

**INVITATION FOR BIDS  
(IFB)**

**PACKAGE-2: EFAPIWSDICW-02:  
REHABILITATION  
AND IMPROVEMENT OF ROADS  
IN DISTRICT BADIN**



**OFFICE OF THE  
PROJECT DIRECTOR  
EMERGENCY FLOOD ASSISTANCE PROJECT  
WORKS & SERVICES DEPARTMENT  
GOVERNMENT OF SINDH**  
3<sup>rd</sup> FLOOR, RPROVINCIAL HEALTH BUILDING  
BEHIND SHAHBAZ BUILDING BLOCK A, HYDERABAD  
Phone / Fax No: 0229201230

## Invitation for Bids

Date:	22 September 2023	
Loan No. and Title:	Loan 4279-PAK(COL): Emergency Flood Assistance Project (Sindh Works & Services Department Component)	
Contract No.	Packages / Contract Title	Qualification Category
EFAP/W&SD/ CW-01	<b>Package-1: Rehabilitation and Improvement of Roads in District Thatta:</b> <ol style="list-style-type: none"> <li>1) EFAP-01-TH1: Reconditioning of road from Makli to Ghulamullah - (15.27 km)</li> <li>2) EFAP-01-TH2: Reconditioning of road from GhulamullahPirpatho Road @ 2.21 kms to Mirpur Sakro Town - (20.22 km)</li> <li>3) EFAP-01-TH3: Reconditioning of road from PirpathoGhorabari Road @ 17.00 km of SoomarManghrio Road to connect Var Mitho Shaikh Road via MisreePanhwar and M Papilo i/c links – (9.33 km)</li> <li>4) EFAP-01-TH4: Reconditioning of road from 105 Mori Shoro Stop @ 12.00 km Mureedani Chowk to Village Alam Jatt &amp; Noor M Jatt, Paryo Jatt i/c links – (7.74 km)</li> </ol>	Category - I
EFAP/WSD/ CW-02	<b>Package-2: Rehabilitation and Improvement of Roads in District Badin:</b> <ol style="list-style-type: none"> <li>1) EFAP-02-BA1: Improvement of Road from Tando Bago to Dragah Saman Sarkar via Pangrio - (30.28 kms).</li> <li>2) EFAP-02-BA2: Road from Khalifo Qasim to Jhudo via Mehboob Shah (27.22 kms).</li> </ol>	Category - II
EFAP/WSD/ CW-03	<b>Package-3: Rehabilitation and Improvement of Roads in District Umerkot&amp; Mirpurkhas</b> <ol style="list-style-type: none"> <li>1) EFAP-03-UM2: Improvement from Alfataghmariage hall kunri to Bodar Farm via Misri Shah (16.28 kms).</li> <li>2) EFAP-03-MI1: Improvement of road from Kot Ghulam Muhammad to Digri (22.08 kms).</li> </ol>	Category – I
EFAP/WSD/ CW-04	<b>Package-4: Rehabilitation and Improvement of Roads in District Umerkot&amp;Sanghar</b> <ol style="list-style-type: none"> <li>1) EFAP-04-UM1: Improvement of road from Pithoro to Khai road.(13.17 kms)</li> <li>2) EFAP-04-SA1: Improvement of road from Khipro to Khahi Road (10.11 kms)</li> <li>3) EFAP-04-SA2: Improvement of road from Khahi to Ghiror Sharif to road (7.22 kms)</li> <li>4) EFAP-04-SA3: Improvement of road from Dargah Manthar Fakir Road to Phulladiyoon road (14.15 kms)</li> </ol>	Category – I
EFAP/WSD/ CW-05	<b>Package-5: Rehabilitation and Improvement of Roads in District Tando AllahYar</b> <ol style="list-style-type: none"> <li>1) EFAP-05-TA1: Recondition of road from Piyaro Lund road to Abdul Kareem Dars (5.91 kms)</li> </ol>	Category - I

	2) EFAP-05-TA2: Rehabilitation of Road from Hyderabad-Mirpurkhas Dual Carriageway to connect Tando Allahyar Piyaro Lund road at Hakra Mori via Ditto Kalro road (6.35 kms) 3) EFAP-05-TA3: Recondition of Road from Hyderabad-Mirpurkhas Dual Carriageway to Nasarpur (8.25 kms) 4) EFAP-05-TA4: Reconditioning of road from Tando Allahyar Nasarpur road @ Fazal Talpur Stop to Connect Tando Allahyar Tando Adam Road (9.08 kms)	
EFAP/WSD/ CW-06	<b>Package-6: Rehabilitation and Improvement of Roads in District Tando Muhammad Khan</b>  1) EFAP-06-TM1: Reconditioning of road from Tando Muhammad Khan to Tando Allahyar (38.06 kms)	Category - I
EFAP/WSD/ CW-07	<b>Package-7: Rehabilitation and Improvement of Roads in District Sanghar &amp; Mirpurkhas</b>  1) EFAP-07-SA4: Improvement of road from Tando Adam Jhole road to NauabadBehrani road via Mangari Mori (12.36 kms) 2) EFAP-07-MI2: Improvement of road from Khan to Nauabad (22.11 kms)	Category - I
EFAP/WSD/ CW-08	<b>Package-8: Rehabilitation and Improvement of Roads in District Matiari &amp; Hyderabad</b>  1) EFAP-08-MT1: Rehabilitation of road from Matiari T-Junction to Nasarpur (19.86 kms) 2) EFAP-08-HD1: Improvement of Road from Tando Qaiser to Matiari Sugar Mill via Tando Jam and AllahdinoSaand (22.16 kms)	Category - I
EFAP/WSD/ CW-09	<b>Package-9: Rehabilitation and Improvement of Roads in District Shaheed Benazirabad</b>  1) EFAP-09-SB3: Rehabilitation of road from Nawabshah to Bhit Shah via Sarhari i/c link to Zair Pir (46.80 kms)	Category - I
EFAP/WSD/ CW-10	<b>Package-10: Rehabilitation and Improvement of Roads in District Jamshoro</b>  1) EFAP-10-JM2: Rehabilitation of road from Sehwan to Jhangara (24'wide) (16.07 kms) 2) EFAP-10-JM4: Rehabilitation of road from Bhan Chhinni road to village Gul sher Mahar to Gul Hayat (2.78 kms) 3) EFAP-10-JM5: Rehabilitation of road from Jhangara to Bandhani (18.43 kms) 4) EFAP-10-JM6: Rehabilitation of road from Bhan Chhini road to Bubak with link to Goth Maula Bux Mallah (14.76 kms)	Category - II
EFAP/WSD/ CW-11	<b>Package-11: Rehabilitation and Improvement of Roads in District Jamshoro &amp; Dadu</b>  1) EFAP-11-JM1: Rehabilitation of road from Bhan to Talti i/c damaged portions of Old Sher Shah Suri Road (18'- 24' wide) (21.56 kms) 2) EFAP-11-JM3: Rehabilitation of Road from MNV Drain to FP Bund Johi Chinni Road (9.04 kms) 3) EFAP-11-DA1: Rehabilitation of road from Johi to Bhan (in portions) (17.9 kms)	Category – II
EFAP/WSD/ CW-12	<b>Package-12: Rehabilitation and Improvement of Roads in District Naushahro Feroze &amp; Shaheed Benazirabad</b>  1) EFAP-12-NF1: Construction / Widening / Reconditioning of road from Darya Khan Mari Road to connect Masur Ji Wah (11.61 kms) 2) EFAP-12-NF2: Rehabilitation of road from Darya Khan Mari Kot Lalu upto Paddidan (10.65 kms) 3) EFAP-12-NF3: Rehabilitation of Road from Kandiaro to Tharushah via Darbello (17.34 kms)	Category - II

	<p>4) EFAP-12-NF4: Rehabilitation of road from Kandiaro Lakha road at point RajparChowdagiupto Saeed Khan Lakho road (9.82 kms)</p> <p>5) EFAP-12-SB1: Improvement / Rehabilitation of road from Bandhi - Moro Road to Makhand road (10.94 kms)</p>	
EFAP/WSD/ CW-13	<p><b>Package-13: Rehabilitation and Improvement of Roads in District Shaheed Benazirabad</b></p> <p>EFAP-13-SB2: Improvement / Rehabilitation of road from 60th mile to connect 3 Chak via 68th mile and Chaudhary Nazeer Road (31.90 kms).</p>	Category - I
EFAP/WSD/ CW-14	<p><b>Package-14: Rehabilitation and Improvement of Roads in District Dadu</b></p> <p>1) EFAP-14-DA2: Rehabilitation of road from K.N.Shah to Burira via Gozo (19.14 kms)</p> <p>2) EFAP-14-DA3: Rehabilitation of road from Dadu to Phulji to Piaro to Kakar (34.58 kms)</p> <p>3) EFAP-14-DA4: Rehabilitation of road from K.N. Shah to Buriri road (12.66 kms)</p>	Category - II
EFAP/WSD/ CW-15	<p><b>Package-15: Rehabilitation and Improvement of Roads in District Khairpur</b></p> <p>EFAP-15-KH1: Rehabilitation of Road from Old National Highway to Naro Road via Bozdar Wada and Thari Mirwah (64.13kms)</p>	Category - III
EFAP/WSD/ CW-16	<p><b>Package-16: Rehabilitation and Improvement of Roads in District Larkana</b></p> <p>1) EFAP-16-LA1: Rehabilitation of road from Hameer Wah Bridge at Arija Phero to Village Sher Muhammad Mairi via Zakria Mahesar, Piyaro Magsi, Hakeem Dad Brohi&amp; Kothi Kalhoro i/c link to Miro khan road (19.29 kms)</p> <p>2) EFAP-16-LA2: Rehabilitation of Road from Taluka Hospital Dokri to Jumo Metlo via Sonhari Regulator Wakro&amp; Ahsan Wahan including Brohi Village. (11.20 kms)</p> <p>3) EFAP-16-LA3: Rehabilitation of road from Dargah Mashori Shareef Railway Station to Bakrani Railway Station via Z.A Bhutto collage village Mehrabpur via Babul Jarwar upto RRI Dokri - Rehabilitation of road from Larkano Indus Highway @Point Khairpur Juso to Gareello (25.43 kms)</p>	Category - I
EFAP/WSD/ CW-17	<p><b>Package-17: Rehabilitation and Improvement of Roads in District Kambar @ Shahdadkot</b></p> <p>1) EFAP-17-KS1: Rehabilitation of road from Waggan to Sijawal via Kamber, Mirokhan road (36.63 kms)</p> <p>2) EFAP-17-KS2: Rehabilitation of road from Mirokhan to Shahdadkot via Kot Lahori i/c link Lohi Pull (21.83 kms)</p>	Category - II
EFAP/WSD/ CW-18	<p><b>Package-18: Rehabilitation and Improvement of Roads in District Shikarpur and Kashmore @Kandhkot.</b></p> <p>1) EFAP-18-SH1: Rehabilitation of road from Sukkur Larkana Road @ Kherthar Canal to Ghumro Village via Jhali Kalwari i/c links (16.17 kms)</p> <p>2) EFAP-18-KA1: Rehabilitation 116 RFT bridge over fall Garhi Hassan, GahnoShakh near village Raheem Bux Kham Khoso Taluka Tangwani District Kashmore.</p>	Category - I
Deadline for Submission of Bids	06 October 2023 (1030 Hours PST)	


1. The **Islamic Republic of Pakistan** has received financing from the Asian Development Bank (ADB) toward the cost of **Rehabilitation and Improvement of Roads Including Construction of Damaged Culverts and Bridges Spread in Province of Sindh**. Part of this financing will be used for payments under the Contract named above. Bidding is open to prequalified Bidders from eligible source countries of ADB.
2. The **Works & Services Department, Government of Sindh** ("the Employer") invites sealed bids from prequalified eligible Bidders for the construction and completion of works mentioned in the table above under "**Packages / Contract Title**" ("the Works").
3. Open competitive bidding will be conducted in accordance with ADB's Single-Stage: One Envelope following Prequalification procedure and is open to all prequalified Bidders from eligible countries as described in the Bidding Document.
4. Only eligible prequalified Bidders with the following key qualifications defined in the Bidding Document may participate in this bidding according to their approved Pre Qualification passing category/ categories.

A pre-bid meeting shall take place on **27 September 2023** at 11:00 hours (Pakistan Standard Time) at the address mentioned below.

5. To obtain further information and inspect the bidding documents, Bidders should contact:  
**Project Director**  
**Project Management Unit**  
**Emergency Flood Assistance Project**  
**Works & Services Department**  
**Government of Sindh**  
**Address: Provincial Health Works Behind Shahbaz Building A Block, Sindh**  
**3rd Floor, Hyderabad, Sindh**
6. To purchase the bidding documents in English, eligible bidders should
  - write to address above requesting the Bidding Documents for each package mentioned in the table above under "**Packages / Contract Title**".
  - pay a nonrefundable fee of PKR 15000/- or USD equivalent by Pay Order or Demand Bank Draft in favor of Project Director.
7. Deliver your bid
  - to the address given above vide Para-5
  - on or before the deadline **06 October 2023 (1030 Hours 'Pakistan Standard Time')**
  - together with a Bid-Securing Declaration as described in the Bidding Document.

Bids will be opened promptly after the deadline for bid submission in the presence of Bidders' representatives who choose to attend.

