



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

BID DOCUMENTS

Name of Project : REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM

Location : ANGAT DAM, SAN LORENZO, NORZAGARAY BULACAN

Specs No. : LuzP22Z1480Sr

Contents:

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

Design and Development Department



SECTION I

INVITATION TO BID



National Power Corporation

INVITATION TO BID

PUBLIC BIDDING – BCS 2023-0403

- The NATIONAL POWER CORPORATION (NPC), through its approved Corporate Budget of CY 2023 intends to apply the sum of **(Please see schedule below)** being the Approved Budget for the Contract (ABC) to payments under the contract. Bids received in excess of the ABC shall be automatically rejected at Bid opening.

PR Nos./PB Ref No. & Description	Similar Contracts	Pre-bid Conference	Bid Submission / Opening	ABC/ Amt. of Bid Docs
HO-DRW23-006 / PB230905-NA00251 Rehabilitation of Access Road and Drainage System and Construction of Slope Protection along Road 4 of Angat Dam • PCAB License: License Category of at least “Category D – General Engineering” and registration classification of at least “Small B – Road, Highway, Pavements, Railways, Airport Horizontal Structure and Bridges”	Construction / Rehabilitation of Slope Protection, Slope Stabilization or riprap works	24 August 2023 9:30 A.M.	05 September 2023 9:30 A.M.	₱ 2,218,400.00 / ₱ 5,000.00
Venue: Kañao Function Room, NPC Bldg. Diliman, Quezon City				

- The NPC now invites bids for Items listed above. Delivery of the Goods is required (**see table below**) specified in the Technical Specifications. Bidders should have completed, within (**see table below**) from the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II. (Instruction to Bidders).

PR No/s. / PB Ref No/s.	Delivery Period / Contract Duration	Relevant Period of SLCC reckoned from the date of submission & receipt of bids
HO-DRW23-006	One Hundred Twenty (120) Calendar Days	-

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

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

- Prospective Bidders may obtain further information from National Power Corporation, Bids and Contracts Services Division and inspect the Bidding Documents at the address given below during office hours (8:00AM to 5:00PM), Monday to Friday.
- A complete set of Bidding Documents may be acquired by interested Bidders from the given address and website(s) and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest

Guidelines issued by the GPPB. Bidding fee may be refunded in accordance with the guidelines based on the grounds provided under Section 41 of R.A. 9184 and its Revised IRR.

6. The National Power Corporation will hold Pre-Bid Conference (**see table above**) and/or through video conferencing or webcasting which shall be open to prospective bidders.

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

- a. Only a maximum of two (2) representatives from each bidder / company shall be allowed to participate during the virtual pre-bid conference.
 - b. Wearing of Face Masks is recommended but not required in view of Proclamation No. 297 S.2023 lifting the State of Public Health Emergency Throughout the Philippines
 - c. The requirements herein stated including the medium of submission shall be subject to GPPB Resolution No. 09-2020 dated 07 May 2020
 - d. The Guidelines on the Implementation of Early Procurement Activities (EPA) shall be subject to GPPB Circular No. 06-2019 dated 17 July 2019
7. Bids must be duly received by the BAC Secretariat through (i) manual submission at the office address indicated below; (ii) online or electronic submission before the specified time stated in the table above for opening of bids. Late bids shall not be accepted.
8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 14.
9. Bid opening shall be on Kañao Function Room, NPC Head Office, Diliman, Quezon City and/or via online platform to be announced by NPC. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.
10. The National Power Corporation reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of R.A. No. 9184, without thereby incurring any liability to the affected bidder or bidders.

11. For further information, please refer to:

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

BIR Road cor. Quezon Avenue

Diliman, Quezon City

Tel Nos.: 8924-5211 and 8921-3541 local 5564/5211

Fax No.: 8922-1622

Email: bcsd@napocor.gov.ph /

12. You may visit the following websites:

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


ATTY. MELCHOR P. RIDULME
Vice President, Office of the Legal Counsel and
Chairman, Bids and Awards Committee

SECTION II

**INSTRUCTIONS TO
BIDDERS**



SECTION II - INSTRUCTIONS TO BIDDERS

TABLE OF CONTENTS

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

SECTION II - INSTRUCTIONS TO BIDDERS

1. Scope of Bid

NPC invites Bids for the **REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM**, with Project Identification Number **LuzP22Z1480Sr**.

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

2. Funding Information

The GOP through the source of funding as indicated below for CY 2022 in the amount of **TWO MILLION TWO HUNDRED EIGHTEEN THOUSAND FOUR HUNDRED PESOS (₱ 2,218,400.00)**. The source of funding is the proposed Corporate Operating Budget of the National Power Corporation (NPC).

3. Bidding Requirements

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

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

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

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

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

5. Eligible Bidders

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

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

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

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

6. Origin of Associated Goods

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

7. Subcontracts

- 7.1. The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than fifty percent (50%) of the Project.
- 7.2. The Bidder must submit together with its Bid the documentary requirements of the subcontractor(s) complying with the eligibility criterial stated in ITB Clause 5 in accordance with Section 23.4 of the 2016 revised IRR of RA No. 9184 pursuant to Section 23.1 thereof.
- 7.3. Subcontracting of any portion of the Project does not relieve the Contractor of any liability or obligation under the Contract. The Supplier will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants, or workmen as fully as if these were the Contractor's own acts, defaults, or negligence, or those of its agents, servants, or workmen.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address and/or through videoconferencing/webcasting} as indicated in paragraph 6 of the **IB**.

9. Clarification and Amendment of Bidding Documents

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

10. Documents Comprising the Bid: Eligibility and Technical Components

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Form NPCSF-INFR-01 - Checklist of Technical and Financial Documents, Section VIII - Bidding Forms.**
- 10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.
- 10.3. A valid PCAB License is required, and in case of joint ventures, a valid special PCAB License, and registration for the type and cost of the contract for this Project. Any additional type of Contractor license or permit shall be indicated in the **BDS.**
- 10.4. A List of Contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen) assigned to the contract to be bid, with their complete qualification and experience data shall be provided. These key personnel must meet the required minimum years of experience set in the **BDS.**
- 10.5. A List of Contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership, certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be, must meet the minimum requirements for the contract set in the **BDS.**

11. Documents Comprising the Bid: Financial Component

- 11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Form NPCSF-INFR-01 - Checklist of Technical and Financial Documents, Section VIII - Bidding Forms.**
- 11.2. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.
- 11.3. For Foreign-funded procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Alternative Bids

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

13. Bid Prices

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

14. Bid and Payment Currencies

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

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

15. Bid Security

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

15.2. The Bid and bid security shall be valid until **One Hundred Twenty (120) calendar days** from the date of opening of bids. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

16. Sealing and Marking of Bids

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

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

If the Procuring Entity allows the submission of bids through online submission to the given website or any other electronic means, the Bidder shall submit an electronic copy of its Bid, which must be digitally signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

17. Deadline for Submission of Bids

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

18. Opening and Preliminary Examination of Bids

18.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case

videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

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

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

19. Detailed Evaluation and Comparison of Bids

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

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

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

20. Post Qualification

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

21. Signing of the Contract

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

SECTION III

BID DATA SHEET

SECTION III - BID DATA SHEET

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

<p>10.4</p>	<p>The list of key personnel shall include the following minimum requirements:</p> <p>a. One (1) Project Engineer</p> <p>Registered Civil Engineer who had supervised at least a project similar in nature as to the type and cost of the proposed project within the last 10 years. Must have at least 3 years professional experience as Civil Engineer on similar project.</p> <p>b. One (1) Materials Engineer</p> <p>Registered Civil Engineer with valid accreditation from the Department of Public Works and Highways (DPWH) as Materials Engineer I</p> <p>c. One (1) Safety Officer 2</p> <p>Construction Safety Officer who has completed at least forty (40) hours of Construction Safety and Health Training (COSH) from Occupational Safety and Health Center (OSHC) or Safety Training Organizations (STOs) accredited by the Department of Labor and Employment (DOLE)</p> <p>Valid Professional Regulations Commission (PRC) license for professional personnel, Construction Safety and Health Training Certificate from OSHC/STOs accredited by DOLE for the Safety Officer, certificate of accreditation including ID card issued by DPWH for Materials Engineer, shall be submitted and included as an attachment in the Standard Form NPCSF-INFR-09: List of Key Personnel Proposed to be Assign to the Contract.</p> <p>The above key personnel must either be employed by the Bidder or contracted by the Bidder to be employed for the contract to be bid.</p>																					
<p>10.5</p>	<p>The list of construction equipment (owned or leased) shall include the following minimum requirements:</p> <table border="0"> <tr> <td>a. Concrete Vibrator</td> <td>-</td> <td>1 unit</td> </tr> <tr> <td>b. Bar Cutter (at least 20 mm Φ capable)</td> <td>-</td> <td>1 unit</td> </tr> <tr> <td>c. Service Vehicle (4x4 pickup)</td> <td>-</td> <td>1 unit</td> </tr> <tr> <td>d. One Bagger Mixer</td> <td>-</td> <td>1 unit</td> </tr> <tr> <td>e. Mini Dump Truck</td> <td>-</td> <td>1 unit</td> </tr> <tr> <td>f. Plate Compactor</td> <td>-</td> <td>1 unit</td> </tr> <tr> <td>g. Jack Hammer</td> <td>-</td> <td>1 unit</td> </tr> </table>	a. Concrete Vibrator	-	1 unit	b. Bar Cutter (at least 20 mm Φ capable)	-	1 unit	c. Service Vehicle (4x4 pickup)	-	1 unit	d. One Bagger Mixer	-	1 unit	e. Mini Dump Truck	-	1 unit	f. Plate Compactor	-	1 unit	g. Jack Hammer	-	1 unit
a. Concrete Vibrator	-	1 unit																				
b. Bar Cutter (at least 20 mm Φ capable)	-	1 unit																				
c. Service Vehicle (4x4 pickup)	-	1 unit																				
d. One Bagger Mixer	-	1 unit																				
e. Mini Dump Truck	-	1 unit																				
f. Plate Compactor	-	1 unit																				
g. Jack Hammer	-	1 unit																				
<p>10.6</p>	<p>Bidders shall also submit the following requirements in their first envelope, Eligibility and Technical Component of their bid:</p> <ol style="list-style-type: none"> 1. Complete eligibility documents of the proposed sub-contractor, if any 																					
<p>10.7</p>	<p>Any single bidder/s who already procured/secured the bidding documents but want to avail the Joint Venture Agreement (JVA) shall inform the BAC in writing prior to the bid opening for records and documentation purposes.</p>																					
<p>12</p>	<p>No further instructions</p>																					
<p>15.1</p>	<p>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:</p> <ol style="list-style-type: none"> 1. The amount of not less than 2% of ABC, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; 2. The amount of not less than 5% of ABC if bid security is in Surety Bond. 																					

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

SECTION IV

**GENERAL CONDITIONS
OF CONTRACT**

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

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

SECTION IV – GENERAL CONDITIONS OF CONTRACT

1. Scope of Contract

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

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

2. Sectional Completion of Works

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

3. Possession of Site

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

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

4. The Contractor's Obligations

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

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

5. Performance Security

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

6. Site Investigation Reports

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

7. Warranty

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

8. Liability of the Contractor

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

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

9. Termination for Other Causes

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

10. Dayworks

Subject to the guidelines on Variation Order in Annex "E" of the 2016 revised IRR of RA No. 9184, and if applicable as indicated in the **SCC**, the Dayworks rates in the Contractor's Bid shall be used for small additional amounts of work only when the

Procuring Entity's Representative has given written instructions in advance for additional work to be paid for in that way.

11. Program of Work

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

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

12. Instructions, Inspections and Audits

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

13. Advance Payment

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

14. Progress Payments

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

15. Operating and Maintenance Manuals

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

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

SECTION V

**SPECIAL CONDITIONS
OF CONTRACT**



SECTION V – SPECIAL CONDITIONS OF CONTRACT

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



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

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

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

SECTION VI

TECHNICAL SPECIFICATIONS

PROJECT HIGHLIGHTS



SECTION VI - TECHNICAL SPECIFICATIONS

PH – PROJECT HIGHLIGHTS

TABLE OF CONTENTS

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



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

This section covers the general technical requirements for furnishing all supervision, labor, materials, supplies, tools and equipment in accordance with specifications contained herein and as shown on the accompanying drawings to complete the **REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM**

The Contractor shall accept full responsibility for its work in the performance qualifications, specifications, documentation, reports, warranty provisions and compliance with the applicable codes and standards and the requirements of this specification.

The Contractor shall strictly observe the general requirements of this specification in conjunction with the specific requirements specified in the relevant specifications.

PH-1.2 Project Location

The project is located at Angat Dam, San Lorenzo, Norzagaray, Bulacan.

PH-1.3 Scope of Work

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

Civil Works

- a) Moving-in including furnishing, supervision, construction, operation and maintenance of general construction facilities and moving-out thereof after completion and acceptance;
- b) Complete construction of grouted rockwall;
- c) Construction of gabion;
- d) Complete construction of concrete pavement;
- e) Complete construction of drainage appurtenances;
- f) All other works and services required to complete the project.

PH-1.4 Contract Period

The Contractor shall complete the works as herein specified within One Hundred Twenty (120) calendar days. The contract period is inclusive of seven (7) unworkable days considered unfavorable for the execution of the works. The total contract duration shall be reckoned from the date of contract effectivity as specified in the **Notice to Proceed**.

PH-1.5 Contractor's Classification

The Contractor must have a valid Philippine Contractors Accreditation Board (PCAB) license of at least **"CATEGORY D – GENERAL ENGINEERING"** and registration classification of at least **"SMALL B – ROAD, HIGHWAY PAVEMENT, RAILWAY, AIRPORT, HORIZONTAL STRUCTURES AND BRIDGES"**.

The Contractor must have undertaken similar contracts and/or projects that involving construction/ rehabilitation of slope protection, slope stabilization or riprap works.

PH-1.6 Minimum Required Personnel

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

a. One (1) Project Engineer

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

b. One (1) Materials Engineer

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

c. One (1) Safety Officer 2

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

Valid Professional Regulations Commission (PRC) license for professional personnel. Construction Safety and Health Training Certificate from OSHC/STOs accredited by DOLE for the Safety Officer, certificate of accreditation including ID card issued by DPWH for Materials Engineer, shall be submitted and included as an attachment in the Standard Form NPCSF-INFR-09 List of Key Personnel Proposed to be Assign to the Contract.

