shall be removed from floors and other surfaces, and all rubbish and debris shall be removed from the building.

## ***Section VII. Drawings***

***Insert here a list of Drawings. The actual Drawings, including site plans, should be attached to this section or annexed in a separate folder.***

## ***Section VIII. Bill of Quantities***

### **Notes on the Bill of Quantities**

#### **Objectives**

The objectives of the Bill of Quantities are:

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

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

#### **Daywork Schedule**

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

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

#### **Provisional Sums**

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

The estimated cost of specialized work to be carried out, or of special goods to be supplied, by other contractors (refer to GCC Clause 8) should be indicated in the relevant part of the

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

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





## *Section IX. Bidding Forms*

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## Bid Form

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

IAEB<sup>1</sup> N°: \_\_\_\_\_

To: *[name and address of PROCURING ENTITY]*

Address: *[insert address]*

We, the undersigned, declare that:

- (a) We have examined and have no reservation to the Bidding Documents, including Addenda, for the Contract *[insert name of contract]*;
- (b) We offer to execute the Works for this Contract in accordance with the Bid and Bid Data Sheet, General and Special Conditions of Contract accompanying this Bid;

The total price of our Bid, excluding any discounts offered in item (d) below is: *[insert information]*;

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

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

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<sup>1</sup> If ADB, JICA and WB funded projects, use IFB.

- (i) We understand that you are not bound to accept the Lowest Evaluated Bid or any other Bid that you may receive.

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

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

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

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

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

## Form of 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 *[insert the amount in specified currency in numbers and words]* 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 shall be attached, deemed to form, and be read and construed as part of this Agreement, to wit:
  - (a) General and Special Conditions of Contract;
  - (b) Drawings/Plans;
  - (c) Specifications;
  - (d) Invitation to Apply for Eligibility and to Bid;
  - (e) Instructions to Bidders;
  - (f) Bid Data Sheet;
  - (g) Addenda and/or Supplemental/Bid Bulletins, if any;
  - (h) Bid form, including all the documents/statements contained in the Bidder’s bidding envelopes, as annexes;
  - (i) Eligibility requirements, documents and/or statements;
  - (j) Performance Security;
  - (k) Credit line issued by a licensed bank, if any;
  - (l) Notice of Award of Contract and the Bidder’s conforme thereto;
  - (m) Other contract documents that may be required by existing laws and/or the Entity.
3. In consideration of the payments to be made by the Entity to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Entity to execute and complete the Works and remedy any defects therein in conformity with the provisions of this Contract in all respects.
4. The Entity hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects wherein,

the Contract Price or such other sum as may become payable under the provisions of this Contract at the times and in the manner prescribed by this Contract.

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

Signed, sealed, delivered by \_\_\_\_\_ the \_\_\_\_\_ (for the Entity)

Signed, sealed, delivered by \_\_\_\_\_ the \_\_\_\_\_ (for the Contractor).

Binding Signature of PROCURING ENTITY

\_\_\_\_\_

Binding Signature of Contractor

\_\_\_\_\_

*[Addendum showing the corrections, if any, made during the Bid evaluation should be attached with this agreement]*

## Omnibus Sworn Statement

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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 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 of *[Name of Bidder]*, I have full power and authority to do, execute and perform any and all acts necessary to represent it in the bidding for *[Name of the Project]* of the *[Name of the Procuring Entity]*;

*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 and/or to represent the *[Name of Bidder]* in the bidding as shown in the attached *[state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate issued by the corporation or the members of the joint venture)]*;

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;
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:* I am not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

*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 following responsibilities as a Bidder:
- a) Carefully examine all of the Bidding Documents;
  - b) Acknowledge all conditions, local or otherwise, affecting the implementation of the Contract;
  - c) Made an estimate of the facilities available and needed for the contract to be bid, if any; and
  - d) Inquire or secure Supplemental/Bid Bulletin(s) issued for the [Name of the Project].

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

\_\_\_\_\_  
Bidder's Representative/Authorized Signatory

[JURAT]

\* This form will not apply for WB funded projects.