8. When comparing Bids, Domestic Preference will not be applied as stipulated in the Bidding Document.



**Project Director**  
**Project Management Unit**  
**Emergency Flood Assistance Project**  
**Works & Services Department**  
**Government of Sindh**  
**Address: Provincial Health Works Behind Shahbaz Building A Block, Sindh**  
**3rd Floor, Hyderabad, Sindh**

**BIDDING DOCUMENT**  
**PACKAGE-2: EFAPIWSDICW-02:**  
**REHABILITATION**  
**AND IMPROVEMENT OF ROADS**  
**IN DISTRICT BADIN**

**ISLAMIC REPUBLIC OF PAKISTAN**  
**Government of Sindh**  
**WORKS AND SERVICES DEPARTMENT (WSD)**



**ASIAN DEVELOPMENT BANK**  
**Loan 4279-PAK(COL):**  
**Emergency Flood Assistance Project**  
**(Sindh Works & Services Department Component)**  
  
**(EFAP/WSD/CW-02)**

**BIDDING DOCUMENT**  
**Volume-I**

**Package-2: EFAP/WSD/CW-02: Rehabilitation  
and Improvement of Roads in District Badin**  
- Single-Stage: One-Envelope Bidding Procedure -  
- Following Prequalification -

**Project Director**  
**Project Management Unit**  
**Emergency Flood Assistance Project**  
**Works & Services Department**  
**Govt. of Sindh**

# **PROCUREMENT OF WORKS**

## **BIDDING DOCUMENT**

**for**

**Procurement**

**of**

**Rehabilitation and Improvement of Roads  
Including Construction of Damaged Culverts  
and Bridges Spread in Province of Sindh**

### **Package-2: EFAP/WSD/CW-02: Rehabilitation and Improvement of Roads in District Badin:**

- 1) **EFAP-02-BA1:** Improvement of Road from Tando Bago to Dragah Saman Sarkar via Pangrio - (30.28 kms)
- 2) **EFAP-02-BA2:** Road from Khalifo Qasim to Jhudo via Mehboob Shah (27.22 kms)

<b>Issued on:</b>	<b>22 September 2023</b>
<b>Invitation for Bids No.:</b>	<b>EFAP/WSD/CW-02</b>
<b>OCB No.:</b>	<b>EFAP/WSD/CW-02</b>
<b>Employer:</b>	<b>Project Director Project Management Unit Emergency Flood Assistance Project Works &amp; Services Department Govt. of Sindh</b>
<b>Country:</b>	<b>Pakistan</b>



# Preface

This Bidding Document for the Procurement of Works has been prepared by **Works & Services Department, Government of Sindh** and is based on the Standard Bidding Document for the Procurement of Works-Small Contracts (*SBD Works-Small*) issued by the Asian Development Bank dated **December 2021**.

ADB's *SBD Works-Small* has the structure and the provisions of the Master Procurement Document entitled "Bidding Documents for the Procurement of Works-Small Contracts", prepared by multilateral development banks and other public international financial institutions except where ADB-specific considerations have required a change.

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## PART I BIDDING PROCEDURES

### **Section 1 - Instructions to Bidders (ITB) ----- 1-1**

This section specifies the procedures Bidders should follow when preparing and submitting their Bids. Information is also provided on the submission, opening, evaluation of bids, and on the award of contract.

### **Section 2 - Bid Data Sheet (BDS) ----- 2-1**

This section consists of provisions that are specific to each procurement and supplement the information or requirements included in Section 1 (Instructions to Bidders).

### **Section 3 - Evaluation and Qualification Criteria (EQC) ----- 3-1**

This section contains the criteria to determine the lowest evaluated bid and the qualifications of the Bidder to perform the contract.

### **Section 4 - Bidding Forms (BDF) ----- 4-1**

This section contains the forms to be completed by the Bidder and submitted as part of its Bid.

### **Section 5 - Eligible Countries (ELC) ----- 5-1**

This section contains the list of eligible countries.

## PART II REQUIREMENTS

### **Section 6 - Employer's Requirements (ERQ) ----- 6-1**

This section contains the Specifications, Drawings, Supplementary Information that describe the Works to be procured, Personnel Requirements, and Equipment Requirements.

## PART III CONDITIONS OF CONTRACT AND CONTRACT FORMS

### **Section 7 - General Conditions of Contract (GCC) ----- 7-1**

This section contains the general clauses to be applied in all contracts. These Conditions are subject to the variations and additions set out in Section 8 (Particular Conditions of Contract).

### **Section 8 - Particular Conditions of Contract (PCC) ----- 8-1**

This section contains provisions which are specific to each contract and which modify or supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract.

### **Section 9 - Contract Forms (COF) ----- 9-1**

This section contains forms that, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

# Section 1: Instructions to Bidders

This Section specifies the procedures to be followed by Bidders in the preparation and submission of their Bids. Information is also provided on the submission, opening, evaluation of bids, and award of contract.

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## A. General

### 1. Scope of Bid

- 1.1 In connection with the Invitation for Bids (IFB) indicated in the Bid Data Sheet (BDS), the Employer, as indicated in the BDS, issues this Bidding Document for the procurement of Works as specified in Section 6 (Employer's Requirements). The name, identification, and number of contracts of the open competitive bidding (OCB) are provided in the BDS.
- 1.2 Throughout this Bidding Document,
  - (a) the term "in writing" means communicated in written form and delivered against receipt;
  - (b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and
  - (c) "day" means calendar day.

### 2. Source of Funds

- 2.1 The Borrower or Recipient (hereinafter called "Borrower") indicated in the BDS has applied for or received financing (hereinafter called "funds") from the Asian Development Bank (hereinafter called "ADB") toward the cost of the project named in the BDS. The Borrower intends to apply a portion of the funds to eligible payments under the contract(s) for which this Bidding Document is issued.
- 2.2 Payments by the ADB will be made only at the request of the Borrower and upon approval by ADB in accordance with the terms and conditions of the Financing Agreement between the Borrower and ADB (hereinafter called "Financing Agreement"), and will be subject in all respects to the terms and conditions of that Financing Agreement. No party other than the Borrower shall derive any rights from the Financing Agreement or have any claim to the funds.

### 3. Fraud and Corruption

- 3.1 ADB requires Borrowers (including beneficiaries of ADB-financed activity) and their personnel, as well as firms and individuals participating in an ADB-financed activity, including but not limited to, Bidders, Suppliers, and Contractors agents, subcontractors, subconsultants, service providers, subsuppliers, manufacturers (including their respective officers, directors, employees and personnel) under ADB-financed contracts to observe the highest standard of ethics during the procurement and execution of such contracts in accordance with ADB's Anticorruption Policy (1998, as amended from time to time. In pursuance of this policy, ADB
  - (a) defines, for the purposes of this provision, the terms set forth below as follows:
    - (i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;
    - (ii) "fraudulent practice" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

- (iii) “coercive practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
  - (iv) “collusive practice” means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party;
  - (v) “abuse” means theft, waste, or improper use of assets related to ADB-related activity, either committed intentionally or through reckless disregard;
  - (vi) “conflict of interest” means any situation in which a party has interests that could improperly influence that party’s performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations; and
  - (vii) “integrity violation” is any act, as defined under ADB’s Integrity Principles and Guidelines (2015, as amended from time to time), which violates ADB’s Anticorruption Policy, including (i) to (vi) above and the following: obstructive practice, violations of ADB sanctions, retaliation against whistleblowers or witnesses, and other violations of ADB’s Anticorruption Policy, including failure to adhere to the highest ethical standard.
- (b) will reject a proposal for award if it determines that the Bidder recommended for award or any of its officers, directors, employees, personnel, subconsultants, subcontractors, service providers, suppliers or manufacturers has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the Contract;
  - (c) will cancel the portion of the financing allocated to a contract if it determines at any time that representatives of the Borrower or of a beneficiary of ADB financing engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations during the procurement or the execution of that contract, without the Borrower having taken timely and appropriate action satisfactory to ADB to remedy the situation, including by failing to inform ADB in a timely manner at the time they knew of the integrity violations;
  - (d) will impose remedial actions on a firm or an individual, at any time, in accordance with ADB’s Anticorruption Policy and Integrity Principles and Guidelines, including declaring ineligible, either indefinitely or for a stated period of time, to participate<sup>1</sup> in ADB-financed, -administered, or -supported activities or to benefit from an ADB-financed, -administered, or -supported contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices or other integrity violations; and
  - (e) will have the right to require that a provision be included in bidding documents and in contracts financed, administered, or supported by

<sup>1</sup> Whether as a Contractor, Subcontractor, Consultant, Manufacturer or Supplier, or Service Provider; or in any other capacity (different names are used depending on the particular Bidding Document).

ADB, requiring Bidders, suppliers and contractors, consultants, manufacturers, service providers and other third parties engaged or involved in ADB-related activities, and their respective officers, directors, employees and personnel, to permit ADB or its representative to inspect the site and their assets, accounts and records and other documents relating to the bid submission and contract performance and to have them audited by auditors appointed by ADB.

- 3.2 All Bidders, consultants, contractors, suppliers, manufacturers, service providers, and other third parties engaged or involved in ADB-related activities and their respective officers, directors, employees and personnel, are obliged to cooperate fully in any investigation when requested by ADB to do so. As determined on a case by case basis by ADB, such cooperation includes, but is not limited to, the following:
- (a) being available to be interviewed and replying fully and truthfully to all questions asked;
  - (b) providing ADB with any items requested that are within the party's control including, but not limited to, documents and other physical objects;
  - (c) upon written request by ADB, authorizing other related entities to release directly to ADB such information that is specifically and materially related, directly or indirectly, to the said entities or issues which are the subject of the investigation;
  - (d) cooperating with all reasonable requests to search or physically inspect their person and/or work areas, including files, electronic databases, and personal property used on ADB activities, or that utilizes ADB's Information and Communications Technology (ICT) resources or systems (including mobile phones, personal electronic devices, and electronic storage devices such as external disk drives);
  - (e) cooperating in any testing requested by ADB, including but not limited to, fingerprint identification, handwriting analysis, and physical examination and analysis; and
  - (f) preserving and protecting confidentiality of all information discussed with, and as required by, ADB.
- 3.3 All Bidders, consultants, contractors and suppliers shall require their officers, directors, employees, personnel, agents to ensure that, in its contract with its sub-consultants, Subcontractors, and other third parties engaged or involved in ADB-related activities, such sub-consultants, Subcontractors, and other third parties similarly are obliged to cooperate fully in any investigation when requested by ADB to do so.
- 3.4 The Employer hereby puts the Bidder on notice that the Bidder or any Joint Venture partner of the Bidder (if any) may not be able to receive any payments under the Contract if the Bidder or any of its Joint Venture partners, as appropriate, is, or is owned (in whole or in part) by a person or entity subject to applicable sanctions.
- 3.5 Furthermore, Bidders shall be aware of the provision stated in Subclauses 1.15 and 15.6 of the Conditions of Contract.

#### 4. Eligible Bidders

- 4.1 A Bidder may be a natural person, private entity, or government-owned enterprise subject to ITB 4.5 - or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Joint Venture. In the case of a Joint Venture,
- (a) all partners shall be jointly and severally liable; and
  - (b) the Joint Venture shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the Joint Venture during the bidding process and, in the event the Joint Venture is awarded the Contract, during contract execution.
- 4.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of an eligible country, in accordance with Section 5 (Eligible Countries). A Bidder shall be deemed to have the nationality of a country if the Bidder is a citizen or is constituted, incorporated, or registered, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed Subcontractors or Suppliers for any part of the Contract including related services.
- 4.3 A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to be in a conflict of interest with one or more parties in the bidding process if any of, including but not limited to, the following apply:
- (a) they have controlling shareholders in common; or
  - (b) they receive or have received any direct or indirect subsidy from any of them; or
  - (c) they have the same legal representative for purposes of this bid; or
  - (d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to material information about or improperly influence the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or
  - (e) a Bidder participates in more than one bid in this bidding process, either individually or as a partner in a Joint Venture, except for alternative offers permitted under ITB 13 of the Bidding Document. This will result in the disqualification of all Bids in which it is involved. However, subject to any finding of a conflict of interest in terms of ITB 4.3(a)-(d) above, this does not limit the participation of a Bidder as a Subcontractor in another Bid or of a firm as a Subcontractor in more than one Bid; or
  - (f) a Bidder, Joint Venture partner, associates, parent company, or any affiliated entity, participated as a Consultant in the preparation of the design or technical specifications of the works that are the subject of the Bid; or
  - (g) a Bidder was affiliated with a firm or entity that has been hired (or is proposed to be hired) by the Employer or Borrower as Engineer for the Contract; or
  - (h) a Bidder would be providing goods, works, or nonconsulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the BDS



ITB 2.1 that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; or

- (i) A Bidder that has a financial or familial relationship with staff of the Employer including project implementing/executing agency, or of a recipient of a part of the loan who: (i) are directly or indirectly involved in the preparation of the bidding documents or specifications of the contract, and/or the bid evaluation process of such contract; or (ii) would be involved in the implementation or supervision of such contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to ADB throughout the procurement process and execution of the contract.

- 4.4 A firm will not be eligible to participate in any procurement activities under an ADB-financed, -administered, or -supported project while under temporary suspension or debarment by ADB pursuant to its Anticorruption Policy (see ITB 3), whether such debarment was directly imposed by ADB, or enforced by ADB pursuant to the Agreement for Mutual Enforcement of Debarment Decisions. A bid from a temporarily suspended or debarred firm will be rejected and such bid may be in breach of debarment conditions, thereby subject to further ADB's investigation.
- 4.5 Government-owned enterprises in the Employer's country shall be eligible only if they can establish that they (i) are legally and financially autonomous, (ii) operate under commercial law, and (iii) are not a dependent agency of the Employer.
- 4.6 A Bidder shall not be under suspension from bidding by the Employer as the result of the execution of a Bid-Securing Declaration.
- 4.7 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.
- 4.8 Bidders shall be excluded if, by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's country prohibits any import of goods from, or payments to, a particular country, person or entity in respect of goods or services originating in that country. Where the Borrower's country prohibits payments to a particular person or entity or for particular goods or services by such an act of compliance, that firm shall be excluded.
- 4.9 Since a prequalification exercise was conducted prior to the issuance of this Bidding Document, only prequalified Bidders may submit bids for the contract(s) described in BDS.

## **5. Eligible Materials, Equipment, and Services**

- 5.1 The materials, equipment, and services to be supplied under the Contract shall have their origin in eligible source countries as defined in ITB 4.2, and all expenditures under the Contract will be limited to such materials, equipment, and services. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment, and services.