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

PH-1.7 Minimum Required Construction Equipment

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

- | | |
|---------------------|----------|
| a. One Bagger Mixer | - 1 unit |
| b. Plate Compactor | - 1 unit |
| c. Jack Hammer | - 1 unit |
| d. Mini-Dump Truck | - 1 unit |

SECTION VI

**TECHNICAL
SPECIFICATIONS**

CIVIL WORKS

SECTION VI – TECHNICAL SPECIFICATIONS

CW – CIVIL WORKS

TABLE OF CONTENTS

<u>CLAUSE NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
CW-1.0	GENERAL CONSTRUCTION FACILITIES	1
CW-1.1	Scope	1
CW-1.2	Moving-in.....	1
CW-1.3	Contractor’s Camp Facilities.....	1
CW-1.4	Water Supply.....	1
CW-1.5	Sewerage Disposal and Sanitation.....	1
CW-1.6	Fire Protection.....	2
CW-1.7	Construction Power.....	2
CW-1.8	Camp Security.....	2
CW-1.9	Construction Material Storage.....	2
CW-1.10	Removal of Camp and Construction Facilities.....	2
CW-1.11	Measurement and Payment.....	3
CW-2.0	CARE OF WATER DURING CONSTRUCTION	3
CW-2.1	Scope	3
CW-2.2	Drainage and Dewatering.....	3
CW-2.3	Measurement and Payment.....	3
CW-3.0	ENVIRONMENTAL REQUIREMENTS FOR CIVIL WORKS.....	3
CW-3.1	Scope	3
CW-3.2	General Conditions.....	4
CW-3.3	Measurement and Payment.....	5
CW-4.0	SITE GRADING	5
CW-4.1	Scope	5
CW-4.2	Clearing, Grubbing and Miscellaneous Work.....	5
CW-4.2.1	Clearing and Grubbing	5
CW-4.2.2	Miscellaneous Works.....	6
CW-4.3	Grading.....	6
CW-4.3.1	General	6
CW-4.3.2	Classification of Materials	6
CW-4.3.3	Stripping.....	6
CW-4.3.4	Excavation and Fill.....	6



CW-4.3.5	Slides.....	7
CW-4.3.6	Slip-Outs.....	7
CW-4.4	Disposal	7
CW-4.5	Sources of Fill Materials	8
CW-4.6	Environmental Requirements	8
CW-4.7	Measurement and Payment.....	8
CW-4.7.1	Clearing and Grubbing	8
CW-4.7.2	Miscellaneous Works.....	8
CW-4.7.3	Stripping.....	8
CW-4.7.4	Grading Excavation.....	8
CW-4.7.5	Grading Fill.....	9
CW-5.0	STRUCTURAL EXCAVATION, FILL AND BACKFILL	9
CW-5.1	Scope	9
CW-5.2	Materials.....	9
CW-5.2.1	Structural Excavation.....	9
CW-5.2.2	Structural Fill.....	9
CW-5.2.3	Special Foundation, if any	10
CW-5.2.4	Structural Backfill.....	10
CW-5.3	Construction	10
CW-5.3.1	Excavation.....	10
CW-5.3.2	Structural Foundation Fill.....	11
CW-5.3.3	Special Foundations	12
CW-5.3.4	Backfill.....	12
CW-5.4	Measurement and Payment.....	12
CW-5.4.1	Structural Excavation.....	12
CW-5.4.2	Structural Foundation Fill	13
CW-5.4.3	Special Foundations	13
CW-5.4.4	Structural Backfill.....	13
CW-5.4.5	Trench Excavation and Backfill for Sewerage, Drainage and Water Supply Pipes and Cable Trench.....	13
CW-6.0	CONCRETE	14
CW-6.1	Scope	14
CW-6.2	Class of Concrete	14
CW-6.3	Materials.....	14
CW-6.3.1	Cement	14
CW-6.3.2	Reinforcing Steel	14
CW-6.3.3	Water.....	14
CW-6.3.4	Aggregates	15
CW-6.3.5	Formwork.....	15
CW-6.4	Storage of Materials.....	15
CW-6.4.1	Cement and Aggregates	15

CW-6.4.2	Reinforcing Steel	16
CW-6.5	Concreting.....	16
CW-6.5.1	General	16
CW-6.5.2	Formwork Construction	16
CW-6.5.3	Placing Reinforcement	17
CW-6.5.4	Mixing Concrete.....	17
CW-6.5.5	Placing Concrete	17
CW-6.5.6	Finishing Concrete	18
CW-6.5.7	Removal of Forms.....	18
CW-6.5.8	Curing and Protection.....	18
CW-6.5.9	Sampling and Testing of Concrete	19
CW-6.5.10	Tolerances and Repair for Concrete Construction	19
CW-6.5.11	Second Stage Concrete	20
CW-6.6	Measurement and Payment.....	20
CW-7.0	REINFORCING STEEL	20
CW-7.1	Description	20
CW-7.2	Material Requirement.....	20
CW-7.2.1	Bar Reinforcement	20
CW-7.2.2	Sampling.....	21
CW-7.3	Construction Requirement	21
CW-7.3.1	Order List for Bent Bars	21
CW-7.3.2	Fabrication.....	21
CW-7.3.3	Protection of Material.....	21
CW-7.3.4	Placing and Fastening Reinforcement & Miscellaneous Material (ACI-301).....	22
CW-7.3.5	Splicing	23
CW-7.4	Measurement and Payment.....	24
CW-8.0	STONE MASONRY / GROUTED RIP-RAP.....	25
CW-8.1	Scope	25
CW-8.2	Materials.....	25
CW-8.2.1	Boulders.....	25
CW-8.2.2	Mortar for Masonry Works	25
CW-8.3	Measurement for Payment.....	27
CW-9.0	GABIONS.....	27
CW-9.1	Scope	27
CW-9.2	General.....	27
CW-9.2.1	Wire	27
CW-9.2.2	P.V.C. (Polyvinyl Chloride) Coating.....	28
CW-9.2.3	Assembly	28
CW-9.2.4	Gabion Stone	29

CW-9.2.5	Installation and Filling	29
CW-9.2.6	Closing	29
CW-9.3	Measurement and Payment.....	30
CW-10.0	DRAINAGE SYSTEM AND APPURTENANT STRUCTURES	30
CW-10.1	Scope	30
CW-10.2	Materials.....	30
CW-10.2.1	Non-Reinforced Concrete Drainage Pipes.....	30
CW-10.2.2	Reinforced Concrete Drainage Pipes	30
CW-10.2.3	PVC Pipes	31
CW-10.2.4	Concrete Covered Rectangular Ditch	31
CW-10.2.5	Bedding Material	31
CW-10.3	Construction	31
CW-10.3.1	Trench Excavation and Backfill.....	31
CW-10.3.2	Concrete Canal.....	31
CW-10.3.3	Appurtenant Structures	32
CW-10.4	Pipe Installation.....	32
CW-10.4.1	General	32
CW-10.4.2	Non-Reinforced and Reinforced Concrete Drainage Pipes.....	32
CW-10.5	Measurement and Payment.....	33
CW-10.5.1	Concrete Rectangular Ditch	33
CW-10.5.2	Concrete Drainage Pipes and PVC Pipes.....	33
CW-10.5.3	Appurtenant Structures	33
CW-10.5.4	Bedding.....	33

TECHNICAL SPECIFICATIONS

CW – CIVIL WORKS

CW-1.0 GENERAL CONSTRUCTION FACILITIES

CW-1.1 Scope

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

CW-1.2 Moving-in

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

CW-1.3 Contractor's Camp Facilities

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

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

CW-1.4 Water Supply

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

CW-1.5 Sewerage Disposal and Sanitation

The Contractor shall, at his own expense, be responsible for the installation operation and maintenance of an adequate sewerage disposal and sanitation system and shall provide adequate toilet and wash-up facilities for his employees at his camp and in the areas where work is being carried out.

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

CW-1.6 Fire Protection

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

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

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

CW-1.7 Construction Power

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

CW-1.8 Camp Security

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

CW-1.9 Construction Material Storage

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

CW-1.10 Removal of Camp and Construction Facilities

After the completion of the work covered by the contract and prior to acceptance of the completed work, the entire camp facilities of the Contractor, including its water supply system, electric distribution system, quarters, warehouses, shops, dining halls, commissaries, temporary shed and other

facilities therein shall be removed by the Contractor. The site shall be cleared and cleaned as directed by the NPC.

CW-1.11 Measurement and Payment

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

CW-2.0 CARE OF WATER DURING CONSTRUCTION

CW-2.1 Scope

In accordance with the specifications contained in this section or otherwise directed, the Contractor shall construct and maintain all necessary temporary drainage ditches and other temporary protective works and he shall also furnish, install, maintain and operate necessary pumping equipment and other devices to protect construction operations free from water coming from any source, including rain.

CW-2.2 Drainage and Dewatering

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

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

CW-2.3 Measurement and Payment

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

CW-3.0 ENVIRONMENTAL REQUIREMENTS FOR CIVIL WORKS

CW-3.1 Scope

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

CW-3.2 General Conditions

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

- a) Designate a Safety Officer and a Pollution Control Officer who shall respectively handle all safety and environmental concerns of the project.
- b) Prepare and submit Construction Safety and Health Plan (CSHP).
- c) Properly manage debris and various waste generated during installation/construction, such as the following:
 - Dispose of demolition and construction debris in a designated or NPC approved disposal area(s);
 - Stockpile (and cover if possible) or haul to the designated and/or pre-developed dump sites (spoil disposal areas) that shall be provided with suitable drainage – equipped with sediment traps, stripped top soil, spoils from quarry/borrow sites and excavated materials;
 - Segregate solid wastes, such as empty cement sacks, scraps of tin or wood, used wires and other domestic garbage, for recycling or storage in NPC-approved temporary storage areas and further disposal to LGU-designated disposal sites.
 - Properly handle, store and dispose-off, through DENR-accredited transporter/treater, hazardous wastes i.e. used oils, paints, thinner, etc.
- d) Limit construction activities that generate excessive noise to daytime works only to prevent nuisance to nearby residents during rest hours.
- e) As far as practicable, undertake site stripping, grading and excavations during dry weather.
- f) Construction/Installation shall be carried-out in a manner where landslides and erosions are minimized.
- g) Avoid unnecessary opening/clearing of areas outside construction sites or destruction of vegetative cover, especially cutting of existing trees; and to re-vegetate disturbed areas.
- h) Implement biological control measures such as maintenance of vegetation buffers (i.e. sodding of grass, planting of creeping vines, herbs, shrubs and trees) to shield streams/rivers from sedimentation; planting of vegetative cover over erodible surfaces; and planting of exposed sloping areas with shallow-rooted species like grasses, herbs or creepers.

- i) Locate fill slopes and spoil heaps away from drainage routes and properly remove/dispose the same as soon as practicable.
- j) Preserve or replace, if practicable, natural drainage patterns (when disturbed by civil works) with appropriate drainage channels.
- k) Convey oil-contaminated wastewater from workshops, garages, or gas filling stations through an oil trap (i.e. improvised oil-water separator) prior to discharge.
- l) Spray water, wherever and whenever necessary, to minimize dust generation.
- m) Provide PPEs and other safety provisions required by DOLE, for its project/site works.
- n) Take all necessary steps to prevent the pollution of groundwater and/or water bodies in the vicinity of the project site.

CW-3.3 Measurement and Payment

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

CW-4.0 SITE GRADING

CW-4.1 Scope

In accordance with the specifications contained herein and in conformance with the lines, slopes, grades and extent shown on the plans or otherwise directed by the NPC, the Contractor shall furnish all equipment, labor and materials and shall perform the required grading work.

CW-4.2 Clearing, Grubbing and Miscellaneous Work

CW-4.2.1 Clearing and Grubbing

The Contractor shall perform clearing and grubbing on the project site. The site shall be cleared and grubbed of all trees and brush except particular trees, which may be retained by the NPC for preservation. Particular trees to be left in place shall be protected from scarring and/or other injuries during clearing and grubbing work and other construction operations.

All stumps, roots and brush shall be removed to a depth of thirty (30) cm below original ground surface and disposed of in a place designated by the NPC. Downed timber, which may be ordered saved by the NPC for future use, shall be cut into logs as directed and neatly piled in a place designated by the NPC, otherwise they shall be disposed of same as above.

CW-4.2.2 Miscellaneous Works

Where shown on the drawings or if not shown but directed by the NPC, the Contractor shall perform miscellaneous work like demolition, removal, chipping, replacement or transfer of existing structures and other miscellaneous work. All demolished structures shall be disposed of as directed by NPC.

CW-4.3 Grading**CW-4.3.1 General**

The word "grading" as defined herein means bringing to required grades all areas in accordance with the lines, slopes, elevations and grades shown on the drawings or as directed by the NPC.

CW-4.3.2 Classification of Materials

All materials in grading work shall be unclassified regardless of the nature of materials encountered during grading excavation and of materials used in grading fill. It is on the basis of unclassified material that Contractor shall determine his unit bid price for grading excavation and grading fill.

CW-4.3.3 Stripping

Fill areas to be brought to grade shall first be stripped of their top soil as directed but in no case less than twenty (20) centimeters in depth and disposed of properly in spoil areas designated by the NPC. Only materials from grading excavation and intended to be used for filling or backfilling purposes shall be stripped of top soil in the same manner as above.

CW-4.3.4 Excavation and Fill

Areas required to be brought to grade shall be excavated or filled as the case may be. Grading work shall be carried out in such a manner that the free drainage is maintained at all times and nowhere shall pondage be found in any part of the work.

The NPC may require the modification of slopes and grades according to the conditions actually encountered during excavation, but such change or modification shall not be construed to mean by the Contractor as a basis for additional compensation over and above the contract unit prices.

Any over-excavation performed by the Contractor for any purpose or reason, except as may be ordered by the NPC, shall be at the Contractor's expense and any excess of excavation shall be refilled, where required, with approved materials that shall be furnished, placed and properly compacted at the expense of the Contractor.

Unsuitable materials, as determined by the NPC, which may be encountered below established grade, shall be removed to a depth as directed and accordingly replaced with suitable materials approved by the NPC. The removal and proper disposal of such unsuitable materials shall be paid for at the contract unit price for the item, Grading Excavation, and payment for

placing and compacting suitable material be made at the contract unit price for the item, Grading Fill, in the Bill of Quantities.

Fill work shall not be started until the area has been inspected and approved by the NPC after stripping. Grading fill shall be spread and compacted in layers of 15 cm. loose volume and compacted with approved roller weighing not less than 10 tons. Each layer shall be moistened or dried as directed for maximum compaction. No succeeding layer shall be placed thereon unless the preceding layer has been tested for compaction and approved by the NPC.

In the event that construction of concrete footing or other concrete foundations is on fill, the fill shall be compacted efficiently and thoroughly so that when the fill is tested for compaction at the required foundation elevation for the structure, the required bearing capacity is attained but in no case less than 144kPa. In no case shall filling and compaction work to be done without the presence of NPC's inspectors. The Contractor shall be held liable for any structural instability or damage that might result in consequence to non-compliance of this requirement. The Contractor shall institute corrective measures to bring the foundation base to a condition or state that will conform to the required bearing capacity; and also to repair and make good any damage on the structure to the satisfaction and at no cost to NPC.

CW-4.3.5 Slides

In the event that slides occur along excavated slopes during grading operations or after completion of grading but prior to acceptance of the work, the Contractor shall remove and dispose the slide materials and also to trim the slopes as directed to leave the slopes in a safe and neat condition all at no additional cost to NPC, unless occurrence of such slides is occasioned by causes beyond control of the Contractor. In such event, payment for the satisfactory removal and proper disposal of slide material and finishing and rounding of slopes will be paid for at the equivalent of thirty percent (30%) of the contract unit price per cubic meter for the item Grading Excavation.

CW-4.3.6 Slip-Outs

In the event of slip-outs in any part of the grading fill prior to final acceptance of the work, the Contractor shall rebuild such portion of the fill. In the case it is determined that the slip-outs was caused through the fault of the Contractor, the rebuilding of the fill shall be performed by the Contractor at no extra cost to NPC; otherwise, the reconstruction of the fill will be paid for thirty percent (30%) of the contract unit for the item, Grading Fill.

CW-4.4 Disposal

All excess materials from grading work (including excess materials in structural excavation and miscellaneous work) shall be disposed of the by the Contractor. The acquisition of the right-of-way for the area of disposal including the access thereto, permits, and other requirements, shall be the responsibility of the Contractor at no cost to NPC. The Contractor shall be held solely liable for any claim by third parties that may arise from improper transport and disposal of excess materials. The cost of acquisition of the above-mentioned right-of-way shall be included in the unit bid price for excavation.

CW-4.5 Sources of Fill Materials

When suitable materials from grading excavation are deficient to meet the quantity required for grading fill, additional fill materials shall be obtained from other sources proposed by the Contractor and approved by the NPC. Cost of excavating, hauling, placing and compacting additional materials from borrow sources shall be included in the unit price bid for the item, Grading Fill. Acquisition of right-of-way to these sources shall be the responsibility and account of the Contractor.

CW-4.6 Environmental Requirements

All construction activities to be performed by the Contractor shall be in accordance with the restrictions stated in the approved Environmental Clearance Certificate (ECC) and the conditions set forth in Clause 3.0 – Environmental Requirements for Civil Works.

CW-4.7 Measurement and Payment**CW-4.7.1 Clearing and Grubbing**

Unless otherwise specified in the Bill of Quantities, no separate measurement and payment will be made for Clearing and Grubbing. Corresponding cost hereof shall be included in the unit bid price of relevant item(s) in the Bill of Quantities.

CW-4.7.2 Miscellaneous Works

Measurement for payment for miscellaneous work such as demolition, restoration, etc., shall be made on a lot basis unless otherwise specified in the Bill of Quantities. Payment will be made at the contract unit price for the item Miscellaneous Works, which payment shall cover all cost for furnishing labor, equipment and incidentals necessary for demolition and restoration, disposal, and other related works required to complete the item.

CW-4.7.3 Stripping

Unless otherwise specified in the Bill of Quantities, no separate measurement and payment will be made for Stripping. Corresponding cost hereof shall be included in the unit bid price of relevant item(s) in the Bill of Quantities.

CW-4.7.4 Grading Excavation

Measurement for payment for Grading Excavation shall be based on the number of cubic meters excavated and properly disposed. Volume shall be computed by the average end area method which shall be the volume between the original ground (as determined by survey to be made by representatives of both NPC and the Contractor) and graded surface on the drawings or as established by NPC. To this volume shall be added, for purpose of payment, all authorized excavations below grade.

Payment will be made at the contract unit price for the item Grading Excavation in the Bill of Quantities, which payment shall constitute full compensation for

furnishing of all labor, construction equipment and incidentals necessary excavate, dispose and other related work required to complete the work item.

CW-4.7.5 Grading Fill

Measurement for payment for Grading Fill shall be based on the number of cubic meters of the materials placed, graded, compacted and accepted. Volume shall be computed by the average end area method which shall be the volume between the ground surface after stripping and the finished grade surfaces on the drawings or as established by NPC.

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

CW-5.0 STRUCTURAL EXCAVATION, FILL AND BACKFILL

CW-5.1 Scope

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

CW-5.2 Materials

CW-5.2.1 Structural Excavation

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

CW-5.2.2 Structural Fill

a. Sand and Gravel Fill

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

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



0.074 mm (No. 200)

2-8

b. Structural Earth Fill

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

CW-5.2.3 Special Foundation, if any

The NPC shall have the option to use one or both of the following materials for special foundations, whether or not shown on the drawings:

a. Lean Concrete

The strength of lean concrete shall be 13.79MPa or as designated by the NPC.

b. Selected Materials

Selected materials shall consist of compactable material which, when compacted, shall attain the required bearing capacity. The material could be a combination of earth and rock particles not greater than 8 cm including sandy clay, gravelly clay, or shale, all approved by the NPC.

Bed materials for water pipes and/or drainage culverts shall use sand fills.

CW-5.2.4 Structural Backfill

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

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

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

CW-5.3 Construction**CW-5.3.1 Excavation****a. General**

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

provisions on Variation Orders under the General Conditions of Contract (GCC) shall apply.

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

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

b. Structural Excavation, Structure Other Than Pipes

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

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

c. Drainage and Sewerage Pipes and Cable Trench

The width of trench excavation for drainage and sewerage pipes and cable trench shall be as indicated on the drawings. All trench bottoms shall be excavated to the foundation grade indicated, regardless of the foundation material classification.

d. Water Supply Pipes

Trenches for main or feeder lines shall be excavated to the depth of no less than 0.25 meter on open ground and 0.60 meter under roadways and parking areas, both depths measured from the finished grade surface.

Service pipes shall be buried to a depth of at least 0.15 meter below grade line.

CW-5.3.2 Structural Foundation Fill

No fill materials shall be placed in any part of the fill foundation unless the foundations have been inspected and approved by the NPC. Fill materials shall be placed and spread in layer covering the entire length and breadth of the section under construction, each layer not to exceed 15 cm. in loose volume thickness and compacted thoroughly to the desired compaction as determined

by the NPC. No succeeding layer shall be placed until the previous layer has been tested and approved, as to compaction, by the NPC.

CW-5.3.3 Special Foundations

If unsuitable material is encountered or if the foundation material is unsuitable such that the required bearing capacity of the foundation cannot be attained at the required elevation, further excavation shall be performed by the Contractor as stated in CW-5.3.1b.

Excavated materials below foundation grade shall be replaced at the direction of the NPC, either by lean concrete or by selected materials as mentioned in CW-5.2.3.

Selected materials shall be placed in 15-cm layers and compacted until the required bearing capacity is attained.

CW-5.3.4 Backfill

1. Structures, Other Than Pipes

Excavated areas around structures for backfilling shall be backfilled with approved materials in horizontal layers, each not exceeding 15cm. (6") in loose volume thickness. Each layer shall either be moistened or dried as directed and thoroughly tamped with tampers having no less than 160 cm² of tamping area and weighing not less than 20 kg. The last layer shall be neatly brought up to the level of the adjoining finished grade surface.

In no case shall backfill be placed around concrete structures until after fourteen (14) days from placement of the concrete.

2. Drainage and Sewerage Pipes

After the pipes have been installed and grouted joints sufficiently cured, but in no case less than seven (7) days allowed for curing as specified in NSCP and the whole pipeline inspected, backfill materials specified herein shall be placed in layers as directed, each layer either dried or moistened as directed and thoroughly tamped. The backfill shall be brought up evenly on both sides of the pipe up to the top of the pipe and finally up to the finished grade surface.

3. Water Supply Pipes

After the pipeline has been installed and tested it shall be backfilled in layers as directed and compacted to the satisfaction of the NPC.

CW-5.4 Measurement and Payment

CW-5.4.1 Structural Excavation

Measurement for payment for structural excavation performed by the Contractor for structures (except drainage, sewerage and water supply pipes, and appurtenances of which cost of excavation and backfill is included in the

cost of installed pipe and constructed appurtenances) will be based on the number of cubic meters of materials excavated.

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

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

CW-5.4.2 Structural Foundation Fill

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

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

CW-5.4.3 Special Foundations

Measurement for payment for lean concrete and/or selected materials placed within the pay lines for excavation will be based on the number of cubic meters in-place and accepted.

Payment will be made at the contract unit price for the corresponding item shown in the Bill of Quantities, which payment shall cover all costs for furnishing all labor, materials, equipment and tools necessary to complete the item.

CW-5.4.4 Structural Backfill

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

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

CW-5.4.5 Trench Excavation and Backfill for Sewerage, Drainage and Water Supply Pipes and Cable Trench

No separate measurement and payment will be made for trench excavation and backfill for all sewerage, drainage and water supply pipes. Payment for

trench excavation and backfill for pipes shall be included in the payment pertaining to pipes as shown in the Bill of Quantities.

CW-6.0 CONCRETE

CW-6.1 Scope

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

CW-6.2 Class of Concrete

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

CW-6.3 Materials

CW-6.3.1 Cement

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

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

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

CW-6.3.2 Reinforcing Steel

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

CW-6.3.3 Water

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

CW-6.3.4 Aggregates

All coarse and fine aggregates shall consist of hard, tough, durable and clean, uncoated particles. All foreign materials and dust shall be removed by processing. Aggregates shall generally be rounded and reasonably free from thin, flat and elongated particles in all sizes and well graded from coarse to fine.

CW-6.3.5 Formwork

Timber, lumber and plywood to be used for falsework and formwork shall be sound and shall comply with the requirements of this specifications. Use forms where a smooth form finish is required. Lumber shall be square-edged or tongue-and-groove boards, free of raised grain, knotholes and the other surface defects. Steel when used shall conform to the requirements of the ASTM A36. Steel form surfaces shall not contain irregularities, dents, or sags.

Forms shall be wood, plywood, or steel. Wood forms for surfaces exposed to view in the finished structure and requiring a smooth form finish, shall be plywood. For unexposed surfaces, undressed square-edge lumber may be used. Forms for surfaces requiring special finishes shall be plywood, or shall be lined with plywood, a non-absorptive, hard-pressed fiberboard, absorptive-type lining or other suitable material. Plywood, other than for lining, shall be concrete-form plywood free of raised grain, torn surfaces, worn edges, patches, or other surface defects, which would impair the texture of the concrete surface. Surfaces of steel forms shall be free from irregularities, dents, and sags.

CW-6.4 Storage of Materials**CW-6.4.1 Cement and Aggregates**

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

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

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

CW-6.4.2 Reinforcing Steel

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

CW-6.5 Concreting**CW-6.5.1 General**

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

CW-6.5.2 Formwork Construction

Forms shall be installed mortar and watertight, true to the dimensions, lines and grades of the structure and with the sufficient strength, rigidity, shape and surface smoothness as to leave the finished works true to the dimensions shown on the drawings or required by NPC and with the surface finish as specified.

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

Formwork for concrete placed underwater shall be watertight.

Forms shall be constructed so that the form surface of the concrete does not undulate excessively in any direction. Undulations exceeding either 2 mm or 1/270 of the center distance between studs, joints, form stiffeners, form fasteners, or wales will be considered to be excessive. Should any form of the forming system, even though previously approved for the use, produce a concrete surface with excessive undulations, its use shall be discontinued until modifications, satisfactory to NPC's Representative, have been made.

Portions of concrete structures with surface undulations in excess of the limits herein stated may be rejected by the NPC.

Form fasteners consisting of bolts, clamps or other devices shall be used as necessary to prevent spreading of the forms during concrete placement. The use of ties consisting of twisted wire loops to hold the forms in position will not be permitted.

All formworks 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, the forms shall be fitted over the completed surface to obtain accurate alignment of the surface and to prevent leakage of mortar. Panel 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 herein. Forms for heavy girders and similar members shall be constructed with a proper camber.

Coating: Before placing the concrete, the contact surface of forms shall be coated with a 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 not be used on forms for surfaces, which are to be painted. For surfaces not exposed to view in the finished structure, sheathing may be wetted thoroughly with clean water. All excess coating shall be removed by wiping with cloths. Reused forms shall have the contact surfaces cleaned thoroughly. Those that have been coated shall be given an additional application of the coating. Plaster waste molds shall be layered with two coats of the thin shellac or lacquer and coated with soft or thinned non-staining grease.

Tolerance and Variations: The Contractor shall set and maintain concrete forms to ensure 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. Variations in floor levels shall be measured before removal of supporting shores. The Contractor shall make the necessary corrective measures for the variations resulting from deflection, or when the latter affects concrete quality or curing. The tolerances specified shall not exceed by any portion of the concrete surfaces; the specified variation for one element of the structure shall be considered unacceptable when it permits another element of the structure to exceed its allowable variations. Except as otherwise specified herein, tolerances shall conform to ACI 347.

CW-6.5.3 Placing Reinforcement

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

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

CW-6.5.4 Mixing Concrete

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

CW-6.5.5 Placing Concrete

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

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

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

CW-6.5.6 Finishing Concrete

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

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

CW-6.5.7 Removal of Forms

Formwork shall not be removed without the permission of NPC; where such permission, however, shall not relieve the Contractor of its responsibility for the safety of the work. Blocks and bracing shall be removed at the time the forms are removed and in no case shall any portion of the wood forms be left in the concrete.