- 5.2 For purposes of ITB 5.1 above, “origin” means the place where the materials and equipment are mined, grown, produced, or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.

## B. Contents of Bidding Document

### 6. Sections of Bidding Document

- 6.1 The Bidding Document consists of Parts I, II, and III, which include all the sections indicated below, and should be read in conjunction with any addenda issued in accordance with ITB 8.

#### **PART I Bidding Procedures**

- Section 1 - Instructions to Bidders (ITB)
- Section 2 - Bid Data Sheet (BDS)
- Section 3 - Evaluation and Qualification Criteria (EQC)
- Section 4 - Bidding Forms (BDF)
- Section 5 - Eligible Countries (ELC)

#### **PART II Requirements**

- Section 6 - Employer's Requirements (ERQ)

#### **PART III Conditions of Contract and Contract Forms**

- Section 7 - General Conditions of Contract (GCC)
- Section 8 - Particular Conditions of Contract (PCC)
- Section 9 - Contract Forms (COF)

- 6.2 The IFB issued by the Employer is not part of the Bidding Document.
- 6.3 The Employer is not responsible for the completeness of the Bidding Document and its addenda, if they were not obtained directly from the source stated by the Employer in the IFB.
- 6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the bid.

### 7. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting

- 7.1 A prospective Bidder requiring any clarification on the Bidding Document shall contact the Employer in writing at the Employer's address indicated in the BDS or raise his inquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received no later than 21 days prior to the deadline for submission of bids. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. Should the Employer deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so following the procedure under ITB 8 and ITB 22.2.
- 7.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid and entering into a contract

for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

- 7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury; loss of or damage to property; and any other loss, damage, costs, and expenses incurred as a result of the inspection.
  - 7.4 The Bidder's designated representative is invited to attend a pre-bid meeting, if provided for in the BDS. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
  - 7.5 The Bidder is requested to submit any questions in writing, to reach the Employer not later than 1 week before the meeting.
  - 7.6 Minutes of the pre-bid meeting, including the text of the questions raised, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3. Any modification to the Bidding Document that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting.
  - 7.7 Nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.
- 8. Amendment of Bidding Document**
- 8.1 At any time prior to the deadline for submission of Bids, the Employer may amend the Bidding Document by issuing addenda.
  - 8.2 Any addendum issued shall be part of the Bidding Document and shall be communicated in writing to all who have obtained the Bidding Document from the Employer in accordance with ITB 6.3.
  - 8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Employer may, at its discretion, extend the deadline for the submission of Bids, pursuant to ITB 22.2.

## **C. Preparation of Bids**

- 9. Cost of Bidding**
  - 9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
- 10. Language of Bid**
  - 10.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language specified in the BDS. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant

passages in the language specified in the BDS, in which case, for purposes of interpretation of the Bid, such translation shall govern.

**11. Documents  
Comprising the  
Bid**

**11.1** The Bid shall comprise the following:

- (a) Letter of Bid;
- (b) completed schedules as required, including priced Bill of Quantities, in accordance with ITB 12 and ITB 14;
- (c) Bid Security or Bid-Securing Declaration, in accordance with ITB 19;
- (d) alternative Bids, if permissible, in accordance with ITB 13;
- (e) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;
- (f) documentary evidence in accordance with ITB 17, establishing the Bidder's qualifications to perform the contract if its Bid is accepted;
- (g) Technical Proposal in accordance with ITB 16; and
- (h) any other document required in the BDS.

**11.2** In addition to the requirements under ITB 11.1, Bids submitted by a Joint Venture shall include a copy of the Joint Venture Agreement entered into by all partners. Alternatively, a Letter of Intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all partners and submitted with the Bid, together with a copy of the proposed agreement.

**12. Letter of Bid and  
Schedules**

**12.1** The Letter of Bid and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section 4 (Bidding Forms). The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested and as required in the BDS.

**13. Alternative Bids**

**13.1** Unless otherwise indicated in the BDS, alternative Bids shall not be considered.

**13.2** When alternative times for completion are explicitly invited, a statement to that effect will be included in the BDS, as will the method of evaluating different times for completion.

**13.3** Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Document must first price the Employer's design as described in the Bidding Document and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer.

**13.4** When specified in the BDS, Bidders are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be identified in the BDS and described in Section 6 (Employer's Requirements). The method for their evaluation will be stipulated in Section 3 (Evaluation and Qualification Criteria).

**14. Bid Prices and Discounts**

- 14.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Bill of Quantities shall conform to the requirements specified below.
- 14.2 The Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder will not be paid for by the Employer when executed, and shall be deemed covered by the rates for other items and prices in the Bill of Quantities. Unit rates and prices for all items of the Works described in the Bill of Quantities shall be expressed in positive values. If unit rates and prices are expressed in negative values, the bid will be rejected.
- 14.3 The price to be quoted in the Letter of Bid, in accordance with ITB 12.1, shall be the total price of the Bid, excluding any discounts offered. Absence of the total bid price in the Letter of Bid may result in the rejection of the Bid.
- 14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid, in accordance with ITB 12.1.
- 14.5 The prices shall be either fixed or adjustable as specified in the BDS.
- (a) In the case of Fixed Price, prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account. A Bid submitted with an adjustable price will be treated as nonresponsive and rejected.
  - (b) In the case of Adjustable Price, prices quoted by the Bidder shall be subject to adjustment during performance of the contract to reflect changes in the cost elements such as labor, material, transport, and contractor's equipment in accordance with the provisions of the Conditions of Contract. A Bid submitted with a fixed price will be treated as nonresponsive and be rejected. The Bidder shall furnish the indexes and weightings for the price adjustment formulas in the Tables of Adjustment Data included in Section 4 (Bidding Forms) and the Employer may require the Bidder to justify its proposed indexes and weightings. Any bid that omits indexes and weightings shall be subject to clarification with the Bidder.
- 14.6 If so indicated in ITB 1.1, bids are being invited for individual contracts or for any combination of contracts (packages). Bidders wishing to offer any price reduction for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Price reductions or discounts shall be submitted in accordance with ITB 14.4, provided the Bids for all contracts are submitted and opened at the same time.
- 14.7 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.

## 15. Currencies of Bid and Payment

- 15.1 The unit rates and the prices shall be quoted by the Bidder entirely in the currency specified in the BDS.
- 15.2 Bidders shall indicate the portion of the bid price that corresponds to expenditures incurred in the currency of the Employer's country in the Schedule of Payment Currencies included in Section 4 (Bidding Forms).
- 15.3 Bidders expecting to incur expenditures in other currencies for inputs to the Works supplied from outside the Employer's country and wishing to be paid accordingly may indicate the other currencies in the Schedule of Payment Currencies included in Section 4 (Bidding Forms).
- 15.4 The rates of exchange to be used by the Bidder for currency conversion during bid preparation shall be the selling rates for similar transactions prevailing on the date 28 days prior to the deadline for submission of bids published by the source specified in the BDS. If exchange rates are not so published for certain currencies, the Bidder shall state the rates used and the source. Bidders should note that for the purpose of payments, the exchange rates confirmed by the source specified in the BDS as the selling rates prevailing 28 days prior to the deadline for submission of Bids shall apply for the duration of the Contract so that no currency exchange risk is borne by the Bidder.
- 15.5 Foreign currency requirements indicated by the Bidders in the Schedule of Payment Currencies shall include but not limited to the specific requirements for
  - (a) expatriate staff and labor employed directly on the Works;
  - (b) social, insurance, medical and other charges relating to such expatriate staff and labor, and foreign travel expenses;
  - (c) imported materials, both temporary and permanent, including fuels, oil and lubricants required for the Works;
  - (d) depreciation and usage of imported Plant and Contractor's Equipment, including spare parts, required for the Works;
  - (e) foreign insurance and freight charges for imported materials, Plant and Contractor's Equipment, including spare parts; and
  - (f) overhead expenses, fees, profit, and financial charges arising outside the Employer's country in connection with the Works.
- 15.6 Bidders may be required by the Employer to clarify their foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Schedule of Payment Currencies are reasonable and responsive to ITB 15.3 above, in which case a detailed breakdown of its foreign currency requirements shall be provided by the Bidder.
- 15.7 Bidders should note that during the progress of the Works, the foreign currency requirements of the outstanding balance of the Contract Price may be adjusted by agreement between the Employer and the Contractor in order to reflect any changes in foreign currency requirements for the Contract, in accordance with Subclause 14.15 of the Conditions of Contract. Any such adjustment shall be effected by

comparing the percentages quoted in the bid with the amounts already used in the Works and the Contractor's future needs for imported items.

**16. Documents  
Comprising the  
Technical  
Proposal**

16.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule, environmental, health and safety (EHS) management plan commensurate with the proposed scope of works, EHS Code of Conduct, and any other information as stipulated in Section 4 (Bidding Forms), in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.

**17. Documents  
Establishing the  
Qualifications of  
the Bidder**

17.1 To establish its qualifications to perform the Contract in accordance with Section 3 (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding information sheets included in Section 4 (Bidding Forms).

17.2 Domestic Bidders, individually or in Joint Ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility as described in ITB 33.

**18. Period of Validity  
of Bids**

18.1 Bids shall remain valid for the bid validity period specified in the BDS. The bid validity period starts from the date fixed for the bid submission deadline date prescribed by the Employer in accordance with ITB 22.1. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.

18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 19, it shall also be extended 28 days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its Bid.

**19. Bid Security/Bid-  
Securing  
Declaration**

19.1 Unless otherwise specified in the BDS, the Bidder shall furnish as part of its Bid, in original form, either a Bid-Securing Declaration or a bid security as specified in the BDS. In the case of a bid security, the amount and currency shall be as specified in the BDS.

19.2 If a Bid-Securing Declaration is required pursuant to ITB 19.1, it shall use the form included in Section 4 (Bidding Forms). The Employer will declare a Bidder ineligible to be awarded a Contract for a specified period of time, as indicated in the BDS, if the Bid-Securing Declaration is executed.

19.3 If a bid security is specified pursuant to ITB 19.1, the bid security shall be, at the Bidder's option, in any of the following forms:

- (a) an unconditional bank guarantee (hard copy of the bank guarantee or in the form of SWIFT message MT760), or
- (b) an irrevocable letter of credit, or
- (c) a cashier's or certified check.

all from a reputable source from an eligible country as described in Section 5 (Eligible Countries). In the case of a bank guarantee, the bid



security shall be submitted either using the Bid Security Form included in Section 4 (Bidding Forms) or another form acceptable to the Employer. The form must include the complete name of the Bidder. The bid security shall be valid for 28 days beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.

- 19.4 Unless otherwise specified in the BDS, any Bid not accompanied by a substantially compliant bid security or Bid-Securing Declaration, if one is required in accordance with ITB 19.1, shall be rejected by the Employer as nonresponsive.
- 19.5 If a bid security is specified pursuant to ITB 19.1, the bid security of unsuccessful Bidders shall be returned promptly upon the successful Bidder's furnishing of the performance security pursuant to ITB 44.
- 19.6 If a bid security is specified pursuant to ITB 19.1, the bid security of the successful Bidder shall be returned promptly once the successful Bidder has signed the Contract and furnished the required performance security.
- 19.7 The bid security may be forfeited or the Bid-Securing Declaration executed, if
  - (a) notwithstanding ITB 24.3, a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, except as provided in ITB 18.2; or
  - (b) the successful Bidder fails to
    - (i) sign the Contract in accordance with ITB 43;
    - (ii) furnish a performance security in accordance with ITB 44;
    - (iii) accept the arithmetical correction of its Bid in accordance with ITB 31; or
    - (iv) furnish a domestic preference security if so required.
- 19.8 If the bid security is required as per ITB 19.1, the bid security of a Joint Venture shall be in the name of the Joint Venture that submits the Bid. If the Joint Venture has not been legally constituted at the time of bidding, the bid security shall be in the name of any or all of the Joint Venture partners. If the Bid-Securing Declaration is required as per ITB 19.1, the Bid-Securing Declaration of a Joint Venture shall be in the name of the Joint Venture that submits the Bid. If the Joint Venture has not been legally constituted at the time of bidding, the Bid-Securing Declaration shall be in the names of all future partners as named in the letter of intent mentioned in ITB 4.1.

## **20. Format and Signing of Bid**

- 20.1 The Bidder shall prepare one original set of the documents comprising the Bid as described in ITB 11 and clearly mark it "ORIGINAL." Alternative Bids, if permitted in accordance with ITB 13, shall be clearly marked "ALTERNATIVE." In addition, the Bidder shall submit copies of the Bid, in the number specified in the BDS and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.
- 20.2 The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as



specified in the BDS and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. If a Bidder submits a deficient authorization, the Bid shall not be rejected in the first instance. The Employer shall request the Bidder to submit an acceptable authorization within the number of days as specified in the BDS. Failure to provide an acceptable authorization within the period as stated in the Employer's request shall cause the rejection of the Bid. If either the Letter of Bid or Bid-Securing Declaration (if applicable) is not signed, the Bid shall be rejected.

- 20.3 Any amendments such as interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

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

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

- 21.1 Bidders shall submit their Bids as specified in the BDS. Procedures for submission, sealing, and marking are as follows:

- (a) Bidders submitting Bids by mail or by hand shall enclose the original and all copies of the Bid, including alternative Bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as "ORIGINAL," "ALTERNATIVE," and "COPY." These envelopes containing the original and the copies shall then be enclosed in one single envelope. The rest of the procedure shall be in accordance with ITB 21.2 and ITB 21.3.
- (b) Bidders submitting Bids electronically shall follow the electronic bid submission procedures specified in the BDS.

- 21.2 The inner and outer envelopes shall

- (a) bear the name and address of the Bidder;
- (b) be addressed to the Employer in accordance with BDS 22.1;
- (c) bear the specific identification of this bidding process indicated in the BDS 1.1; and
- (d) bear a warning not to open before the time and date for bid opening.