Falsework removal for continuous structures shall be as directed by NPC but in which case shall be temporarily supported such that the structure is gradually subjected to its working stresses. False work shall not be released in any span until the strength specified hereunder is attained.

When concrete strength tests are to be used as basis for the removal of forms and supports, the compressive strength of concrete must meet the following minimum requirements:

	Min. Time	Min.% Strength
Centering under girders and beams	14 days	80%
Sides of beams and all vertical surfaces	1 day	70%
Floor Slabs	14 days	80%

The site shall be cleared of all debris and refuse resulting from work.

CW-6.5.8 Curing and Protection

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

CW-6.5.9 Sampling and Testing of Concrete

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

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

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

As work progresses, test cylinders shall be fabricated from the concrete samples and tested in accordance with ASTM C31 and ASTM C39. At least one set of four (4) cylinders shall be made from each 10 cu.m of the concrete placed of each class. Also at least one set shall be made per day for each class of concrete placed each day.

Two (2) cylinders shall be tested at 28 days for specification compliance and one shall be tested at 7 and 14 days respectively for information. The acceptance test result shall be the average of the strength of the two cylinders tested at 28 days.

The compressive strength of the concrete shall be deemed acceptable if the average of any consecutive strength tests equals or exceeds the specified design strength (f_c'), provided no individual test falls below the f_c' by more than 3.50 MPa(500 psi) if f_c' is equal or less than 5,000psi (35Mpa); or by more than 0.10 f_c' , if f_c' is more than 5,000 psi (35Mpa).

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

CW-6.5.10 Tolerances and Repair for Concrete Construction

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

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

CW-6.5.11 Second Stage Concrete

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

CW-6.6 Measurement and Payment

Measurement for payment for Concrete, except concreting works that are associated to various construction and/or installation/erection works (i.e. equipment foundation and pedestals, perimeter wall footing and posts, etc.) included in the Bill of Quantities under separate pay item, will be based on the volume of concrete placed and accepted within the neat lines of the structure as shown on the drawings or in accordance with the manner of measurement set forth in the various sections of the Technical Provisions. No deduction will be made for rounded or beveled edges or space occupied by the metal items 10 sq. cm. or less in cross section, embedded in concrete.

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

No separate measurement for payment will be made for formworks of which the cost shall be included in concreting works.

Unless otherwise specified in the Bill of Quantities, no separate measurement and payment will be made for Concrete. Corresponding cost hereof shall be included in the unit bid price of relevant item(s) in the Bill of Quantities.

CW-7.0 REINFORCING STEEL**CW-7.1 Description**

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

CW-7.2 Material Requirement

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

CW-7.2.1 Bar Reinforcement

Reinforcement bars for concrete shall be hot-rolled, weld able, deformed billet-steel bars conforming to the requirements specified in ASTM A615 and PNS

49 unless shown on the Drawings or as required by the NPC. The use of the cold twisted bars is not permitted. Bar reinforcement shall be shipped in standard bundles, tagged and marked in accordance with the Code of Standard Practice of the Concrete Reinforcement Steel Institute.

CW-7.2.2 Sampling

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

CW-7.3 Construction Requirement

CW-7.3.1 Order List for Bent Bars

Before materials are ordered, the Contractor shall furnish all order lists and bending diagrams for the approval of the NPC. The approval of order lists and bending diagrams by the NPC shall in no way relieve the Contractor of responsibility for the correctness of such lists and such lists and diagrams. Any expenses incident to the revisions of materials furnished in accordance with such lists and diagrams to make them comply with the drawings shall be borne by the Contractor.

Shop Drawings for Reinforcing Steel (ACI 315): Indicate bending diagrams, assembly diagrams, splicing and laps of bars, shapes, dimensions and details of bar reinforcing, accessories and concrete cover. Do not scale dimensions from structural drawings to determine lengths of reinforcing steel.

CW-7.3.2 Fabrication

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

Bars 6mm Φ to 20mm Φ inclusive	D=6d
Bars 25mm Φ and 28mm Φ	D=8d
Bars 32mm Φ and greater	D=10d

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

CW-7.3.3 Protection of Material

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

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

CW-7.3.4 Placing and Fastening Reinforcement & Miscellaneous Material (ACI-301)

All reinforcement bars, stirrups, hanger bars, wire fabric, spirals and other reinforcing materials shall be provided as indicated in the drawing or required by the specification, together with all necessary wire ties, chairs, screws, supports, and other devices necessary to install and secure the reinforcement properly. All reinforcement, when placed, shall be free from rust, scale, oil, grease, clay, and other coatings, and foreign substances that would reduce or destroy the bond. Rusting of reinforcement shall not reduce the effective cross sectional area of the reinforcement to the extent that the strength is reduced beyond specified values. Heavy, thick rust or loose, flaky rust shall be removed by rubbing with burlap or other approved method, prior to placing. Reinforcement that has bends not shown on the project drawings or on approved shop drawings, or is reduced in section by rusting such that its weight is not within permissible ASTM tolerances, shall not be used. All reinforcement shall be supported and wired together to prevent displacement by construction loads or by the placing of concrete. Unless directed otherwise by the NPC, reinforcement shall not be bent after being partially embedded in hardened concrete. Detailing of reinforcing shall conform to ACI 315. Where cover over reinforcing steel is not specified or indicated, it shall be in accordance with ACI 318.

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

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

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

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

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

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

- a. Height of bottom bars ±6mm above form
- b. Lengthwise positioning ±50mm of bars
- c. Spacing bars in walls and ±25mm
solid slabs
- d. Spacing bars in beams and ±6mm
footings
- e. Height of top bars ±6mm
- f. Stirrup spacing:
 - (1) For any one stirrup ±25mm
 - (2) For over-all group ±25mm of stirrup

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

CW-7.3.5 Splicing

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

All reinforcement shall be furnished in the full lengths indicated on the Drawings. Splicing of bars, except where shown on the Drawings will not be permitted without the written approval of the NPC. When allowed, splices shall



be staggered as far as possible and with a minimum separation of not less than 40 bar diameters. Not more than one-third of the bars may be spliced in the same cross section, except where shown on the Drawings.

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

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

Where d is the diameter of the bar. In lapped splices, the bars shall be placed in contact and wired together. Lapped splices will not be permitted at locations where the concrete section is insufficient to provide a minimum clear distance of one and one-third the maximum size of coarse aggregate between the splice and the nearest adjacent bar. Welding of reinforcing steel shall only be done if detailed on the Drawings or if authorized by the NPC in writing. Spiral reinforcement shall be spliced by lapping at least one and half (1 1/2) turns or by butt-welding unless otherwise shown on the drawings.

CW-7.4 Measurement and Payment

The quantity to be paid for shall be the calculated theoretical number of kilograms of reinforcement steel bars as determined from the net length of the steel shown on the drawings, incorporated in the concrete and accepted. The weight of deformed bars will be computed from the theoretical weight of the same nominal size as shown in the following tabulation:

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

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

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

The accepted quantity shall be paid at the corresponding unit price for the item, Reinforcing Steel as shown in the Bill of Quantities which price and payment



shall be made in full compensation for furnishing materials, labor, equipment and incidentals necessary to complete this item.

CW-8.0 STONE MASONRY / GROUTED RIP-RAP

CW-8.1 Scope

The work covers all works in connection with slope protection works or as directed by NPC. The works shall consist of construction of stone masonry walls or grouted riprap as shown in the drawings and as required by NPC.

CW-8.2 Materials

CW-8.2.1 Boulders

Boulders shall consist of hard, durable and selected stones, free from seams, weathered parts, dirt or any other injurious material that may prevent the proper adhesion of the mortar. Minimum size shall be 10 centimeters in diameter or 0.00055 cubic meters. Stones placed beside the boulders shall be equal or less than the size in volume with the exception that smaller rocks may be used for pinning and for filling the interstices or voids between them.

The stones shall be roughly squared where required. All shaping or dressing of stone shall be done before the stone is laid.

CW-8.2.2 Mortar for Masonry Works

A. Scope

This part deals with the proportioning, mixing and transportation of the mortars to be used for the grouted rip-rap and other relevant stone masonry works.

B. Materials

- 1) Portland Cement – Portland cement shall be furnished by the Supplier and provisions set forth in CW-5.0 (Concrete) shall govern.
- 2) Sand - Coarse and fine sand shall consist of hard, tough, durable, uncoated particles acceptable to NPC. All foreign materials and dust shall be removed by processing.
- 3) Water– Water for mortar shall be free from oil, acid, alkali, vegetable matter or other deleterious substances and shall be reasonably clear and clean.

C. Proportioning

The mortars shall be proportioned by volume as specified in the following table:

Class of Mortar	Portland Cement	Hydrated Lime	Sand
A	1 part	-	2 parts
B	1 part	-	3 parts
C	1 part	½ part	3 parts
D	1 part	1 ½ part	3 parts

The method of measuring materials for the mortar shall be such that the specified proportions of the mortar materials can be controlled and accurately maintained during the progress of the work.

The quantity of water shall be the necessary one to obtain a satisfactory workability for the specific use of each mortar.

D. Mixing

The mortar shall be mixed for a minimum of 2 minutes in a mechanically operated drum type mixer or equivalent mixer approved by NPC.

The mixer shall be rotated at the speed recommended by the manufacturers and the total quantity of materials mixed in any batch shall not exceed the rated capacity of the mixer.

The gauged amount of water shall be gradually introduced into the mixer, partly before the loading of the dry materials and partly immediately after the loading of the same has been completed.

The entire content of the drum shall be discharged before a new cycle of batching is started, and at all times, the inside of the drum shall be kept free from build-up of materials. The mixer drum shall be thoroughly cleared-out prior to change of mix or on cessation of mixing.

Hand-mixing for small batches is permissible provided that the mortar is mixed up to the degree obtained with the mechanically operated mixer. If hand mixing of the mortar is permitted by NPC, the fine aggregates and cement shall be mixed dry in a tight box until the mixture assumes a uniform color, after which, water shall be added as the mixing continues.

E. Placing

Stones shall be thoroughly wetted before placing, and shall be laid by hand in full mortar beds, in courses approximately horizontal both in longitudinal and transverse directions. Stones will not be considered to be properly bedded until mortar exudes from the underside of the bedded stones. No voids in any part of the rip-rap will be permitted.



F. Transportation

The equipment and the tools for transportation and for placing batched mortar shall ensure that contamination or loss of ingredients do not take place.

Mortar shall be stirred or worked at frequent intervals to prevent separation. Any mortar that is not placed within thirty minutes after the first water has been added to the batch shall be wasted. Except for necessary tempering on the mortar board, the retempering of the mortar shall not be permitted.

G. Payment

No separate payment shall be made for mortar, which shall be included in the stipulated price fully grouted riprap or stone masonry works.

CW-8.3 Measurement for Payment

Measurement for payment of the fully grouted riprap and/or stone masonry shall be based on the actual volume placed and accepted. Opening of less than 10 percent for each cross-sectional area shall not be deducted.

Payment hereof will be made at the unit price stipulated in the Bill of Quantities per cubic meter, which shall constitute full compensation for the furnishing of all materials, labor and equipment necessary for the rip-rapping/stone masonry works.

CW-9.0 GABIONS

CW-9.1 Scope

In accordance with the specifications contained herein and in conformance with the lines, slopes, grades and extent shown on the plans or otherwise directed by the NPC, the Contractor shall furnish all equipment, labor and materials and as required in the installation of gabion structure.

CW-9.2 General

Gabions are baskets made of steel mesh and double twisted steel woven wire mesh, as per ASTM A-975-97. The gabion baskets are filled with stones at the project site to form flexible, permeable, monolithic structures. The steel wire used is heavily zinc coated soft temper steel. The gabion basket is divided into cells by means of diaphragms positioned at approximately 1 meter on center. All mesh panel edges are selvaged with a wire having a greater diameter.

CW-9.2.1 Wire

All tests on wire must be performed prior to delivery of the gabion box units. Material test shall be witness by the quality assurance inspector and the structural design engineer.

1. Tensile strength: The wire used for the manufacture of the gabions shall have a tensile strength of 413 – 586 MPa.
2. Elongation: Elongation shall not be less than 10%.
3. Zinc coating: Minimum quantities of zinc as shown in the table below.
4. Adhesion of zinc: The adhesion of zinc coating to the wire shall be such that, when the wire is wrapped six turns around a mandrel having four times the diameter of the wire, it does not flake or crack when rubbing it with the bare fingers, in accordance with ASTM A641-97.

STANDARD MESH-WIRE

TYPE	D(mm)	Tolerance	Internal Wire Dia (mm)	External Wire Dia(mm)
Mesh8 ZN+PVC	82	±10%	2.70	3.70

STANDARD WIRE DIAMETERS

	Lacing Wire	Mesh Wire	Selvedged Wire
PVC Mesh Diameter Ø(mm)	2.2/3.2	2.7/3.7	3.4/4.4
Wire Tolerance ±Ø(mm)	0.06	0.06	0.07
Minimum Quantity of Zinc g/m ²	230	245	286

CW-9.2.2 P.V.C. (Polyvinyl Chloride) Coating

The technical characteristics and the resistance of the PVC to ageing meet the relevant standards. The main values for the PVC material are as follows:

1. Specific gravity: 1.30 – 1.35 kg/dm in accordance with ASTM D792;
2. Hardness: Between 50 and 60 shore D, according to ASTM 2240-91;
3. Tensile Strength: less than 20.6 MPa, according to ASTM D412-92
4. Modulus of Elasticity: Not less than 18.6 MPa, in accordance with ASTM D412-92;
5. Abrasion Resistance: The percentage of the weight loss shall be less than 12%, according to ASTM D1242-92;

Technical data sheets of the material to be used is a requirement for this undertaking.

CW-9.2.3 Assembly

Unfold each gabion on a flat, hard surface and remove any shipping fold. Lift up the sides, ends and diaphragms into a vertical position to form an open box shape. Connect the back and the front panels of the gabion to the end panels and center diaphragms. The top corner of the end panels and center diaphragms have an extended selvedge wire extending approximately 100mm out from the corner edge.

Raise the end panels and the diaphragms to a vertical position and wrap the selvedge wire around the edge wire of the top and back panels. Connect the edges of the gabion and diaphragms by using either lacing wire or ring fasteners. Ring fasteners shall not be spaced more than 150mm apart.

The procedure for using lacing wire consists of cutting a sufficient length of wire and twisting the lacing wire to the wire mesh. Proceed to lace with alternating double and single loops through every mesh opening and finally securing the end of the lacing wire to the wire mesh. Place the diaphragms into the vertical position and wire them to the side panels in the same manner.

CW-9.2.4 Gabion Stone

Gabion stones shall be solid, hard and be able to withstand weathering and impact of running water. The stone shall not be flat or slender and shall be free from any dirt clinging to it and shall be washed thoroughly to ensure proper bonding.

Block adobe shall not be used. The approximate diameter of gabion stone shall range between 100mm to 200mm.

CW-9.2.5 Installation and Filling

After the foundation has been prepared, the pre-assembled gabions are placed in their proper location to form the structure. Gabions shall be connected together and aligned before filling the baskets with rock. Rocks shall be hard, angular to round, durable and of such quality that they shall not disintegrate on exposure to water or weathering during the life of the structure.

During the filling operation some manual stone placement is required to minimize voids. The exposed faces of vertical structures may be carefully hand placed to give a neat, flat and compact appearance. The cells shall be filled in stages so that local deformation may be avoided. That is, at no time shall any cell be filled to a depth exceeding 300mm higher than the adjoining cell.

Care should be taken when placing the stone to assure that the PVC coating on gabions will not be damaged. Stiffeners shall be positioned fixed at 1/3 and 2/3 of the height for 1 meter gabions as the cell is being filled. All corners should be securely connected to the neighboring gabions of the same layer before filling the units. When more than one layer of gabions is required the next layer of gabions must be connected to the layer underneath after this layer has been securely closed.

CW-9.2.6 Closing

To allow for settlement, level off the fill 25-40mm above the top of the mesh. Be sure to keep the top edge of the diaphragm exposed. Fold the lid down, pull the edges of the panels to be connected where necessary using an appropriate tool as a lid closer. The lids shall be tightened along all edges, ends and diaphragms in the same manner as described for assembling. Adjacent lids may be securely attached simultaneously. All end wires should then be turned in.

CW-9.3 Measurement and PaymentGabion Stones

Measurement and payment for gabion stone shall be based on the number of cubic meters of approved materials placed and accepted.

Payment will be made at the corresponding unit price for the item, Gabion Stones, in the Bill of Quantities which payment shall constitute full compensation for furnishing all labor, materials, equipment, tools and hauling of materials to the site.

Gabion Box

Measurement and payment of gabion box units shall be based on the number of pieces of approved materials, satisfactory placed and accepted.

CW-10.0 DRAINAGE SYSTEM AND APPURTENANT STRUCTURES**CW-10.1 Scope**

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

CW-10.2 Materials**CW-10.2.1 Non-Reinforced Concrete Drainage Pipes**

Non-reinforced concrete drainage pipes shall meet the requirements of ASTM C14-20.

One pipe length shall be taken at random representing a group of fifty (50) pipes or fraction thereof of the same size and shall be submitted for test. Any group represented by corresponding test specimens that do not meet the strength and other test requirements shall not be used in the work.

CW-10.2.2 Reinforced Concrete Drainage Pipes

Reinforced concrete drainage pipes shall meet the design and test requirements for Class II Reinforced Concrete Pipes in accordance with the latest revision of ASTM C76 and ASTM C497.

One (1) pipe length shall be taken at random representing a group of fifty (50) pipes or fraction thereof of the same size and shall be submitted for test. Any group represented by corresponding test specimens that do not meet the strength and other requirements shall not be used in the work.

CW-10.2.3 PVC Pipes

Polyvinyl Chloride (PVC) Pipes shall be unplasticized conforming to ISO4435 or equivalent. Details/scheme of perforation shall be as indicated in the bid drawing or as directed by NPC.

CW-10.2.4 Concrete Covered Rectangular Ditch

Cement, reinforcing steel, aggregate and water to be used for the construction of concrete covered rectangular ditch and open rectangular canal shall conform to the requirements set forth in Section CW-6.0 – Concrete. Foundation base material for concrete canal shall be sand and gravel as described in Section CW-5.0.

CW-10.2.5 Bedding Material**A. For Stable Soil and Rock Foundation**

Bedding material for sewerage and drainage pipes in stable soil and rock foundation, as determined by NPC, shall consist of sand or natural sandy soil in which all the materials passes a 9.5 mm (3/8") sieve but not more than 10% passes a 0.074 mm (No. 200) sieve.

B. For Unstable Foundation

Bedding for sewerage and drainage pipes in soft and unstable foundation as determined by the NPC, shall consist of 13.79MPa concrete cradle in conformity with the dimensions shown on the drawings, or as determined by the NPC.

C. Foundation under Roadways and Parking Areas

Bedding for sewerage and drainage pipes crossing under roadways and parking areas with pipe cover (excluding concrete or asphalt pavement) of 60.9 cm (2 ft.) or less shall consist of 13.79MPa concrete cradle in conformity with the dimensions shown on the drawings, or as determined by the NPC.

CW-10.3 Construction**CW-10.3.1 Trench Excavation and Backfill**

Trench excavation and backfill work shall be done in accordance with the pertinent provisions of Section CW-5.0.

CW-10.3.2 Concrete Canal

Concrete canal, open or covered, shall be constructed in accordance with the lines and grades shown on the drawings. Class of concrete shall be as indicated on the drawings or directed by the NPC.

CW-10.3.3 Appurtenant Structures

Appurtenant structures like street inlet, street inlet-catch basin combination, manhole, catch basin for downspouts, catch basin for intersecting perforated PVC pipes, septic tank, drainage outlets, etc. shall be constructed at locations indicated on the plans or at the other convenient locations designated by the NPC. All appurtenant structures shall be of 20.70 MPa concrete unless otherwise shown on the drawings.

CW-10.4 Pipe Installation**CW-10.4.1 General**

Before any drain pipe is installed, the sand or concrete bedding shall have been prepared and approved in accordance with the grade, shape, and dimensions shown on the drawings, or as directed by the NPC. No pipe over 45.7 cm (18") in diameter shall be laid on concrete bedding until seven (7) days have been elapsed after placing the concrete bedding. Pipes under 45.7 cm (18") in diameter may be laid after five (5) days elapsed after placing the concrete bedding.

All drain pipes shall be laid carefully, hubs upgraded, ends fully and closely jointed, and true to the lines and grades given. Succeeding pipe shall be jointed to the previously laid pipe, correct in alignment and grade. Any pipe, which has been damaged during installation or before acceptance of the work, shall be replaced and laid by the Contractor at his expense.

CW-10.4.2 Non-Reinforced and Reinforced Concrete Drainage Pipes

Whenever possible, concrete pipes shall be handled and installed with the aid of mechanical equipment and not just rolled or pushed into the trench from the bank. For small pipes, rope slings may be placed at both ends of the pipes and the rope slowly paved out until the pipe rests on the trench bed. proper and careful handling and laying should be observed at all times to prevent unnecessary structural damage to the pipe, especially at the pipe ends.

For pipes on sand bedding, before joining the next pipe length to the last pipe already laid, the bottom of the trench shall be excavated to the shape, size and location of the collar below the joint. The next pipe section shall then be securely attached to the previously laid pipe seeing to it the correct alignment and grade is always attained. Same procedures shall be observed for the remaining pipes.

All pipe joints shall be filled with stiff mortar composed of one (1) part cement and two (2) parts clean sand and enough water. The inside part of the joint shall be plastered properly to bring the inside surfaces of jointed pipe ends flush even. Sufficient mortar shall be placed on the outside surface of joint to form a bead around the joint. Plastering work shall be as directed and approved by the NPC. After initial set, the mortar on the outside surface shall be protected from air and sunlight with a cover thoroughly wetted earth or burlap. Curing of the joint shall be done for a period of at least seven (7) days within which no backfill shall be placed on the installed pipeline.

CW-10.5 Measurement and Payment**CW-10.5.1 Concrete Rectangular Ditch**

Measurement for payment for rectangular ditch and other channels will be based on the number of linear meters of canal constructed and accepted.

Payment will be made at the corresponding contract unit price per linear meter of the pertinent items shown in the Bill of Quantities. Payment shall constitute full compensation for furnishing all labor, materials, equipment and tools necessary for the construction of the concrete canal including attendant excavation and backfill.

CW-10.5.2 Concrete Drainage Pipes and PVC Pipes

Non-reinforced and reinforced concrete drain pipes, and PVC pipes in place and accepted will be measured by the linear meter along the centerline of the pipeline.

The quantities measured as provided above, completely installed and accepted, will be paid at the contract unit price for each size and kind of pipe shown in the Bill of Quantities. Payment shall constitute full compensation for furnishing all labor, material, equipment and tools for fabricating, hauling, installing and jointing of pipes. Payment shall also include the cost of attendant excavation, bedding and backfilling.

CW-10.5.3 Appurtenant Structures

Measurement for payment of appurtenant structures like street inlet, street inlet-catch basin combination, manhole, catch basin for downspouts, septic tank, drainage outlets, etc. will be based on the number of structures constructed/installed and accepted.

The Contractor will be paid at the contract unit price for the pertinent item for each appurtenant structure shown in the Bill of Quantities. Such payment shall cover all costs for furnishing all equipment, labor, materials and tools necessary to complete the construction of the aforementioned appurtenant structures. Payment also includes the cost of attendant excavation and backfill, furnishing, scheduling, cutting, bending and placing of reinforcing steel.

CW-10.5.4 Bedding

Measurement for payment for sand or natural sandy soil bedding and concrete cradle will be based on the number of cubic meters of materials placed and accepted.

Payment will be made at the corresponding contract unit price for the item. Sand Bedding for Pipes, and item, Concrete Cradle for Pipes, in the Bill of Quantities, which payment shall constitute full compensation for furnishing all labor, materials, equipment and tools necessary to complete the items.

SECTION VII

BILL OF QUANTITIES

**BILL OF QUANTITIES
REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM
CIVIL WORKS**

Item No.	Description of Work or Materials	Work to Be Done	Reference	Unit	Estimated Quantity	Unit Price in Pesos (Words and Figures)	Total Amount (In Figures)
CW-1.0	DEMOLITION OF AFFECTED CONCRETE PAVEMENT	Demolish & dispose	Refer to NPC TS & Drawing	lot	1.00	(P _____)	(P _____)
CW-2.0	EARTHWORKS						
CW-2.1	Grading Fill (including clearing and grubbing)	spread, level & compact	Refer to NPC TS & Drawing	cu.m.	210.00	(P _____)	(P _____)
CW-3.0	GROUTED ROCKWALL						
CW-3.1	Structural Excavation	excavate, stockpile & re-use	Refer to NPC TS & Drawing	cu.m.	72.00	(P _____)	(P _____)
CW-3.2	Grouted Rockwall (including grouted barrier, gravel filter, and sand filter)	excavate, arrange, place, & construct	Refer to NPC TS & Drawing	cu.m.	190.00	(P _____)	(P _____)
CW-3.3	100mm Ø PVC Pipe Weep Holes	furnish & install	Refer to NPC TS & Drawing	li.m.	60.00	(P _____)	(P _____)
CW-4.0	GABION BOX						
CW-4.1	Structural Excavation	excavate, stockpile & re-use	Refer to NPC TS & Drawing	cu.m.	6.00	(P _____)	(P _____)
CW-4.2	Gabion Box, HDG, PVC coated wire mesh, 8cm mesh opening, 2m x 1m x 1m (including connection coil)	furnish & install	Refer to NPC TS & Drawing	pcs.	12.00	(P _____)	(P _____)
CW-4.3	Gabion Stones (approx. 15cm dia.)	furnish & lay	Refer to NPC TS & Drawing	cu.m.	24.00	(P _____)	(P _____)

Name of Firm

Name and Signature of Authorized Representative

Designation



**BILL OF QUANTITIES
REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM
CIVIL WORKS**

Item No.	Description of Work or Materials	Work to Be Done	Reference	Unit	Estimated Quantity	Unit Price in Pesos (Words and Figures)	Total Amount (In Figures)
CW-5.0 CONCRETE PAVEMENT							
CW-5.1	Concrete Pavement (20.70 MPa) (including dowels, joint fillers, etc.)	Furnish & construct	Refer to NPC TS & Drawing	cu.m.	18.00	_____ (P _____)	_____ (P _____)
CW-5.2	Aggregate Sub-base	Furnish, place, spread & compact	Refer to NPC TS & Drawing	cu.m.	9.00	_____ (P _____)	_____ (P _____)
CW-6.0 DRAINAGE APPURTENANCES							
CW-6.1	0.75m Ø Reinforced Concrete Drainage Pipes	Furnish, excavate, install & backfill	Refer to NPC TS & Drawing	li.m.	12.00	_____ (P _____)	_____ (P _____)
CW-6.2	Open R. C. Canal (Including excavation and PVC coated wire mesh at connection with catch basin)	furnish & construct	Refer to NPC TS & Drawing	li.m.	54.00	_____ (P _____)	_____ (P _____)
CW-6.3	Catch Basin	furnish & construct	Refer to NPC TS & Drawing	pc.	1.00	_____ (P _____)	_____ (P _____)
TOTAL AMOUNT OF CIVIL WORKS						_____ (P _____)	_____ (P _____)

Name of Firm

Name and Signature of Authorized Representative

Designation



SECTION VIII

BIDDING FORMS



SECTION VIII – BIDDING FORMS

TABLE OF CONTENTS

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

Standard Form No: NPCSF-INFR-01

Checklist of Technical & Financial Envelope Requirements for Bidders

A. THE 1ST ENVELOPE (TECHNICAL COMPONENT) SHALL CONTAIN THE FOLLOWING:

1. ELIGIBILITY DOCUMENTS

a. (CLASS A)

➤ Any of the following:

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

OR:

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

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

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

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

OR:

- A combination thereof.