- 21.3 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the Bid.

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

- 22.1 Bids must be received by the Employer at the address and no later than the date and time indicated in the BDS.

- 22.2 The Employer may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Document in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

### **23. Late Bids**

- 23.1 The Employer shall not consider any Bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by

the Employer after the deadline for submission of Bids shall be declared late, rejected, and returned unopened to the Bidder.

**24. Withdrawal, Substitution, and Modification of Bids**

24.1 A Bidder may withdraw, substitute, or modify its Bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2 (except for withdrawal notices, which do not require copies). The corresponding substitution or modification of the Bid must accompany the respective written notice. All notices must be

(a) prepared and submitted in accordance with ITB 20 and ITB 21 (except for withdrawal notices, which do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," "MODIFICATION"; and

(b) received by the Employer no later than the deadline prescribed for submission of Bids, in accordance with ITB 22.

24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

24.3 No Bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of Bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof.

**25. Bid Opening**

25.1 The Employer shall open the Bids in public at the address, on the date and time specified in the BDS in the presence of Bidders' designated representatives and anyone who chooses to attend. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 21.1, shall be as specified in the BDS.

25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding Bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding Bid being substituted. The substituted Bid shall not be opened, but returned to the Bidder. No bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked "MODIFICATION" shall be opened and read out with the corresponding Bid. No bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at bid opening. Only envelopes that are opened and read out at bid opening shall be considered further.

25.3 All other envelopes shall be opened one at a time, reading out the name of the Bidder and whether there is a modification; the Bid Price(s), including any discounts and alternative offers; the presence of a bid security or Bid-Securing Declaration, if required; and any other details as the Employer may consider appropriate. Only discounts and alternative offers read out at bid opening shall be considered for evaluation. Unless otherwise specified in the BDS, all pages of the Letter of Bid and Bill of Quantities are to be initialed by at least three representatives of the Employer attending bid opening. No Bid shall be rejected at bid opening

except for late Bids, in accordance with ITB 23.1.

25.4 The Employer shall prepare a record of the bid opening that shall include, as a minimum, the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per contract if applicable, including any discounts and alternative offers; and the presence or absence of a bid security or Bid-Securing Declaration, if one was required. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders who submitted Bids on time, and posted online when electronic bidding is permitted.

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

- |  |   |
|--|---|
| <b>26. Confidentiality</b>                         | <p>26.1 Information relating to the examination, evaluation, comparison, and qualification of Bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until the publication of Contract award.</p> <p>26.2 Any attempt by a Bidder to influence the Employer in the evaluation of the Bids or Contract award decisions may result in the rejection of its Bid.</p> <p>26.3 Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Employer on any matter related to the bidding process, it may do so in writing.</p>   |
| <b>27. Clarification of Bids</b>                   | <p>27.1 To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids, in accordance with ITB 31.</p> <p>27.2 If a Bidder does not provide clarifications of its Bid by the date and time set in the Employer's request for clarification, its Bid may be rejected.</p> |
| <b>28. Deviations, Reservations, and Omissions</b> | <p>28.1 During the evaluation of Bids, the following definitions apply:</p> <ul style="list-style-type: none"> <li>(a) "Deviation" is a departure from the requirements specified in the Bidding Document;</li> <li>(b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and</li> <li>(c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.</li> </ul>  |

## **29. Determination of Responsiveness**

- 29.1 The Employer's determination of a Bid's responsiveness is to be based on the contents of the Bid itself, as defined in ITB11.
- 29.2 A substantially responsive Bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,
- (a) if accepted, would
    - (i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or
    - (ii) limit in any substantial way, inconsistent with the Bidding Document, the Employer's rights or the Bidder's obligations under the proposed Contract; or
  - (b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.
- 29.3 The Employer shall examine the technical aspects of the Bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section 6 (Employer's Requirements) have been met without any material deviation, reservation, or omission.
- 29.4 If a Bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

## **30. Nonmaterial Nonconformities**

- 30.1 Provided that a Bid is substantially responsive, the Employer may waive any nonconformities in the Bid that do not constitute a material deviation, reservation, or omission.
- 30.2 Provided that a Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.
- 30.3 Provided that a Bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or nonconforming item or component. The adjustment shall be made using the method indicated in Section 3 (Evaluation and Qualification Criteria).

## **31. Correction of Arithmetical Errors**

- 31.1 Provided that the Bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:
- (a) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the

decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected.

- (b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected.
- (c) If there is a discrepancy between the bid price in the Summary of Bill of Quantities and the bid amount in item (c) of the Letter of Bid, the bid price in the Summary of Bill of Quantities will prevail and the bid amount in item (c) of the Letter of Bid will be corrected.
- (d) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a), (b) and (c) above.

31.2 If the Bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid shall be disqualified and its bid security may be forfeited, or its bid securing declaration executed.

**32. Conversion to Single Currency**

32.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted into a single currency as specified in the BDS.

**33. Domestic Preference**

33.1 Unless otherwise specified in the BDS, domestic preference shall not apply.

**34. Subcontractors**

34.1 Unless otherwise stated in the BDS, the Employer does not intend for the contractor to execute any specific elements of the Works through nominated subcontractors.

**35. Evaluation and Comparison of Bids**

35.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

35.2 To evaluate a Bid, the Employer shall consider the following:

- (a) the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, but including Daywork items, where priced competitively;
- (b) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;
- (c) price adjustment due to discounts offered in accordance with ITB 14.4;
- (d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 32;
- (e) adjustment for nonmaterial nonconformities in accordance with ITB 30.3;
- (f) assessment whether the bid is abnormally low in accordance with ITB 36; and
- (g) application of all the evaluation factors indicated in Section 3 (Evaluation and Qualification Criteria).

35.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.

35.4 If this Bidding Document allows Bidders to quote separate prices for different contracts, and the award to a single Bidder of multiple contracts, the methodology to determine the lowest evaluated price of the contract combinations, including any discounts offered in the Letter of Bid, is specified in Section 3 (Evaluation and Qualification Criteria).

35.5 The Employer shall compare all substantially responsive Bids to determine the lowest evaluated Bid price, in accordance with ITB 35.2.

### **36. Abnormally Low Bids**

36.1 An abnormally low bid is one where the bid price, in combination with other elements of the bid, appears to be so low that it raises concerns as to the capability of the Bidder to perform the contract for the offered bid price.

36.2 When the offered bid price appears to be abnormally low, the Employer shall undertake a three-step review process as follows:

- (a) identify abnormally low costs and unit rates by comparing them with the Engineer's estimates, other substantially responsive bids, or recently awarded similar contracts;
- (b) clarify and analyze the bidder's resource inputs and pricing, including overheads, contingencies and profit margins; and
- (c) decide whether to accept or reject the bid.

36.3 With regard to ITB 36.2 (b) above, the Employer will seek a written explanation from the bidder of the reasons for the offered bid price, including a detailed analysis of costs and unit prices, by reference to the scope, proposed methodology, schedule, and allocation of risks and responsibilities. This may also include information regarding the economy of the manufacturing process; the services to be provided, or the construction method to be used; the technical solutions to be adopted; and any exceptionally favorable conditions available to the bidder for the works, equipment or services proposed.

36.4 After examining the explanation given and the detailed price analyses presented by the bidder, the Employer may:

- (a) accept the bid, if the evidence provided satisfactorily accounts for the low bid price and costs, in which case the bid is not considered abnormally low;
- (b) accept the bid, but require that the amount of the performance security be increased at the expense of the bidder to a level sufficient to protect the Employer against financial loss. The amount of the performance security shall generally be not more than 20% of the contract price; or
- (c) reject the bid if the evidence provided does not satisfactorily account for the low bid price, and make a similar determination for the next ranked bid, if required.

**37. Unbalanced or Front-Loaded Bids**

37.1 If the Bid, which results in the lowest evaluated Bid Price, is seriously unbalanced or front-loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed, as well as the pricing and sources of materials, equipment and labor.

37.2 After the evaluation of the information and detailed price analyses presented by the Bidder, the Employer may as appropriate:

- (a) accept the Bid; or
- (b) accept the Bid, but require that the total amount of the Performance Security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract subject to ITB 44.2; or
- (c) reject the Bid and make a similar determination for the next ranked bid.

**38. Qualification of the Bidder**

38.1 The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive Bid meets the qualifying criteria specified in Section 3 (Evaluation and Qualification Criteria).

38.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1. Unless permitted in the BDS, the determination shall not take into consideration the qualifications of other firms such as the Bidder's subsidiaries, parent entities or affiliates.

38.3 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. The Employer reserves the right to reject the bid of any Bidder found to be in circumstances described in GCC 15.2(e). A negative determination shall result in disqualification of the Bid, in which event the Employer shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.

**39. Employer's Right to Accept Any Bid, and to Reject Any or All Bids**

39.1 The Employer reserves the right to accept or reject any Bid, and to annul the bidding process and reject all Bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically bid securities, shall be promptly returned to the Bidders.

**40. Notice of Intention for Award of Contract**

40.1 If Standstill provisions apply as specified in the BDS, the standstill period shall be defined in the BDS to specify the duration subsequent to notification of intention for award of contract (before making the actual contract award) within which any unsuccessful bidder can challenge the proposed award.

**F. Award of Contract****41. Award Criteria**

41.1 The Employer shall award the Contract to the Bidder whose offer has been determined in line with ITB 35 to ITB 37 above to be the lowest evaluated Bid and is substantially responsive to the Bidding Document,



provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

#### **42. Notification of Award**

- 42.1 Prior to the expiration of the period of bid validity and upon expiry of the standstill period specified in ITB 40.1; or upon satisfactory resolution of a complaint filed within standstill period, if applicable, the Employer shall transmit the Notification of Award through issuance of Letter of Acceptance using the form included in Section 9 (Contract Forms) to the successful Bidder, in writing, that its Bid has been accepted. At the same time, the Employer shall also notify all other Bidders of the results of the bidding.
- 42.2 Unless standstill period applies, upon notification of award through issuance of Letter of Acceptance, unsuccessful Bidders may request in writing to the Employer for a debriefing seeking explanations on the grounds on which their Bids were not selected. The Employer shall promptly respond in writing and/or in a debriefing meeting to any unsuccessful Bidder who, after publication of contract award, requests a debriefing.
- 42.3 Until a formal contract is prepared and executed, the notification of award through issuance of Letter of Acceptance shall constitute a binding Contract.
- 42.4 Within 2 weeks of the award of contract or expiry of the standstill period, where such period applies; or, if a complaint has been filed within the standstill period, upon receipt of ADB's confirmation of satisfactory resolution of the complaint, the borrower shall publish in an English language newspaper or widely known and freely accessible website the results identifying the bid and lot or package numbers, as applicable and the following information:
- (a) name of each Bidder who submitted a Bid;
  - (b) bid prices as read out at bid opening;
  - (c) name and evaluated prices of each Bid that was evaluated;
  - (d) name of bidders whose bids were rejected and the reasons for their rejection; and
  - (e) name of the winning Bidder, and the price it offered, as well as the duration and summary scope of the contract awarded.

#### **43. Signing of Contract**

- 43.1 Promptly after notification, the Employer shall send the successful Bidder the Contract Agreement.
- 43.2 Within 28 days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.

#### **44. Performance Security**

- 44.1 Within 28 days of the receipt of notification of award through issuance of Letter of Acceptance from the Employer, the successful Bidder shall furnish the performance security in accordance with the Conditions of Contract, subject to ITB 36 and ITB 37, using for that purpose the Performance Security Form included in Section 9 (Contract Forms), or another form acceptable to the Employer. If the bank issuing performance security is located outside the Employer's country, it shall



be counter-guaranteed or encashable by a bank in the Employer's country.

44.2 Failure of the successful Bidder to submit the abovementioned performance security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security or execution of the Bid-Securing Declaration. In that event, the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

44.3 The above provision shall also apply to the furnishing of a domestic preference security if so required.

**45. Bidding-Related  
Complaints**

45.1 The procedures for dealing with Bidding-Related Complaints arising out of this bidding process are specified in the BDS.

## Section 2: Bid Data Sheet

This Section consists of provisions that are specific to each procurement and supplement the information or requirements included in Section 1 (Instructions to Bidders).

### A. General

ITB 1.1	The number of the Invitation for Bids (IFB) is: <b>EFAP-WSD-CW-02</b>
ITB 1.1	The Employer is: <b>Works &amp; Services Department, Government of Sindh</b>
ITB 1.1	<p>The name of the open competitive bidding (OCB) is: <b>Package-2: EFAP/WSD/CW-02: Rehabilitation and Improvement of roads in District Badin, comprising of:</b></p> <ol style="list-style-type: none"> <li>1) <b>EFAP-02-BA1: Improvement of Road from Tando Bago to Dragah Saman Sarkar via Pangrio - (30.28 kms)</b></li> <li>2) <b>EFAP-02-BA2: Road from Khalifo Qasim to Jhudo via Mehboob Shah (27.22 kms)</b></li> </ol> <p>The identification number of the OCB is: <b>EFAP/WSD/CW-02</b></p> <p>The number and identification of lots comprising this OCB is: <b>None</b></p>
ITB 2.1	The Borrower is: <b>Islamic Republic of Pakistan</b>
ITB 2.1	The name of the Project is: <b>Emergency Flood Assistance Project (EFAP)</b>

### B. Contents of Bidding Documents

ITB 7.1	<p>For <b>clarification purposes</b> only, the Employer's address is:</p> <table border="1"> <tr> <td>Attention:</td><td><b>Project Director Project Management Unit Emergency Flood Assistance Project Works &amp; Services Department Government of Sindh</b></td></tr> <tr> <td>Street address:</td><td><b>Provincial Health Works Behind Shahbaz Building A Block, Sindh</b></td></tr> <tr> <td>Floor / Room number:</td><td><b>3<sup>rd</sup> Floor, Office of the Project Director</b></td></tr> <tr> <td>City:</td><td><b>Hyderabad, Sindh</b></td></tr> <tr> <td>ZIP code:</td><td><b>71000</b></td></tr> <tr> <td>Country:</td><td><b>Islamic Republic of Pakistan</b></td></tr> <tr> <td>Telephone:</td><td><b>0092-22-9201230</b></td></tr> <tr> <td>Fax:</td><td><b>0092-22-9201230</b></td></tr> <tr> <td>E-mail address:</td><td><b>pd@spripwsd.gos.pk</b></td></tr> </table>	Attention:	<b>Project Director Project Management Unit Emergency Flood Assistance Project Works &amp; Services Department Government of Sindh</b>	Street address:	<b>Provincial Health Works Behind Shahbaz Building A Block, Sindh</b>	Floor / Room number:	<b>3<sup>rd</sup> Floor, Office of the Project Director</b>	City:	<b>Hyderabad, Sindh</b>	ZIP code:	<b>71000</b>	Country:	<b>Islamic Republic of Pakistan</b>	Telephone:	<b>0092-22-9201230</b>	Fax:	<b>0092-22-9201230</b>	E-mail address:	<b>pd@spripwsd.gos.pk</b>
Attention:	<b>Project Director Project Management Unit Emergency Flood Assistance Project Works &amp; Services Department Government of Sindh</b>																		
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Fax:	<b>0092-22-9201230</b>																		
E-mail address:	<b>pd@spripwsd.gos.pk</b>																		
ITB 7.4	<p>A Pre-Bid meeting will be take place.</p> <table border="1"> <tr> <td>Date:</td><td><b>27 September 2023</b></td></tr> <tr> <td>Time:</td><td><b>1100 Hours (PST)</b></td></tr> </table>	Date:	<b>27 September 2023</b>	Time:	<b>1100 Hours (PST)</b>														
Date:	<b>27 September 2023</b>																		
Time:	<b>1100 Hours (PST)</b>																		

Place:	<b>Project Director</b> <b>Project Management Unit</b> <b>Emergency Flood Assistance Project</b> <b>Works &amp; Services Department</b> <b>Government of Sindh</b> <b>Address: 3<sup>rd</sup> Floor, Provincial Health Works Behind</b> <b>Shahbaz Building A Block</b>
City:	<b>Hyderabad, Sindh</b>
Country:	<b>Islamic Republic of Pakistan</b>
Telephone:	<b>0092-22-9201230</b>
<p>A site visit conducted by the Employer will not be organized. Bidders are encouraged to conduct site visit on their own and contact the Employer and the Engineer before scheduling / making the site visit.</p>	

### C. Preparation of Bids

<b>ITB 10.1</b>	<p>The language of the Bid is: <b>English.</b></p> <p>The translation of the documents shall be duly notarized</p>
<b>ITB 11.1 (h)</b>	<p>The Bidder shall submit with its Bid the following additional documents:</p> <ol style="list-style-type: none"> <li>Proposed Site Organization</li> <li>Method Statement</li> <li>Mobilization &amp; Construction Schedule (to be described in sufficient detail to demonstrate the adequacy of its work methods, scheduling and material sourcing)</li> <li>Environment, Health &amp; Safety Management Plan</li> <li>Valid Pakistan Engineering Council (PEC) Registration (applicable to local Pakistani bidders).</li> <li>Diversification of Traffic Management Plan</li> <li>Documents indicating the Historical Financial Performance i.e., audited financial statements for the Financial Year 2019-20, 2020-21 &amp; 2021-22 of the bidders which close their accounts on June 30<sup>th</sup> every year OR Calendar Year 2020, 2021 &amp; 2022 of the bidders which close their accounts on 31<sup>st</sup> December every year or for latest three years, as applicable.</li> <li>Supporting documents indicating availability of Financial Resources shown by the bidder to meet with the Cash Flow Requirements (refer 2.1 of Section 3) i.e., <i>latest year's audited financial statements, the line of credit should be (i) project specific; (ii) address to the Client; (iii) shall be issued within last 03 month; (iv) it should be confirmed by the concerned bank(s); (v) it should be unconditional; and (vi) it must be for the complete duration of the Project</i>).</li> </ol> <p>Bidders are required to submit all documents to support their bid in English language. If the documentary evidence is in a language other than the English language, then the bidder shall submit accurate translation of the relevant passages in the English language duly attested by the notary public of the Bidder's Country or similar legal instrument of notarization as applicable under the laws of the Bidder's home country, (specifying the authority for such attestation as per law of the country).</p>

	If a Bidder omits to submit any of the above documents or the documents submitted are deficient, the Bid shall not be rejected in the first instance and a clarification will be sought from the Bidder under ITB 27.
<b>ITB 11.2</b>	<p>The Joint Venture Agreement or a Letter of Intent to execute a Joint Venture Agreement in the event of the successful Bid, shall include the following:</p> <ul style="list-style-type: none"> <li>(a) All partners shall be jointly and severally liable;</li> <li>(b) The lead partner shall be clearly identified and nominated;</li> <li>(c) The financial share of each partner shall be clearly stated;</li> <li>(d) Corresponding to the financial share of each Partner, the roles and responsibilities of each partner shall also be specified; and</li> <li>(e) Any other requirements as per the applicable law.</li> </ul>
<b>ITB 12.1</b>	The units and rates in figures entered into the Bill of Quantities and Daywork Schedule should be typewritten, if written by hand, must be in print form. Bill of Quantities and Daywork Schedule not presented accordingly may be considered nonresponsive.
<b>ITB 13.1</b>	Alternative Bids <b>shall not</b> be permitted.
<b>ITB 13.2</b>	Alternative times for completion <b>shall not</b> be permitted.
<b>ITB 13.4</b>	Alternative technical solutions shall be permitted for the following parts of the Works: <b>Not Applicable</b>
<b>ITB 14.5</b>	The prices quoted by the Bidder <b>Adjustable</b> .
<b>ITB 15.1</b>	The unit rates and the prices shall be quoted by the Bidder entirely in <b>“Pakistan Rupees”</b> .
<b>ITB 15.4</b>	The rates of exchange shall be the selling rates 28 days prior to the deadline for submission of bids published by <b>State Bank of Pakistan</b> .
<b>ITB 18.1</b>	The bid validity period shall be <b>One Hundred and Twenty (120) days</b> .
<b>ITB 19.1</b>	The Bidder shall furnish a <b>Bid-Securing Declaration</b>
<b>ITB 19.2</b>	The ineligibility period is: <b>Five (05) Years</b>
<b>ITB 19.4</b>	Subject to the succeeding sentences, any bid not accompanied by Bid-Securing Declaration shall be rejected by the Employer as nonresponsive. If a Bidder submits a Bid-Securing Declaration that (i) deviates in form, content, and/or period of validity or (ii) does not provide sufficient identification of the Bidder (including, without limitation, failure to indicate the name of the Joint Venture or, where the Joint Venture has not yet been constituted, the names of all future Joint Venture Partners), the Employer shall request the Bidder to submit a compliant Bid-Securing Declaration within fourteen (14) days of receiving such a request. Failure to provide a compliant Bid-Securing Declaration within the prescribed period of receiving such a request shall cause the rejection of the Bid

ITB 20.1	<p>In addition to the original Bid, the number of copies is: <b>Three (03)</b></p> <p>To facilitate evaluation, bidders are encouraged to submit the scanned soft copies, in PDF format, of their Bids in shape of a USB Drive.</p> <p>The soft copy (USB) of the Bids shall be enclosed in the envelope containing the hard copy of the Bidder's Original Bid.</p> <p>If there is any discrepancy between the data/information in the soft copy (USB) of the Bidder's Bids and the hard copy of the Bidder's Bids and between the Price indicated in the hard copy of the Bidder's Original Price Bid, and in the soft copy (USB) of the Bidder's Price Bid, the data and information indicated in the hard copy of the Original Bid shall prevail. All of the rates and amounts must be written by the bidder in words that are written in figures.</p> <p>In addition to above, soft copy of Priced Bid in "Excel format", in the same USB containing the "PDF format", shall also be provided in the envelope containing the hard copy of the Bidder's Original Price Bid, to facilitate review and evaluation process.</p> <p><b>Note:</b> Submission of the USB is only for reference and shall not constitute electronic bid submission as stipulated in ITB 21.1(b) and is provision in the Data Sheet.</p>
ITB 20.2	<p>The written confirmation of authorization to sign on behalf of the Bidder shall consist of a board resolution or its equivalent, or power of attorney, which should either be:</p> <p>a) <i>notarized, or</i></p> <p>b) <i>attested to by an appropriate forum (authority) in the Bidder's home country, specifying the representative's authority to sign the bid on behalf of the bidder.</i></p> <p><i>If the bidder is an intended or existing joint venture, such authorization should be signed by all parties and specify the representative's authority to sign the bid on behalf of the intended or existing joint venture.</i></p> <p><i>If the joint venture has not yet been formed, also include written evidence from all proposed partners of joint venture of their intent to enter into a joint venture in the event of a contract award.</i></p>
ITB 20.2	The Bidder shall submit an acceptable authorization within fourteen (14) days.

### D. Submission and Opening of Bids

ITB 21.1	Bidders <b>do not</b> have the option of submitting their Bids electronically.		
ITB 21.1 (b)	Electronic bidding submission procedures shall be: <b>Not Applicable.</b>		
ITB 22.1	<p>For <b>bid submission purposes</b> only, the Employer's address is:</p> <table border="1"> <tr> <td>Attention:</td><td> <b>Project Director</b>  <b>Project Management Unit</b>  <b>Emergency Flood Assistance Project</b>  <b>Works &amp; Services Department</b>  <b>Government of Sindh</b> </td></tr> </table>	Attention:	<b>Project Director</b> <b>Project Management Unit</b> <b>Emergency Flood Assistance Project</b> <b>Works &amp; Services Department</b> <b>Government of Sindh</b>
Attention:	<b>Project Director</b> <b>Project Management Unit</b> <b>Emergency Flood Assistance Project</b> <b>Works &amp; Services Department</b> <b>Government of Sindh</b>		

	Street address:	<b>Provincial Health Works Behind Shahbaz Building A Block, Sindh</b>
	Floor / Room number:	<b>3<sup>rd</sup> Floor, Office of the Project Director</b>
	City:	<b>Hyderabad, Sindh</b>
	ZIP code:	<b>71000</b>
	Country:	<b>Islamic Republic of Pakistan</b>
	Telephone:	<b>0092-22-9201230</b>
	Fax:	<b>0092-22-9201230</b>
	E-mail address:	<b>pd@spripwsd.gos.pk</b>
	<b>The deadline for bid submission is:</b>	
	Date:	<b>06 October 2023</b>
	Time:	<b>1030 Hours</b>
<b>ITB 25.1</b>	The bid opening shall take place at:	
	Street address:	<b>Office of the Project Director Project Management Unit Emergency Flood Assistance Project Works &amp; Services Department Government of Sindh Provincial Health Works Behind Shahbaz Building A Block, Sindh</b>
	Floor / Room number:	<b>3<sup>rd</sup> Floor, Office of the Project Director</b>
	City:	<b>Hyderabad, Sindh</b>
	ZIP code:	<b>71000</b>
	Country:	<b>Islamic Republic of Pakistan</b>
	Date:	<b>06 October 2023</b>
	Time:	<b>1100 Hours</b>
<b>ITB 25.1</b>	Electronic bid opening procedure shall be as follows: <b>Not Applicable</b>	
<b>ITB 25.3</b>	The Letter of Bid and Bill of Quantities shall be initialled by <b>at least three (03)</b> representatives of the Employer attending the Bid opening.	

### E. Evaluation and Comparison of Bids

<b>ITB 32.1</b>	<p>The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: <b>Pak Rupees (PKR)</b></p> <p>The source of the selling exchange rate shall be: <b>State Bank of Pakistan</b></p> <p>The date for the selling exchange rate shall be: <b>28 days prior to the deadline for submission of bids.</b></p>
<b>ITB 33.1</b>	<i>Domestic preference <b>shall not</b> apply.</i>
<b>ITB 34.1</b>	The Employer <b>does not intend</b> for the contractor to execute any specific elements of the Works through nominated Subcontractors.
<b>ITB 38.2</b>	Qualifications of other firms such as the <b>Bidder's subsidiaries, parent entities, affiliates, subcontractors</b> (other than Specialist Subcontractors permitted in ITB 38.2) <b>shall not</b> be permitted.

<b>ITB 40.1</b>	Standstill provisions shall not apply.
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### F. Award of Contracts

<b>ITB 45.1</b>	<p>The procedures for Bidding-Related Complaints are referenced in the Procurement Regulations for ADB Borrowers (Appendix 7). The Bidder should submit its complaint following these procedures, in writing, to:</p> <p>Title or position: Secretary to Government of Sindh</p> <p>Client: Works &amp; Services Department, Government of Sindh</p> <p>Address: New Sindh Secretariat Building No. 1, 3<sup>rd</sup> Floor, Opposite Income Tax Building, Shahrah-e-Kamal Atta Turk, Karachi, Sindh</p> <p>Project: Emergency Flood Assistance Project (EFAP)</p> <p>Contact Number: +92-21-99212992 and +92-21-99218225</p>
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## Section 3: Evaluation and Qualification Criteria

### - Following Prequalification -

This Section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders. In accordance with ITB 35 to ITB 38, no other methods, criteria and factors shall be used. The Bidder shall provide all the information requested in the forms included in Section 4 (Bidding Forms).

#### Table of Criteria

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2.1 Financial Resources .....	3-5
2.2 Updating of Information .....	3-6



## 1. Evaluation

In addition to the criteria listed in ITB 35.2 (a)–(f), other relevant factors are as follows:

### 1.1 Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity to successfully implement the contract considering its proposed site organization, method statement, mobilization, and construction schedule (to be described by the Bidder in sufficient detail to demonstrate the adequacy of its work methods, scheduling, and material sourcing) including the extent to which they are presented in a consistent manner and comply with requirements stipulated in Section 6 (Employer's Requirements) without material deviation, reservation, or omission.