➤ Statement of all its ongoing government and private contracts if any, whether similar or not similar in nature and complexity to the contract to be bid (*NPCSF-INFR-02*)

➤ The Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, and whose value, adjusted to current prices using the Philippine Statistics Authority (PSA) consumer price index, must be at least 50% of the ABC (*NPCSF-INFR-03*) complete with the following supporting documents:

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

SECTION VIII – BIDDING FORMS

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

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

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

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

b. (CLASS B)

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

2. Technical Documents

- Bid Security, any one of the following:
 - Bid Securing Declaration (NPCSF-INFR-06c)
OR
 - Cash or Cashier's/Manager's check issued by a Universal or Commercial Bank – 2% of ABC;
OR
 - Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: (NPCSF-INFR-06a) - 2% of ABC;
OR
 - Surety Bond callable upon demand issued by a reputable surety or insurance company (NPCSF-INFR-06b) - 5% of ABC, with
 - Certification from the Insurance Commission as authorized company to issue surety
- Duly signed, completely filled-out and notarized Omnibus Sworn statement (Revised) (NPCSF-INFR-07), complete with the following attachments:
 - For Sole Proprietorship:
 - Special Power of Attorney
 - For Partnership/Corporation/Cooperative/Joint Venture:
 - Document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)
- Organization Chart for the project (NPCSF-INFR-08)
- Duly Signed List of Contractor's Key Personnel (based on the minimum key personnel) with complete supporting documents (NPCSF-INFR-09, 10a, 10b & 11)
- Duly Signed List of Contractor's Equipment (owned, leased or under purchase agreement (NPCSF-INFR-12), with
 - Proof of ownership and/or certificate of availability issued by Equipment Lessors
- Complete eligibility documents of proposed sub-contractor, if applicable

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

B. THE 2ND ENVELOPE (FINANCIAL COMPONENT) SHALL CONTAIN THE FOLLOWING:

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

CONDITIONS:

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

Standard Form Number: NPCSF-INFR-02

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

Business Name : _____
Business Address : _____

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

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

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

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

Submitted by : _____
(Printed Name & Signature)
Designation : _____
Date : _____

Standard Form Number: NPCSF-INFR-03

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

Business Name : _____
 Business Address : _____

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

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

Submitted by _____
 (Printed Name & Signature)
 Designation : _____
 Date : _____

Standard Form Number: NPCSF-INFR-04

NET FINANCIAL CONTRACTING CAPACITY (NFCC)

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

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

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

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

NFCC = P _____

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

Submitted by:

Name of Bidder/Contractor

Signature of Authorized Representative

Date : _____

Standard Form Number: NPCSF-INFR-05

JOINT VENTURE AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

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

- and -

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

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

NAME OF PROJECT

CONTRACT AMOUNT

That the capital contribution of each member firm:

NAME OF FIRM	CAPITAL CONTRIBUTION
1.	P
2.	P

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

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

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

Name & Signature of Authorized Representative

Official Designation

Name of Firm

Name & Signature of Authorized Representative

Official Designation

Name of Firm

Witnesses

1. _____

2. _____

[Jurat]

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

Standard Form Number: NPCSF-INFR-06a

FORM OF BID SECURITY (BANK GUARANTEE)

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

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

SEALED with the Common Seal of the said Bank this _____ day of _____ 20____.

THE CONDITIONS of this obligation are that:

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

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

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

DATE _____ SIGNATURE OF THE BANK _____

WITNESS _____ SEAL _____

(Signature, Name and Address)

Standard Form Number: NPCSF-INFR-06b

FORM OF BID SECURITY (SURETY BOND)

BOND NO.: _____ DATE BOND EXECUTED: _____

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

SEALED with our seals and dated this _____ day of _____ 20 _____

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

NOW, THEREFORE, the conditions of this obligation are:

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

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

PROVIDED HOWEVER, that the Surety shall not be:

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

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

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

PRINCIPAL _____ SURETY _____

SIGNATURE(S) _____ SIGNATURES(S) _____

NAME(S) AND TITLE(S) _____ NAME(S) _____

SEAL _____ SEAL _____

Standard Form No: NPCSF-INFR-06c

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

BID-SECURING DECLARATION
REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND
CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM
(LuzP22Z1480Sr)

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

I/We¹, the undersigned, declare that:

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

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

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

[Jurat]

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

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

Standard Form No: NPCSF-INFR-07

Omnibus Sworn Statement (Revised)

REPUBLIC OF THE PHILIPPINES)
CITY/MUNICIPALITY OF _____) S.S.

AFFIDAVIT

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

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

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

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

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

[If a sole proprietorship:] As the owner and sole proprietor, or authorized representative of [Name of Bidder], I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney;

[If a partnership, corporation, cooperative, or joint venture:] I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)];

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. *[Select one, delete the rest:]*

[If a sole proprietorship:] The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a partnership or cooperative:] None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a corporation or joint venture:] None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and
8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
 - a. Carefully examining all of the Bidding Documents;
 - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
 - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
 - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.
9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
10. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

IN WITNESS WHEREOF, I have hereunto set my hand this ___ day of ___, 20__ at _____, Philippines.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]

[Insert signatory's legal capacity]

Affiant

[Jurat]

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

Standard Form Number: NPCSF-INFR-08

CONTRACTOR'S ORGANIZATIONAL CHART FOR THE CONTRACT

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

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

NOTES:

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

Standard Form Number: NPGSF-INFR-09

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

Business Name: _____
Business: _____

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

Required Attachments:

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

Submitted by: _____
(Printed Name & Signature)

Designation: _____

Date: _____

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

Standard Form Number: NPCSF-INFR-10a

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

Issuance Date

THE PRESIDENT

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

Dear Sir:

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

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

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

NAME OF PROJECT	OWNER	COST	DATE COMPLETED
_____	_____	_____	_____

At present, I am supervising the following projects:

NAME OF PROJECT	OWNER	COST	DATE COMPLETED
_____	_____	_____	_____

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

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

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

(Name and Signature)
AFFIANT

[Jurat]

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

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

Standard Form Number: NPCSF-INFR-10b

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

Issuance Date

THE PRESIDENT

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

Dear Sir:

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

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

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

NAME OF PROJECT	OWNER	COST	DATE COMPLETED
_____	_____	_____	_____

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

NAME OF PROJECT	OWNER	COST	DATE COMPLETED
_____	_____	_____	_____

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

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

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

(Name and Signature)
AFFIANT

[Jurat]

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

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

Standard Form Number: NPCSF-INFR-11

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

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

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

Name and Address of Employer

Length of Service

_____	_____ year(s) from _____ to _____
_____	_____ year(s) from _____ to _____
_____	_____ year(s) from _____ to _____

10. Experience:

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

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

SECTION VIII – BIDDING FORMS

LuzP22Z1480Sr

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

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

Name and Signature of Employee

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

(Place and Date)

(The Authorized Representative)

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

Standard Form Number: NPCSF-INFR-12

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

Business Name: _____
 Business: _____

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

Submitted by: _____
 (Printed Name & Signature)
 Designation: _____
 Date: _____

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

Standard Form No. : NPCSF-INFR-13

BID LETTER

Date: _____

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

We, the undersigned, declare that:

(a) We have examined and have no reservation to the Bidding Documents, including Addenda, for the Contract **REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM (LuzP22Z1480Sr)**.

(b) We offer to execute the Works for this Contract in accordance with the Bid Documents, Technical Specifications, General and Special Conditions of Contract accompanying this Bid;

The total price of our Bid, excluding any discounts offered below is: [insert information] _____;

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

(c) Our Bid shall be valid for a period of [insert number] _____ days from the date fixed for the Bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(d) If our Bid is accepted, we commit to obtain a Performance Security in the amount of [insert percentage amount] _____ percent of the Contract Price for the due performance of the Contract;

(e) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from the following eligible countries: [insert information] _____;

(f) We are not participating, as Bidders, in more than one Bid in this bidding process, other than alternative offers in accordance with the Bidding Documents;

(g) Our firm, its affiliates or subsidiaries, including any subcontractors or suppliers for any part of the Contract, has not been declared ineligible by the Funding Source;

(h) We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed; and

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

- (j) We likewise certify/confirm that the undersigned, is the duly authorized representative of the bidder, and granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for the **REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM (LuzP22Z1480Sr)** of the National Power Corporation.

- (k) We acknowledge that failure to sign each and every page of this Bid Letter, including the Bill of Quantities, shall be a ground for the rejection of our bid.

Name: _____

In the capacity of: _____

Signed: _____

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

Date: _____

Standard Form No. : NPCSF-INFR-15

SUMMARY SHEETS OF MATERIALS PRICES, LABOR RATES AND EQUIPMENT RENTAL RATES

Name of Bidder : _____

I. Unit Prices of Materials

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

II. Manpower Hourly Rates

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

III. Equipment Hourly Rental Rates

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

Name, Signature of Authorized Representative

Designation

SECTION IX

BID DRAWINGS

CIVIL WORKS

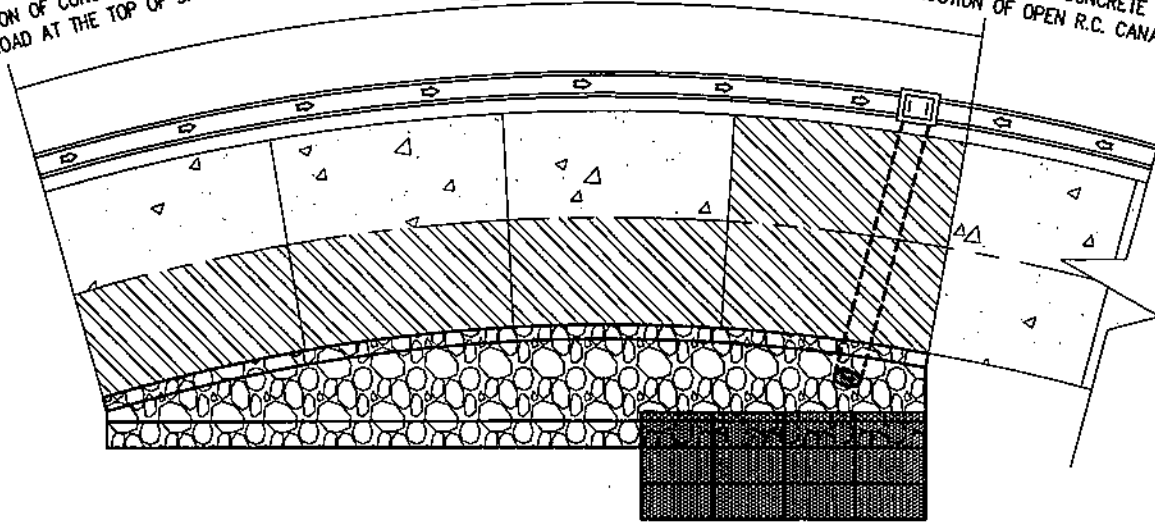
SECTION IX – BID DRAWINGS**CW – CIVIL WORKS**

<u>DRAWING NO.</u>	<u>TITLE</u>
RAD-BDC-04.001	SLOPE PROTECTION WORKS (Plan)
RAD-BDC-04.002	GROUTED ROCKWALL (Elevation & Section)
RAD-BDC-04.003	ROADWAYS (Plan, Section, & Details)
RAD-BDC-04.004	GABION BOX (Section & Details)
RAD-BDC-04.005	ROADWAYS (Catch Basin & Open R. C. Canal)

START POINT OF CONSTRUCTION OF CONCRETE PAVEMENT
(APPROXIMATELY 150M FROM ROAD AT THE TOP OF SPILLWAY)

24000

END OF CONSTRUCTION OF CONCRETE PAVEMENT
(EXTEND CONSTRUCTION OF OPEN R.C. CANAL UP TO 30M)



PLAN
SCALE 1:150

NOTES:

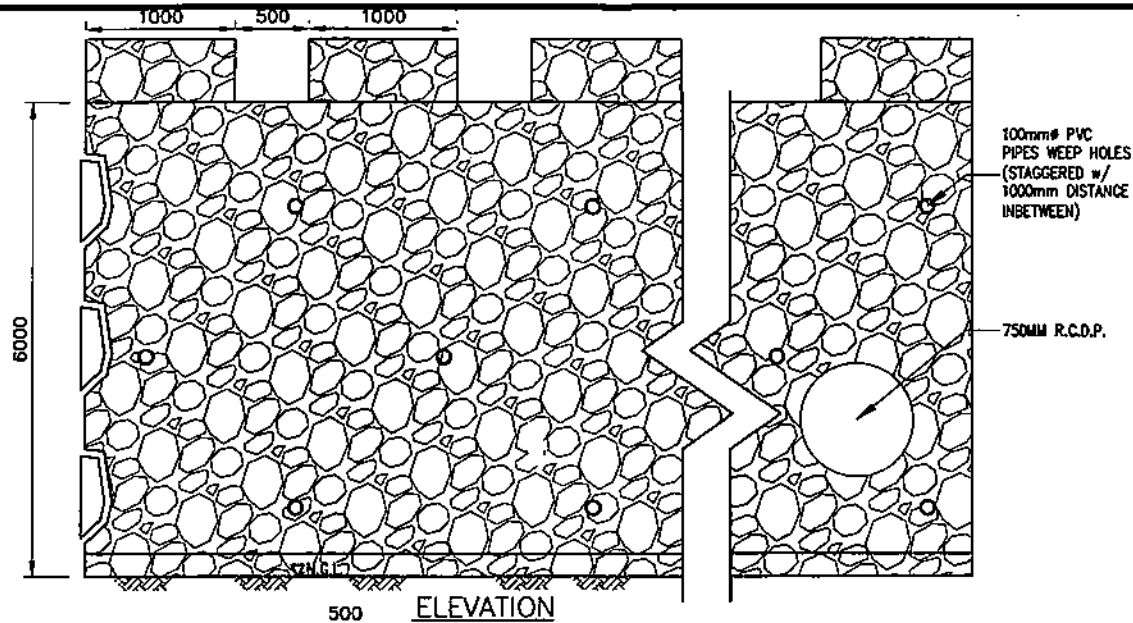
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. ACTUAL LOCATION OF DRAINAGE AND LENGTH OF PIPES MAY BE CHANGED TO SUIT ACTUAL FIELD CONDITIONS.
3. ALL CONSTRUCTION CHANGES TO SUIT ACTUAL FIELD CONDITION SHALL BE REFLECTED ON AS-BUILT DRAWINGS.
4. PROPOSED CATCH BASIN SHOULD BE LOCATED/ CONSTRUCTED AT THE EXISTING RUN-OFF OUTFALL.