Noncompliance with equipment and personnel requirements described in Section 6 (Employer's Requirements) shall not normally be a ground for bid rejection, and such noncompliance will be subject to clarification during bid evaluation and rectification prior to contract award.

### 1.2 Completion Time

An alternative Completion Time, if permitted under ITB 13.2, will be evaluated as follows:

**Not Applicable**

### 1.3 Technical Alternatives

Technical alternatives, if permitted under ITB 13.4, will be evaluated as follows:

**Not Applicable**

### 1.4 Quantifiable Nonconformities and Omissions

Subject to ITB 14.2 and ITB 35.2, the evaluated cost of quantifiable nonconformities including omissions, is determined as follows:

Pursuant to ITB 30.3, the cost of all quantifiable nonmaterial nonconformities shall be evaluated, including omissions in Daywork where competitively priced but excluding omission of prices in the Bill of Quantities. The Employer will make its own assessment of the cost of any nonmaterial nonconformities and omissions for the purpose of ensuring fair comparison of Bids.

### 1.5 Domestic Preference

If domestic preference is provided for under ITB 33.1, the following procedure shall apply:

**Not Applicable**

## 1.6 Other Criteria

The Other Criteria is described as under:

### 1.6.1 Environmental, Health and Safety Management Plan (EHSMP)

Any bid not accompanied by the EHSMP may be rejected by the Employer as nonresponsive. If a Bidder submits a EHSMP that is not commensurate with the risks and impacts of the proposed works and activities in the bidding document, the Employer shall issue a request for clarification to request for further information from the Bidder. The Bidder must submit the requested information within **five (05)** days of receiving such a request. Failure to provide a satisfactory response to the request for further information within the prescribed period of receiving such a request may cause the rejection of the Bid.

### 1.6.2 Sustainable Procurement

**Not Applicable.**

### 1.6.3 Life Cycle costs (for Financial Evaluation)

Life cycle costing **shall not** apply.

## 1.8 Multiple Contracts

**Not Applicable.**

## 2. Qualification

### 2.1 Financial Resources

If the bid evaluation process and the decision for the award of the Contract takes more than 1 year from the date of bid submission, Bidders may be asked to resubmit their current contract commitments and latest information on financial resources supported by latest audited accounts or audited financial statements, or if not required by the law of the Bidder's country, other financial statements acceptable to the Employer, and the Bidders' financial capacity, will be reassessed on this basis.

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
<b>For Single Entities</b> The Bidder must demonstrate that its financial resources defined in FIN-3, less its financial obligations for its current contract commitments defined in FIN-4, meet or exceed the total requirement for the Subject Contract in <b>PKR 542.5 million or US\$ equivalent</b>	Must meet requirement	Not applicable	Not applicable	Not applicable	Form FIN – 3 and Form FIN – 4
<b>For Joint Ventures</b> (1) One partner must demonstrate that its financial resources defined in FIN-3, less its financial obligations for its own current contract commitments defined in FIN-4, meet or exceed its required share of <b>40%</b> from the total requirement for the Subject Contract.  AND	Not applicable	Not applicable	Not applicable	Must meet requirement	Form FIN – 3 and Form FIN – 4
(2) Each partner must demonstrate that its financial resources defined in FIN - 3, less its financial obligations for its own current contract commitments defined in FIN-4, meet or exceed its required share of <b>25%</b> from the total requirement for the Subject Contract.  AND	Not applicable	Not applicable	Must meet requirement	Not applicable	Form FIN – 3 and Form FIN – 4
(3) The Joint Venture must demonstrate that the combined financial resources of all partners defined in FIN - 3, less all the partners' total financial obligations for the current contract commitments defined in FIN-4, meet or exceed the total requirement for the Subject Contract of <b>PKR 542.5 million or US\$ equivalent</b>	Not applicable	Must meet requirement	Not applicable	Not applicable	Form FIN – 3 and Form FIN – 4

## 2.2 Updating of Information

The Bidder shall continue to meet the criteria used at the time of prequalification. Updating and reassessment of the following information which was previously considered during prequalification will be required:

- (a) Eligibility
- (b) Historical Contract Nonperformance
- (c) Financial Requirements
  - (i) Historical Financial Performance
  - (ii) Average Annual Construction Turnover

The Bidder shall provide updated details for the above by using the relevant forms included in Section 4 (Bidding Forms).

# Section 4: Bidding Forms

## - Following Prequalification -

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# Letter of Bid

**Note-**

*The Bidder must accomplish the Letter of Bid on its letterhead clearly showing the Bidder's complete name and address.*

Date: .....

OCB No.: .....

Invitation for Bid No.: .....

To:

**The Project Director  
Project Management Unit  
Emergency Flood Assistance Project (EFAP)  
Works & Services Department, Government of Sindh  
3<sup>rd</sup> Floor, Provincial Health Works Behind Shahbaz Building A Block  
City: Hyderabad  
Country: Pakistan  
Telephone: 00-92-22-9201230  
Fax: 00-92-22-9201230  
E-mail: pd@spripwsd.gos.pk**

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) 8.
- (b) We acknowledge that we have read and understand ADB's Anticorruption Policy (1998) and Integrity Principles and Guidelines (2015), both as amended from time to time.
- (c) We offer to execute in conformity with the Bidding Documents the following Works:

**Package-2: EFAP/WSD/CW-02: Rehabilitation and Improvement of Roads in District Badin:**

- 1) EFAP-02-BA1: Improvement of Road from Tando Bago to Dragah Saman Sarkar via Pangrio - (30.28 kms)**
- 2) EFAP-02-BA2: Road from Khalifo Qasim to Jhudo via Mehboob Shah (27.22 kms)**

- (d) The total price of our Bid, excluding any discounts offered in item (d) below is:

*[amount of foreign currency in words], [amount in figures], and [amount of local currency in words], [amount in figures]*

*The total bid price from the Summary of Bill of Quantities should be entered by the Bidder inside this box. Absence of the total bid price in the Letter of Bid may result in the rejection of the bid.*

- (e) The discounts offered and the methodology for their application are: *[insert discounts and methodology for their application if any]*
- (f) Our bid shall be valid for a period of *[insert bid validity period as specified in ITB 18.1 of the BDS]* days starts from the date fixed for the bid submission deadline in accordance with ITB 22.1, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

- (g) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents.
- (h) Our firm, including any Subcontractors or Suppliers for any part of the Contract, have nationalities from eligible countries in accordance with ITB 4.2.
- (i) We, our directors, key officers, key personnel, including any Subcontractors, consultants, subconsultants, manufacturers, service providers or Suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 4.3.

If there is any conflict of interest, please state details:

- (i) Parties involved in the conflict of interest: \_\_\_\_\_
- (ii) Details about the conflict of interest: \_\_\_\_\_
- (j) We are not participating, as a Bidder, either individually or as partner in a Joint Venture, in more than one Bid in this bidding process in accordance with ITB 4.3(e), other than alternative offers submitted in accordance with ITB 13.
- (k) Our firm, Joint Venture partners, our respective direct and indirect shareholders, directors, key officers, key personnel, associates, parent company, affiliates or subsidiaries, including any Subcontractors, consultants, subconsultants, manufacturers, service providers or Suppliers for any part of the contract, are not subject to, or not controlled by any entity or individual that is subject to a temporary suspension or a debarment imposed by the Asian Development Bank or a debarment imposed by the Asian Development Bank in accordance with the Agreement for Mutual Enforcement of Debarment Decisions between the Asian Development Bank and other development banks.<sup>1</sup>
- (l) Our firm, Joint Venture partners, our respective direct and indirect shareholders, directors, key officers, key personnel, associates, parent company, affiliates or subsidiaries, including any Subcontractors, consultants, subconsultants, manufacturers, service providers or Suppliers for any part of the contract, are not under ongoing investigation and/or sanctions proceedings by the Asian Development Bank or any multilateral development bank.

If under ongoing investigation and/or sanction proceedings by the Asian Development Bank or any multilateral development bank, please state details:

- (i) Name of the multilateral development bank: \_\_\_\_\_
- (ii) Reason for the ongoing investigation/allegations: \_\_\_\_\_
- (m) Our firm, Joint Venture partners, our respective direct and indirect shareholders, directors, key officers, key personnel, associates, parent company, affiliates or subsidiaries, including any Subcontractors, consultants, subconsultants, manufacturers, service providers or Suppliers for any part of the Contract, are not temporarily suspended, debarred, declared ineligible, or subject to any national and/or international sanctions by any country, any international organization, any multilateral development bank and other donor agency.

If so temporarily suspended, debarred, declared ineligible, or subject to any national and/or international sanctions by any country, any international organization, any multilateral development bank and other donor agency, please state details (as applicable to each Joint Venture partner, their respective direct or indirect shareholders, directors, key officers, key

<sup>1</sup> These institutions include African Development Bank, European Bank for Reconstruction and Development (EBRD), Inter-American Development Bank (IADB), and the World Bank Group. According to paragraph 9 of the Agreement, other international financial institutions may join upon the consent of all Participating Institutions and signature of a Letter of Adherence by the international financial institution substantially in the form provided (Annex B to the Agreement). Upon adherence, such international financial institution shall become a Participating Institution for purposes of the Agreement. Bidders are advised to check [www.adb.org/integrity](http://www.adb.org/integrity) for updates.

personnel, associate, parent company, affiliate, subsidiaries, Subcontractors, consultants, subconsultants, manufacturers, service providers and/or Suppliers):

- (i) Name of Institution: \_\_\_\_\_
  - (ii) Period of the temporary suspension, debarment, ineligibility, or national or international sanction [*start and end date*]: \_\_\_\_\_
  - (iii) Reason for the temporary suspension, debarment, ineligibility, or national or international sanction: \_\_\_\_\_
- (n) Our firm, Joint Venture partners, associates, parent company, affiliates or subsidiaries, including any Subcontractors, consultants, subconsultants, manufacturers, service providers, Suppliers, key officers, directors and key personnel have never been charged or convicted with any criminal offense (including felonies but excluding misdemeanors) or infractions and/or violations of ordinance; nor charged or found liable in any civil or administrative proceedings in the last 10 years; or undergoing investigation for such, or subject to any criminal, civil or administrative orders, monitorship or enforcement actions.  
If so charged, convicted found liable, under ongoing investigation, or subject to orders, monitorship or enforcement actions, please state details:
- (i) Nature of the offense, violation, proceedings, investigation, and/or monitorship or enforcement actions: \_\_\_\_\_
  - (ii) Court, area of jurisdiction and/or the enforcement agency: \_\_\_\_\_
  - (iii) Resolution [*i.e. dismissed, settled, or convicted; duration of penalty*]: \_\_\_\_\_
  - (iv) Other relevant details [*please specify*]: \_\_\_\_\_
- (o) Our firm, Joint Venture partners, our respective direct and indirect shareholders, directors, key officers, key personnel, associates, affiliates or subsidiaries, including any Subcontractors, consultants, subconsultants, manufacturers, service providers or Suppliers, can make and receive electronic fund transfer payments through the international banking system or otherwise discharge the Employer's obligation upon initiation of wire transfer.  
  
If unable to make or receive funds through the international banking system or otherwise discharge the Employer's obligation upon initiation of wire transfer, please state the details:
- (i) Nature of the restriction: \_\_\_\_\_
  - (ii) Jurisdiction of the restriction: \_\_\_\_\_
  - (iii) Other relevant details: \_\_\_\_\_
- (p) Our firm, Joint Venture partners, associates, parent company, affiliates or subsidiaries, including any Subcontractors, consultants, subconsultants, manufacturers, service providers or Suppliers, key officers, directors and key personnel are not from a country which is prohibited to export goods or services to, or receive any payments from the Employer's country and/or are not prohibited to receive payments for particular goods or services by the Employer's country by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations.
- (q) We understand that it is our obligation to notify the Employer of any changes in connection with the matters described in paragraphs (i), (k), (l), (m), (n), (o), (p) and (t) of this Letter of Bid.
- (r) [We are not a government-owned enterprise] / [We are a government-owned enterprise but meet the requirements of ITB 4.5].<sup>2</sup>
- (s) We have not been suspended nor declared ineligible by the Employer based on execution of a Bid-Securing Declaration in accordance with ITB 4.6.

<sup>2</sup> Use one of the two options as appropriate.



- (t) We have paid, or intend to pay, either directly or indirectly, the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract:<sup>3</sup>

Name of Recipient	Address	Reason	Amount
.....	.....	.....	.....
.....	.....	.....	.....

- (u) We understand that this bid, together with your written acceptance thereof included in your notification of award through the issuance of Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed.
- (v) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.
- (w) At any time following submission of our Bid, we shall permit, and shall cause our Joint Venture partners, directors, key officers, key personnel, associates, parent company, affiliates or subsidiaries, including any Subcontractors, consultants, subconsultants, manufacturers, service providers or Suppliers for any part of the contract to permit ADB or its representative to inspect our site, assets, accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by ADB. We understand that failure of this obligation may constitute obstructive practice that may result in debarment and/or contract termination.
- (x) Regardless of whether the contract will be awarded to us, we shall preserve all accounts, records and other documents related to bid submission for at least 3 years from the date of submission of the bid or the period prescribed in applicable law, whichever is longer.
- (y) If we are awarded the contract, we shall preserve all accounts, records and other documents related to the procurement and execution of the contract for at least 5 years after completing the works contemplated in the relevant contracts or the period prescribed in applicable law, whichever is longer.
- (z) If our Bid is accepted, we commit to mobilizing key equipment and personnel in accordance with the requirements set forth in Section 6 (Employer's Requirements) and our technical proposal, or as otherwise agreed with the Employer.
- (aa) We certify on behalf of the Bidder, that the information provided in the bid has been fully reviewed, given in good faith, and to the best of our knowledge is true and complete. We understand that it is our obligation to inform the Employer of any changes to the information as and when it becomes known to us. We understand that any misrepresentation that knowingly or recklessly misleads, or attempts to mislead may lead to the automatic rejection of the Bid or cancellation of the contract, if awarded; and may result in remedial actions, in accordance with ADB's Anticorruption Policy (1998, as amended to date) and Integrity Principles and Guidelines (2015, as amended from time to time).

Name .....

In the capacity of .....

Signed .....

Duly authorized to sign the Bid for and on behalf of .....

Date .....

<sup>3</sup> If none has been paid or is to be paid, indicate "None".

## Schedules

### Schedule of Payment Currencies

**Package-2: EFAP/WSD/CW-02: Rehabilitation and Improvement of Roads in District Badin:**

- 1) EFAP-02-BA1: Improvement of Road from Tando Bago to Dragah Saman Sarkar via Pangrio - (30.28 kms)
- 2) EFAP-02-BA2: Road from Khalifo Qasim to Jhudo via Mehboob Shah (27.22 kms)

	A	B	C	D
Name of Payment Currency	Amount of Currency	Rate of Exchange to Local Currency	Local Currency Equivalent $C = A \times B$	Percentage of Net Bid Price (NBP) $\frac{100 \times C}{NBP}$
Local Currency		1.00		
Foreign Currency #1				
Foreign Currency #2				
Foreign Currency #3				
Net Bid Price				100.00
Provisional Sums Expressed in Local Currency		1.00		
BID PRICE				

**Note**

The rates of exchange shall be the selling rates 28 days prior to the deadline for submission of bids published by the source specified in BDS 15.

## Tables of Adjustment Data

**Table A - Local Currency Payment**

S/No	Description	Unit	*Base Rate	Weightages	Source of Index
(i)	Fixed Portion	-		<b>0.464</b>	-
(ii)	High Speed Diesel	Liters		<b>To be proposed by the bidder</b> <i>(Acceptable range 0.077 to 0.086)</i>	Monthly Statistical Bulletin, Pakistan Bureau of Statistics / Pakistan State Oil
(iii)	Labour	Per Day		<b>To be proposed by the bidder</b> <i>(Acceptable range 0.099 to 0.111)</i>	Monthly Statistical Bulletin, Pakistan Bureau of Statistics GOP (District: Badin)
(iv)	Cement	Per Bag		<b>To be proposed by the bidder</b> <i>(Acceptable range 0.041 to 0.046)</i>	Monthly Statistical Bulletin, Pakistan Bureau of Statistics GOP (District: Badin)
(v)	Steel Grade 60	Metric Ton		<b>To be proposed by the bidder</b> <i>(Acceptable range 0.118 to 0.131)</i>	Monthly Statistical Bulletin, Pakistan Bureau of Statistics GOP (District: Badin)
(vi)	Bitumen	Metric Ton		<b>To be proposed by the bidder</b> <i>(Acceptable range 0.146 to 0.162)</i>	National Refinery, Karachi.
		<b>Total</b>		<b>1.000</b> <b>[Sum of (ii), (iii) (iv) (v) and (vi) shall not increase 0.536]</b>	

**Note:**

1. Base prices of Specified Material shall be as of actually prevailing market on the base date notified by the Engineer with the approval of the Employer after the award of works. The Base Date means the date 28 days prior to the deadline for the bid submission.
2. The basic material prices are meant to be ex-factory prices and inclusive all kinds of taxes and duties that can be levied at source.
3. Adjustment of increase/ decrease shall only be admissible for the materials listed above.
4. Value of work done for escalation purpose shall be value of permanent works (excluding bill for General items and Provisional sums)
5. The proposed weightages of bidders exceeding the upper limit shall not be permitted.
6. All amounts shall be in Pakistani Rupees only.

**Table B - Foreign Currency Payment****Name of Currency:** .....

[Insert name of currency. If the bidder wishes to quote in more than one foreign currency, this table should be repeated for each foreign currency such as #1, #2 and #3..]

To be entered by the Bidder				
Index Code	Index Description	Source of Index	Base Value and Date	Bidder's Proposed Weighting
L: Labor	Nonadjustable	—	—	a: 0.15
E: Equipment				b: _____
M!: Material 1				c: _____
M2: Material 2				d: _____
...etc...				e: _____
				1.00

To be entered by the Bidder. (Employer may prescribed the range. of weighing)

**- Notes -**

- As per GCC 1.1.3.1, "Base Date" means the date 28 days prior to the latest date for submission of the bid.
- For a given currency, the "Source of Index" should be issued or published within the country to which the currency relates..
- Tables of Adjustment Data shall only be included if prices are to be quoted as adjustable prices in accordance with ITB 14.5.

## Bid Security Bank Guarantee

[Bank's name, and address of issuing branch or office]<sup>4</sup>

**Beneficiary:** [Name and address of the Employer]

**Date:** .....

**Bid Security No.:** .....

We have been informed that [name of the Bidder] (hereinafter called "the Bidder") has submitted to you its bid dated [please specify] (hereinafter called "the Bid") for the execution of [name of contract] under Invitation for Bids No. [please specify] ("the IFB").

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we [name of bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [amount in words] [amount in figures] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder

- (a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Letter of Bid; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or
- (c) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the performance security, in accordance with the ITB, or (iii) fails or refuses to furnish a domestic preference security, if required.

This guarantee will expire (a) if the Bidder is the successful Bidder, upon our receipt of copies of the Contract Agreement signed by the Bidder and the Performance Security issued to you upon the instruction of the Bidder; or (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder of the name of the successful Bidder, or (ii) 28 days after the expiration of the Bidder's bid.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.<sup>5</sup>

[Authorized signature(s) and bank's seal (where appropriate)]

<sup>4</sup> All italicized text is for use in preparing this form and shall be deleted from the final document.

<sup>5</sup> Or the employer may use "Uniform Rules for Demand Guarantees (URDG), ICC Publication No. 458 as appropriate.

## Bid-Securing Declaration

Date: *[insert date (as day, month and year)]*

Bid No.: *[insert number of bidding process]*

Alternative No.: *[insert identification No if this is a bid for an alternative]*

To: *[insert complete name of the Employer]*

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid-Securing Declaration.

We accept that we will automatically be suspended from being eligible for bidding in any contract with the Borrower for the period of time of *[insert number of years as indicated in ITB 19.2 of the BDS]* starting on the date that we receive a notification from the Employer, if we are in breach of our obligation(s) under the bid conditions, because we

- (a) have withdrawn our Bid during the period of bid validity specified in the Letter of Bid; or
- (b) do not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or
- (c) having been notified of the acceptance of our Bid by the Employer during the period of bid validity, (i) fail or refuse to execute the Contract, if required; or (ii) fail or refuse to furnish the Performance Security, in accordance with the ITB; or (iii) fail or refuse to furnish a domestic preference security, if required.

We understand this Bid-Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) 28 days after the expiration of our Bid.

Signed: *[insert signature of person whose name and capacity are shown]*

In the capacity of *[insert legal capacity of person signing the Bid-Securing Declaration]*

Name: *[insert complete name of person signing the Bid-Securing Declaration]*

Duly authorized to sign the bid for and on behalf of *[insert complete name of the Bidder]*

Dated on \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ *[insert date of signing]*

Corporate Seal *[where appropriate]*

## AFFILIATE COMPANY GUARANTEE

Name of Contract/Contract No.: \_\_\_\_\_

Name and Address of Employer: \_\_\_\_\_

\_\_\_\_\_  
[together with successors and assigns].

We have been informed that [name of Contractor] (hereinafter called the "Contractor") is submitting an offer for the above-referenced Contract in response to your invitation, and that the conditions of your invitation require its offer to be supported by an affiliate company guarantee.

In consideration of you, the Employer, awarding the Contract to the Contractor, we [name of affiliated company] irrevocably and unconditionally guarantee to you, as a primary obligation, that (i) throughout the duration of the Contract, we will make available to the Contractor our financial, technical capacity, expertise and resources required for the Contractor's satisfactory performance of the Contract; and (ii) we are fully committed, along with the Contractor, to ensuring a satisfactory performance of the Contract.

If the Contractor fails to so perform its obligations and liabilities and comply with the Contract, we will indemnify the Employer against and from all damages, losses and expenses (including legal fees and expenses) which arise from any such failure for which the Contractor is liable to the Employer under the Contract.

This guarantee shall come into full force and effect when the Contract comes into full force and effect. If the Contract does not come into full force and effect within a year of the date of this guarantee, or if you demonstrate that you do not intend to enter into the Contract with the Contractor, this guarantee shall be void and ineffective. This guarantee shall continue in full force and effect until all the Contractor's obligations and liabilities under the Contract have been discharged, when this guarantee shall expire and shall be returned to us, and our liability hereunder shall be discharged absolutely.

This guarantee shall apply and be supplemental to the Contract as amended or varied by the Employer and the Contractor from time to time. We hereby authorize them to agree on any such amendment or variation, the due performance of which and compliance with which by the Contractor are likewise guaranteed hereunder. Our obligations and liabilities under this guarantee shall not be discharged by any allowance of time or other indulgence whatsoever by the Employer to the Contractor, or by any variation or suspension of the works to be executed under the Contract, or by any amendments to the Contract or to the constitution of the Contractor or the Employer, or by any other matters, whether with or without our knowledge or consent.

This guarantee shall be governed by the law of the same country (or other jurisdiction) that governs the Contract and any dispute under this guarantee shall be finally settled under the [Rules or Arbitration provided in the Contract]. We confirm that the benefit of this guarantee may be assigned subject only to the provisions for assignment of the Contract.

Signed by:.....

[signature]

.....

[name]

.....

[position in parent/subsidiary company]

Signed by: .....

[signature]

.....

[name]

.....

[position in parent/subsidiary company]

Date:.....

### **-- Note --**

If permitted in accordance with ITB 38.2 of the BDS, the Bidder shall provide the Affiliate Company Guarantee Form filled out and signed by each subsidiary, parent entity or affiliate that the Bidder submits for consideration of the Employer in determining its qualifications.

## Bill of Quantities

### B. Preamble

1. The Bill of Quantities shall be read in conjunction with the Conditions of Contract, Specifications and Drawings.
2. The quantities given in the Bill of Quantities are estimated and provisional and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work executed as per specifications & drawings and measured by the Contractor and verified by the Engineer and valued at the rates and prices entered in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix as per the Contract.
3. The rates and prices entered in the priced Bill of Quantities shall, except as otherwise provided under the Contract include all costs of Contractor's plant, labour, supervision, materials, execution, insurance, profit, taxes and duties, *as applicable in the Borrower's Country (modified from time to time)* together with all general risks, liabilities and obligations set out or implied in the Contract. Furthermore, all duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, as on the date 28 days prior to deadline for submission of Bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.
4. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of items against which the Contractor will have failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities. The units and rates in figures entered into the Bill of Quantities should be typewritten or if written by hand, must be in print form. Bill of Quantities not presented accordingly may be considered nonresponsive.
5. The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related items of the Works such as Employer's requirement in Section 6 of the Bidding Documents including Engineer's Laboratory along with equipment and its running expense, survey equipment and their maintenance for entire project life, Environment Management Plan (EMP), Resettlement Plan etc.
6. General directions and descriptions of works and materials are not necessarily repeated not summarized in the Bill of Quantities. Reference to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.
7. Provisional sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer and the Employer in accordance with Conditions of Contract.
8. Note: The bid price is inclusive of all Environmental, Health and Safety management and compliance cost.

### B. Work Items

1. Bill of Quantities (BOQs) are attached.
2. Bidders shall Price the Bill of Quantities in Pakistani Rupees Only.



## Financial Situation

### Form FIN – 3: Availability of Financial Resources

Bidders must demonstrate sufficient financial resources, usually comprising of Working Capital supplemented by credit line statements or overdraft facilities and others to meet the Bidder's financial requirements for

- (a) its current contract commitments, and
- (b) the subject contract.

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: \_\_\_\_\_

Financial Resources		
No.	Source of financing	Amount (PKR or \$ equivalent)
1	Working Capital (to be taken from FIN - 1)	
2	Credit Line <sup>a</sup>	
3	Other Financial Resources	
	Total Available Financial Resources	

<sup>a</sup> To be substantiated by a letter from the bank issuing the line of credit (i) *project specific*; (ii) *address to the Client*; (iii) *shall be issued within last 03 month*; (iv) *it should be confirmed by the concerned bank(s)*; (v) *it should be unconditional*; and (vi) *it must be for the complete duration of the Project*.

### Form FIN – 4: Financial Requirement for Current Contract Commitments

Bidders (or each Joint Venture partner) should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: \_\_\_\_\_

Current Contract Commitments						
No.	Name of Contract	Employer's Contact (Address, Tel, Fax)	Contract Completion Date	Outstanding Contract Value (X) <sup>a</sup>	Remaining Contract Period in months (Y) <sup>b</sup>	Monthly Financial Resources Requirement (X / Y)
1						
2						
3						
4						
Total Monthly Financial Requirements for Current Contract Commitments						PKR or \$ equivalent .....

<sup>a</sup> Remaining outstanding contract values to be calculated from 28 days prior to the bid submission deadline (PKR or \$ equivalent based on the foreign exchange rate as of the same date).

<sup>b</sup> Remaining contract period to be calculated from 28 days prior to bid submission deadline.

### Form FIN - 5: Self-Assessment Tool for Bidder's Compliance to Financial Resources (Criterion 2.1 of Section 3)

This form requires the same information submitted in Forms FIN - 3 and FIN - 4. All conditions of "Available Financial Resources Net of CCC  $\geq$  Requirement for the Subject Contract" must be satisfied to qualify.

#### Form FIN - 5A: For Single Entities

For Single Entities: (A)	Total Available Financial Resources from FIN – 3 (B)	Total Monthly Financial Requirement for Current Contract Commitments (CCC) from FIN – 4 (C)	Available Financial Resources Net of CCC $D = (B - C)$	Requirement for the Subject Contract (E)	Results: Yes or No [D must be greater than or equal to E] (F)
_____ (Name of Bidder)				.....	