LEGEND:

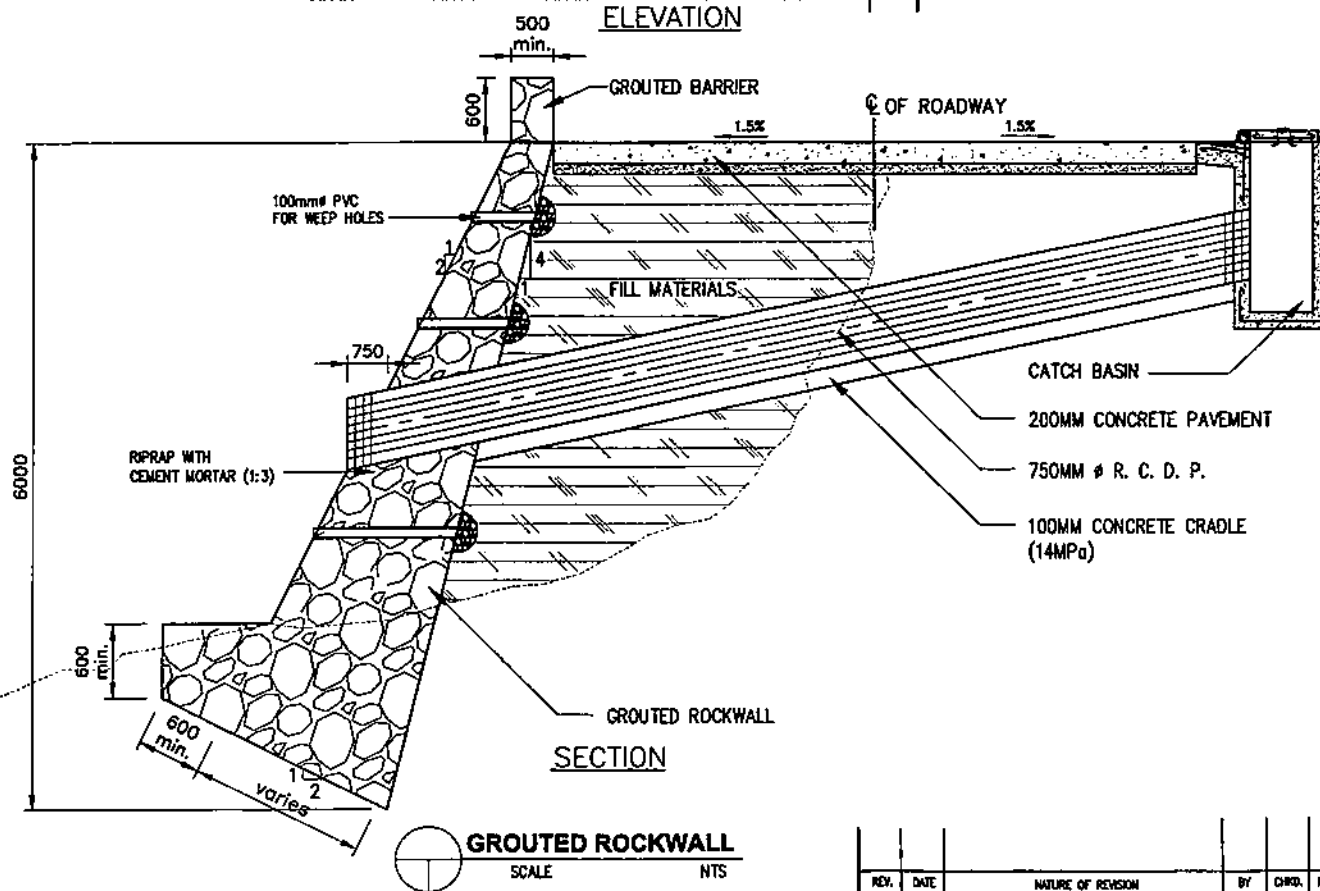
- GROUTED ROCKWALL
- EXISTING CONCRETE PAVEMENT
- AFFECTED CONCRETE PAVEMENT FOR DEMOLITION AND RESTORATION
- CATCH BASIN (1300MM X 800MM)
- OPEN R.C. CANAL WITH STEEL GRATING AT CONNECTION WITH CATCH BASIN
- 750MM Ø R. C. D. P.
- GABION BOX

OWNER:		NATIONAL POWER CORPORATION AGHAM ROAD, DILIMAN, QUEZON CITY	
PROJECT: REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM			
LOCATION: ANGAT DAM, SAN LORENZO, MORZAGARAY, BULACAN			
TITLE: SLOPE PROTECTION WORKS (PLAN)			
DESIGNED	BY	CHKD	DATE
DRAWN	J.G.A.C.		
REVIEWED	PRINCIPAL ENGR. / ARCHT.	RECOMMENDED	
CIVL/ARCHT		APPROVED	
ELIC.			
MECH.			
SUBMITTED:		H. L. MENDOZA Principal Engineer A	
RECOMMENDED:		A. C. ESPRITU Manager, E&C	
APPROVED:		N. G. SORIANO Manager, E&C	
DWG. NO. RAD-BDC-04.001		SPEC. NO. LUP2221480S4	
SCALE: 1:150		BID DRAWING	

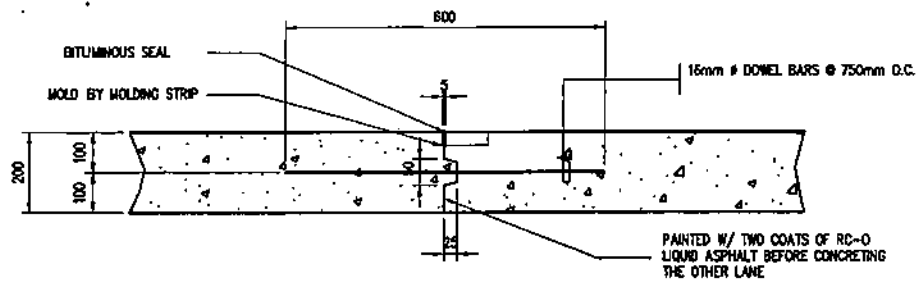
REV.	DATE	NATURE OF REVISION	BY	CHKD.	RECD.	APPR.



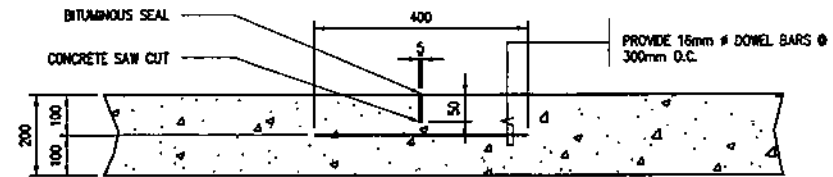
- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED
 2. THE EXTENT OF THE GROUDED BARRIER (1000MM X 500MM X 600MM) SHALL COVER THE ENTIRE LENGTH OF THE GROUDED ROCKWALL.



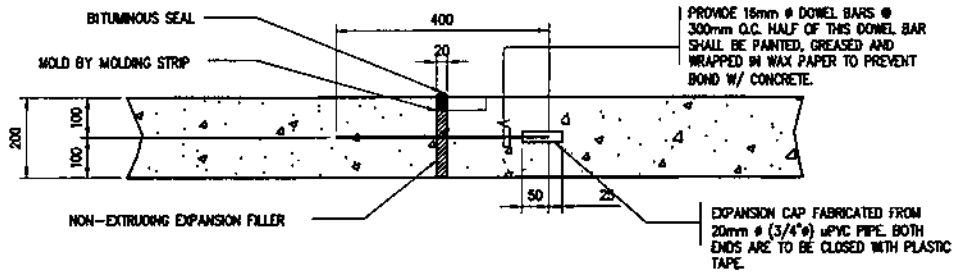
OWNER:		NATIONAL POWER CORPORATION AGHAM ROAD, DILIMAN, QUEZON CITY	
PROJECT: REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM			
LOCATION: ANGAT DAM, SAN LORENZO, MORZAGARAY, BULACAN			
TITLE: GROUDED ROCKWALL (ELEVATION AND SECTION)			
DESIGNED	BY	CHKD	DATE
DRAWN	J.G.A.C.		
REVIEWED	PRINCIPAL ENGR. / ARCHT.	RECOMMENDED	
CHL/ARCHT			
ELEC.			
MECH.			
SUBMITTED:		H. L. MENDOZA Principal Engineer A	
APPROVED:		N. G. SANCHEZ Manager, UO	
DWG. NO. RAD-BDC-04.002		SPCS. NO. LU2P22Z14805	
SCALE: AS SHOWN		BID DRAWING	
REV.	DATE	NATURE OF REVISION	BY



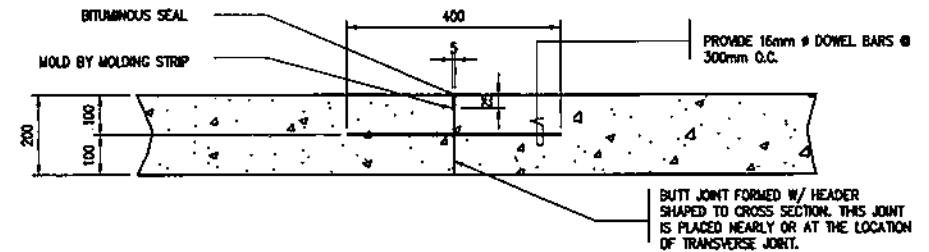
LONGITUDINAL CONSTRUCTION JOINT
SCALE NTS



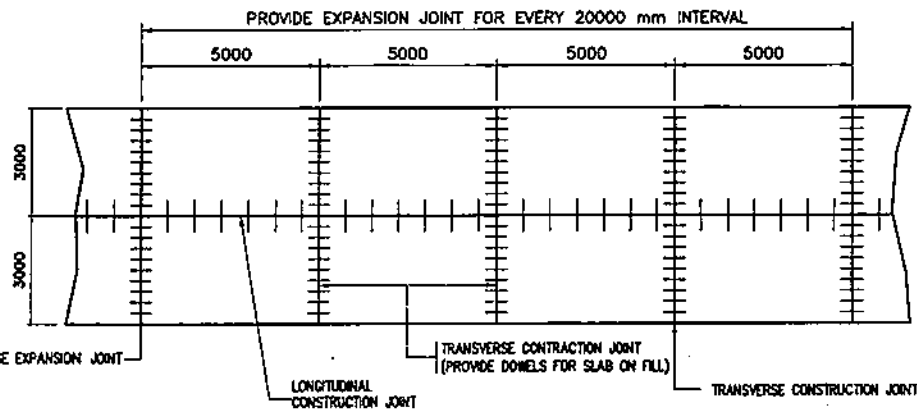
TRANSVERSE CONTRACTION JOINT
SCALE NTS



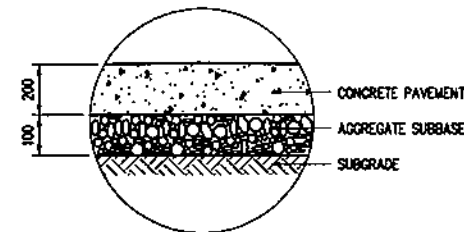
TRANSVERSE EXPANSION JOINT
SCALE NTS



TRANSVERSE CONSTRUCTION JOINT
SCALE NTS



TYPICAL PLAN
SCALE NTS



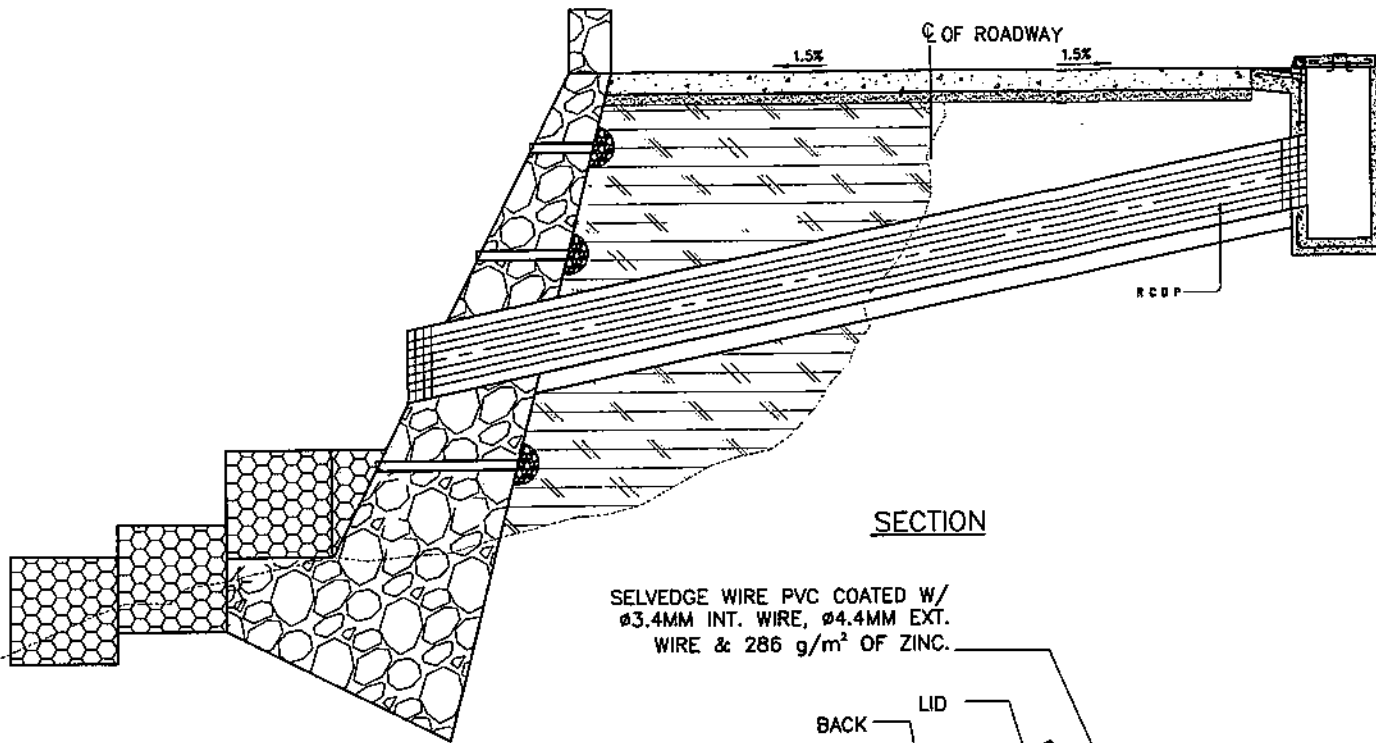
DETAIL B

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
2. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE SHALL BE $f_c = 20.70 \text{ MPa}$ AT 28 DAYS PERIOD.
3. ALL REINFORCING BARS SHALL CONFORM TO THE LATEST REQUIREMENTS OF PHILIPPINE NATIONAL STANDARD FOR DSB GRADE 275.

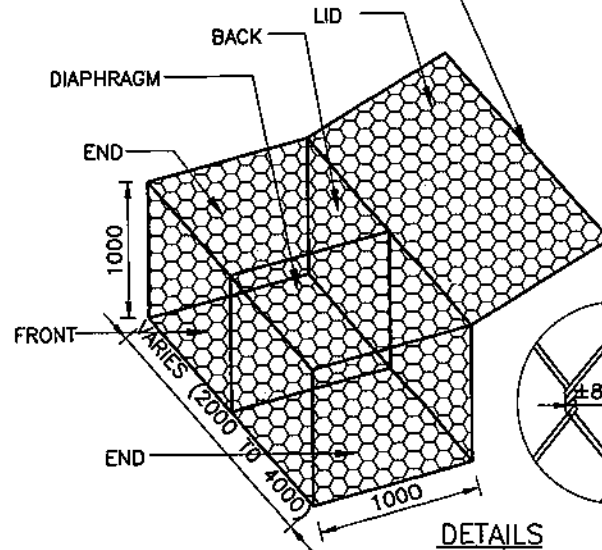
OWNER:		NATIONAL POWER CORPORATION AGHAM ROAD, DILIMAN, QUEZON CITY	
PROJECT: REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ARGAT DAM			
LOCATION: ARGAT DAM, SAN LORENZO, MORZAGARAY, BULACAN			
TITLE: ROADWAYS (PLAN, SECTIONS, & DETAILS)			
DESIGNED	BY	CHKD	DATE
DRWN	J.C.A.C.		
REVIEWED	PRINCIPAL ENGR. / ARCHT.	RECOMMENDED	
ENL/ARCHT			
ELDR.			
MECH.			
SUBMITTED:		 H. L. MENDOZA Principal Engineer A	
APPROVED:		 N. C. SISON Manager, DDD	
Dwg. No. RAD-BDC-04.003		SPES. NO. LUP22214805v	
SCALE: AS SHOWN		BID DRAWING	

REV.	DATE	INITIALS OF REVISION	BY	CHKD.	RECD.	APPD.



SECTION

SSELVEDGE WIRE PVC COATED W/
 Ø3.4MM INT. WIRE, Ø4.4MM EXT.
 WIRE & 286 g/m² OF ZINC.




WIRE MESH PVC
 COATED W/ Ø2.7MM
 INTERNAL WIRE AND
 Ø3.7MM EXTERNAL
 WIRE.

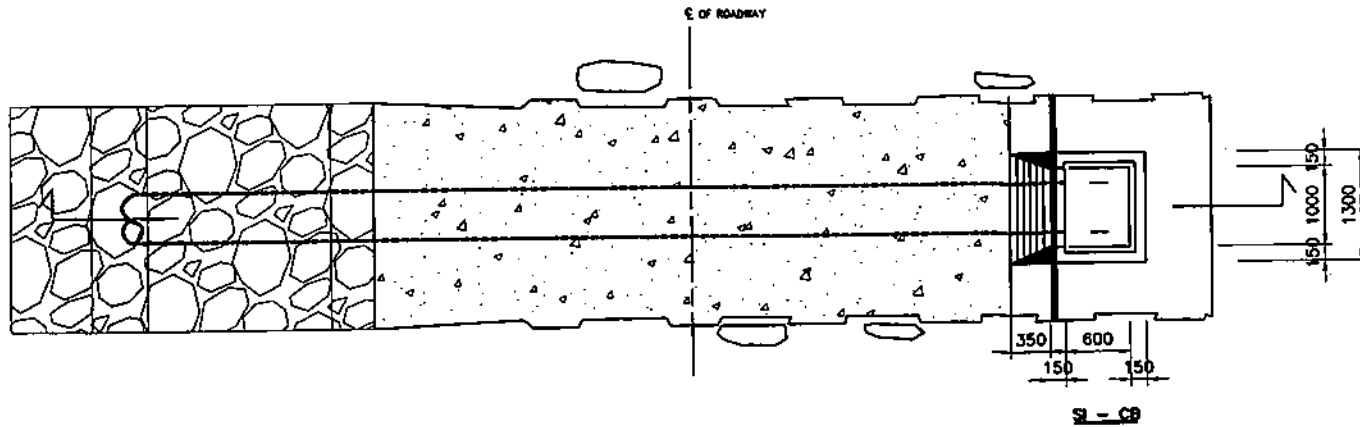
DETAILS

GABION BOX
 SCALE 1:50

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. VOLUME OF GABIONS AND LOCATION SHALL BE VERIFIED AT THE FIELD. LENGTH, WIDTH AND HEIGHT INDICATED IN THE BID DRAWINGS ARE INDICATIVE ONLY. EXACT DIMENSIONS SHALL BE DETERMINED AT SITE TO SUIT ACTUAL FIELD CONDITIONS.
3. REFER TO GABION SPECIFICATIONS REGARDING MATERIALS, ASSEMBLY, INSTALLATION, FILLING AND CLOSING.
4. SUPPLIED GABION STONES SHALL BE HARD, DURABLE BASALT ROCK WITH A MINIMUM SPECIFIC GRAVITY OF 2.2 AND GENERALLY RANGE BETWEEN 150MM TO 250MM IN DIAMETER.
5. BEFORE THE GABION STONE IS PLACED, THE STONES SHALL BE CAREFULLY SELECTED FOR UNIFORMITY OF SIZE AND THE PIECES SHALL BE HAND-PLACED TO PROVIDE A NEAT APPEARANCE AS APPROVED BY NPC. THE VERTICAL AND HORIZONTAL JOINTS OF GABION BOXES SHALL BE ARRANGED IN A STAGGERED BASIS.
6. THE CONTRACTOR SHALL SUBMIT SAMPLE OF GABION WIRE MATERIALS AND GEDTEXTILES FOR APPROVAL BY NPC PRIOR TO DELIVERY OF MATERIALS AT SITE. SUBMITTED SAMPLES SHALL BE TESTED IN ACCORDANCE WITH SPECIFICATIONS AND AT THE EXPENSE OF THE CONTRACTOR.

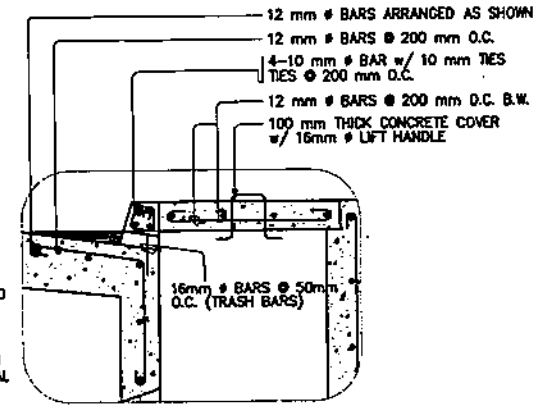
OWNER:		 NATIONAL POWER CORPORATION AGHAM ROAD, DILIMAN, QUEZON CITY	
PROJECT: REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM, AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM			
LOCATION: ANGAT DAM, SAN LORENZO, MORZAGARAY, BULACAN			
TITLE: GABION BOX (SECTION & DETAILS)			
DESIGNED	BY	CHKD	DATE
DRWN	J.G.A.C.		
REVIEWED	PRINCIPAL ENGR. / ARCHT.		RECOMMENDED: <i>A. Q. ESPRITU</i> MANAGING ENG.
CIVL/ARCHT			APPROVED: <i>N. G. SANCHEZ</i> INSPECTOR, DDD
ELEC.			
MECH.			
DWG. NO. RAD-BDC-04.004		SPECS. NO. LuzP22214805r	
SCALE: AS SHOWN		BID DRAWING	
REV.	DATE	NATURE OF REVISION	BY
			CHKD. RECD. APPD.
			REV. 1



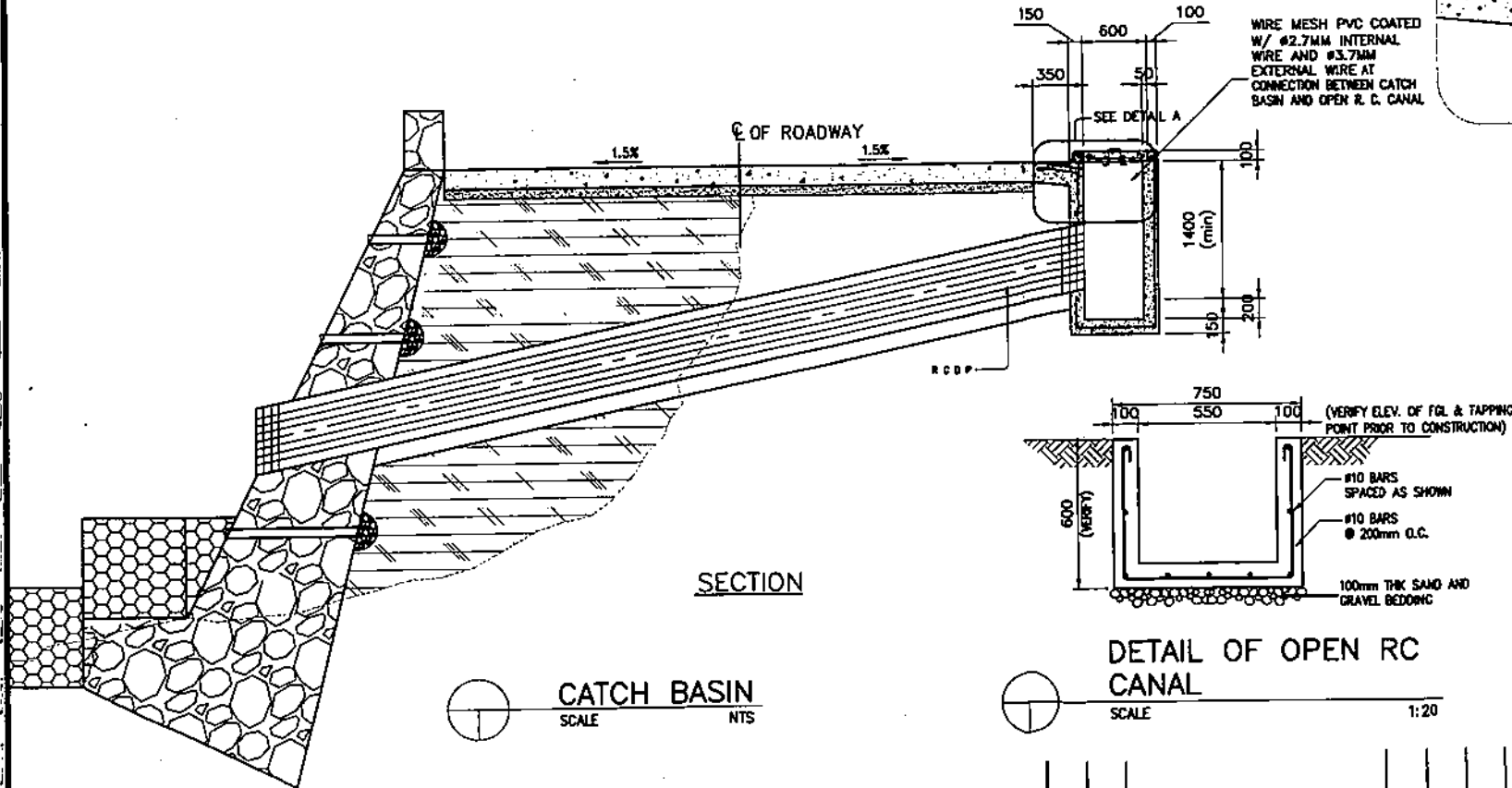
PLAN

NOTES:

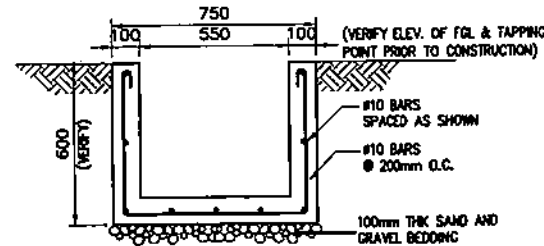
1. ALL DIMENSIONS AND ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE SHALL BE $f_c=20.7$ MPa AT 28 DAYS PERIOD.
3. ALL REINFORCING STEEL BARS SHALL CONFORM TO THE LATEST REQUIREMENTS OF PHILIPPINE NATIONAL STANDARD FOR DSB GRADE 275.
4. WORK THIS DRAWING WITH SITE DEVELOPMENT AND DRAINAGE SYSTEM.



DETAIL A



SECTION



DETAIL OF OPEN RC CANAL

CATCH BASIN
SCALE NTS

SCALE 1:20

OWNER:		NATIONAL POWER CORPORATION AGHAM ROAD, DILIMAN, QUEZON CITY	
PROJECT: REHABILITATION OF ACCESS ROAD AND DRAINAGE SYSTEM AND CONSTRUCTION OF SLOPE PROTECTION ALONG ROAD 4 OF ANGAT DAM			
LOCATION: ANGAT DAM, SAN LORENZO, NORZAGARAY, BULAGAN			
TITLE:		DRAINAGE APPURTENANCES (CATCH BASIN AND OPEN R.C. CANAL)	
DESIGNED	BY	CHKD	DATE
DRAWN	J.G.A.C.		
REVIEWED	PRINCIPAL ENGR. / ARCHT.	RECOMMENDED	
CHK/ARCHT			
ELC.		APPROVED:	
MECH.			
DWG. NO. RAD-BDC-04.005		SPCS. N.L.L.P22Z1480Sr	

SCALE: AS SHOWN	BID DRAWING	REV. 1
-----------------	-------------	--------

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