#### Form FIN - 5B: For Joint Ventures

For Joint Ventures: (A)	Total Available Financial Resources from FIN – 3 (B)	Total Monthly Financial Requirement for Current Contract Commitments (CCC) from FIN – 4 (C)	Available Financial Resources Net of CCC $D = (B - C)$	Requirement for the Subject Contract (E)	Results: Yes or No [D must be greater than or equal to E] (F)
One Partner:					
_____ (Name of Partner)				.....	
Each Partner:					
_____ (Name of Partner 1)				.....	
_____ (Name of Partner 2)				.....	
_____ (Name of Partner 3)				.....	
All partners combined	$\Sigma D =$ Sum of available financial resources net of current contract commitments for all partners		$\Sigma D =$ _____	.....	

#### - Note -

Form FIN – 5 is made available for use by the bidder as a self-assessment tool, and by the Employer as an evaluation work sheet, to determine compliance with the financial resources requirement as stated in 2.1. Failure to submit Form FIN - 5 by the Bidder shall not lead to bid rejection.

# Technical Proposal

**Joint Venture Agreement (in case of JV) in accordance with ITB 11.2**

**Personnel**

**Equipment**

**Site Organization**

**Method Statement**

**Mobilization Schedule**

**Construction Schedule**

**Environmental, Health and Safety Management Plan (EHSMP)**

**Environmental, Health and Safety Code of Conduct**

**Other Documents in accordance with ITB 11.1(h) of Section 2-Bid Data Sheet,**

## Personnel

### Form PER – 1: Proposed Personnel

Bidder should provide the details of the proposed personnel and their experience record in the relevant Information Forms below for each candidate:

1.	Title of position
	Name
2.	Title of position
	Name
3.	Title of position
	Name
4.	Title of position
	Name
5.	Title of position
	Name
6.	Title of position
	Name
etc.	Title of position
	Name

**-- Note --**

*All titles of positions will be as listed in Section 6 (Employer's Requirements).*

**Form PER – 2: Résumé of Proposed Personnel**

The Bidder shall provide all the information requested below. Use one form for each position.

<b>Position</b>		
<b>Personnel information</b>	<b>Full Legal Name</b>	<b>Date of birth</b>
	<b>Known as</b>	<b>Place of Birth</b>
	<b>Nationality</b>	<b>Citizenship</b>
	<b>Type of Government ID</b>	<b>ID number</b>
	<b>Attach a copy of ID to this form</b>	
	<b>Professional qualifications</b>	
<b>Present employment</b>	<b>Name of employer</b>	
	<b>Address of employer</b>	
	<b>Telephone</b>	<b>Contact (manager / personnel officer)</b>
	<b>Fax</b>	<b>E-mail</b>
	<b>Job title</b>	<b>Years with present employer</b>

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

<b>From</b>	<b>To</b>	<b>Company/Project/Position/Relevant Technical and Management Experience</b>

## Equipment

### Form EQU: Equipment

The Bidder shall provide adequate information and details to demonstrate clearly that it has the capability to meet the equipment requirements indicated in Section 6 (Employer's Requirements), using the Forms below. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

<b>Item of Equipment</b>					
<b>Equipment Information</b>	<table border="1"> <tr> <td><b>Name of manufacturer</b></td> <td><b>Model and power rating</b></td> </tr> <tr> <td><b>Capacity</b></td> <td><b>Year of manufacture</b></td> </tr> </table>	<b>Name of manufacturer</b>	<b>Model and power rating</b>	<b>Capacity</b>	<b>Year of manufacture</b>
	<b>Name of manufacturer</b>	<b>Model and power rating</b>			
<b>Capacity</b>	<b>Year of manufacture</b>				
<b>Current Status</b>	<table border="1"> <tr> <td><b>Current location</b></td> </tr> <tr> <td><b>Details of current commitments</b></td> </tr> </table>	<b>Current location</b>	<b>Details of current commitments</b>		
<b>Current location</b>					
<b>Details of current commitments</b>					
<b>Source</b>	<table border="1"> <tr> <td colspan="2"><b>Indicate source of the equipment</b></td> </tr> <tr> <td><input type="checkbox"/> Owned</td> <td><input type="checkbox"/> Rented    <input type="checkbox"/> Leased    <input type="checkbox"/> Specially manufactured</td> </tr> </table>	<b>Indicate source of the equipment</b>		<input type="checkbox"/> Owned	<input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured
<b>Indicate source of the equipment</b>					
<input type="checkbox"/> Owned	<input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured				

Omit the following information for equipment owned by the Bidder.

<b>Owner</b>	<b>Name of owner</b>	
	<b>Address of owner</b>	
	<b>Telephone</b>	<b>Contact name and title</b>
	<b>Fax</b>	<b>Telex</b>
<b>Agreements</b>	<b>Details of rental / lease / manufacture agreements specific to the project</b>	

## Joint Venture Agreement in accordance with ITB 11.2:

The Joint Venture Agreement or a Letter of Intent to execute a Joint Venture Agreement in the event of the successful Bid, shall include the following:

- (a) All partners shall be jointly and severally liable;
- (b) The lead partner shall be clearly identified and nominated;
- (c) The financial share of each partner shall be clearly stated;
- (d) Corresponding to the financial share of each partner, the roles and responsibilities of each partner shall also be specified in conformance with requirement of Works stated in the Method Statement; and
- (e) Any other requirements as per the applicable law.

In case a letter of intent to execute the Joint Venture Agreement is submitted by the Bidder at the time of submission of the Bid, the Bidder shall be bound to submit a duly executed Joint Venture Agreement to the Employer immediately after the issuance of Letter of Acceptance but not later than 28 days after the issuance of the same. Such Joint Venture Agreement, thus submitted by the successful Bidder must contain the information postulated above. Failure to comply with this condition may lead to the rejection of Bid and forfeiture of Bid Security and/or Bid Securing Declaration, as the case may be.

## Site Organization

**[Note:** *Evaluation of the Bidder's Site Organization will include an assessment of the Bidder's capacity to mobilize key personnel for the Contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section 6 (Employer's Requirements).]*

## Method Statement

The bidder **shall** provide detailed Method Statement of executing the project. The bidder shall also indicate the machinery to be used and key personnel showing their responsibilities.

In case of a JV, the Method Statement **shall** include clear delineation of activities / roles to be performed by each JV partner consistent with the indicated JV share in the JV Agreement.

## Mobilization Schedule

The Mobilization Schedule should reflect the no-objection request and approval step for Site-Specific Environmental, Health and Safety Management Plan as per Contract Conditions.

Bidder shall provide mobilization Schedule conforming with the requirement of condition of contract Clause 14.2.

## Construction Schedule

**[Note:** *Evaluation of the Bidder's Construction Schedule will include an assessment of the Bidder's technical capacity to mobilize equipment for the Contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section 6 (Work's Requirements).]*



*Bidders must provide their Construction Schedule on primavera / MS project or equivalent by allocating the equipment and other resources, critical activities must be identified.]*

### **Environmental, Health and Safety Management Plan (EHSMP)<sup>6</sup>**

The Bidder shall submit an outline Environmental, Health and Safety Management Plan (EHSMP) commensurate with the risks and impacts of the proposed works and activities. These strategies and plans shall describe in detail the actions, materials, equipment, management processes etc. that will be implemented by the Contractor, and its subcontractors.

In developing these strategies and plans, the Bidder shall have regard to the EHS provisions of the contract and EHS risks including those as may be more fully described in Section 6 (Employers' Requirements).

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<sup>6</sup> For projects categorized as Category C for environment for which no EMP has been prepared, this subsection should be omitted.

## Environmental, Health and Safety Code of Conduct

### Environmental, Health and Safety Code of Conduct for Contractor's Personnel Form

#### **Note to Bidder**

*The minimum content of the EHS Code of Conduct form as set out by the Employer shall not be substantially modified. However, the Bidder may add requirements as appropriate, including to take into account Contract-specific issues/risks.*

*The Bidder shall initial and submit the EHS Code of Conduct form as part of its bid.*

### ENVIRONMENTAL, HEALTH AND SAFETY CODE OF CONDUCT FOR CONTRACTOR'S PERSONNEL

We are the Contractor, [enter name of Contractor]. We have signed a contract with [enter name of Employer] for [enter description of the Works]. These Works will be carried out at [enter the Site and other locations where the Works will be carried out]. Our contract requires us to implement measures to address environmental, health and safety risks related to the Works.

This EHS Code of Conduct is part of our measures to deal with environmental, health and safety risks related to the Works. It applies to all our staff, labourers and other employees at the Works Site or other places where the Works are being carried out. It also applies to the personnel of each subcontractor and any other personnel assisting us in the execution of the Works. All such persons are referred to as "**Contractor's Personnel**" and are subject to this EHS Code of Conduct.

This EHS Code of Conduct identifies the behavior that we require from all Contractor's Personnel.

Our workplace is an environment where unsafe, offensive, abusive or violent behavior will not be tolerated and where all persons should feel comfortable raising issues or concerns without fear of retaliation.

### REQUIRED CONDUCT

Contractor's Personnel shall:

1. carry out his/her duties competently and diligently;
2. comply with this EHS Code of Conduct and all applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other Contractor's Personnel and any other person;
3. maintain a safe working environment including by:
  - (a) ensuring that workplaces, machinery, equipment and processes under each person's control are safe and without risk to health;
  - (b) wearing required personal protective equipment;
  - (c) using appropriate measures relating to chemical, physical and biological substances and agents; and
  - (d) following applicable emergency operating procedures.
4. report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and serious danger to his/her life or health;
5. treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers or children;

6. report violations of this EHS Code of Conduct; and
7. not retaliate against any person who reports violations of this EHS Code of Conduct, whether to us or the Employer, or who makes use of the grievance mechanism for Contractor's Personnel or the project's Grievance Redress Mechanism.

## RAISING CONCERNS

If any person observes behavior that he/she believes may represent a violation of this EHS Code of Conduct, or that otherwise concerns him/her, he/she should raise the issue promptly. This can be done by call [ ] to reach the Contractor's hotline (*if any*) and leave a message.

The person's identity will be kept confidential, unless reporting of allegations is mandated by the country law. Anonymous complaints or allegations may also be submitted and will be given all due and appropriate consideration. We take seriously all reports of possible misconduct and will investigate and take appropriate action. We will provide warm referrals to service providers that may help support the person who experienced the alleged incident, as appropriate.

## CONSEQUENCES OF VIOLATING THE ENVIRONMENTAL, HEALTH AND SAFETY CODE OF CONDUCT

Any violation of this EHS Code of Conduct by Contractor's Personnel may result in serious consequences, up to and including termination and possible referral to legal authorities.

### FOR CONTRACTOR'S PERSONNEL:

I have received a copy of this EHS Code of Conduct written in a language that I comprehend. I understand that if I have any questions about this EHS Code of Conduct, I can contact [*enter name of Contractor's contact person(s) with relevant experience*]] requesting an explanation.

Name of Contractor's Personnel: [*insert name*]

Signature: \_\_\_\_\_

Date: (*day month year*): \_\_\_\_\_

Countersignature of authorized representative of the Contractor:

Signature: \_\_\_\_\_

Date: (*day month year*): \_\_\_\_\_

## Updating of Bidder's Qualification

The Bidder shall update the information given during the corresponding prequalification exercise to demonstrate that he continues to meet the criteria used at the time of prequalification regarding

- (a) Eligibility
- (b) Historical Contract Nonperformance
- (c) Financial Situation
  - (i) Historical Financial Performance
  - (ii) Average Annual Construction Turnover

For this purpose, the Bidder shall use the relevant forms included in this Section.

**Form ELI - 1: Bidder's Information Sheet**

<b>Bidder's Information</b>			
		<b>Information of the Bidder</b>	<b>If the Bidder is a subsidiary or branch, information of any parent company/companies</b>
<b>Names</b>	<b>Full legal name(s)</b>		
	<b>Full trading name(s) (if any)</b>		
<b>Addresses</b>	<b>Registered address(es)</b>		
	<b>Trading address(es)</b>		
	<b>Postal address(es) (if different from trading address)</b>		
<b>Type of organization</b>			
<b>Country of constitution/incorporation/registration</b>			
<b>Year of constitution/incorporation/registration</b>			
<b>Corporate or registration number</b>			
<b>In case of a Joint Venture, legal name of each partner</b>			
<b>Bidder's authorized representative</b> (name, address, telephone number(s), fax number(s), e-mail address)			
<b>Attached are copies of the following documents:</b> <ol style="list-style-type: none"> <li>1) In case of a single entity, articles of incorporation or constitution and company incorporation/registration of the legal entity named above, in accordance with ITB 4.1 and ITB 4.2.</li> <li>2) Authorization to represent the firm or Joint Venture named above, in accordance with ITB 20.2.</li> <li>3) In case of a Joint Venture, a letter of intent to form a Joint Venture or Joint Venture agreement, in accordance with ITB 4.1.</li> <li>4) In case of a government-owned enterprise, any additional documents not covered under 1 above required to comply with ITB 4.5.</li> </ol>			

**Form ELI - 2: Joint Venture Information Sheet**

Each partner of the Joint Venture and Specialist Subcontractor must fill out this form separately.

<b>Joint Venture / Specialist Subcontractor Information</b>			
<b>Bidder's legal name</b>			
		<b>Information of Joint Venture Partner or Specialist Subcontractor</b>	<b>If any Joint Venture Partner or Specialist Subcontractor is a subsidiary or branch, information of any parent company/companies</b>
<b>Names</b>	<b>Full Legal name(s)</b>		
	<b>Full trading name(s) (if any)</b>		
<b>Addresses</b>	<b>Registered address(es)</b>		
	<b>Trading address (es)</b>		
	<b>Postal address (es) (if different from trading address)</b>		
<b>Type of organization</b>			
<b>Country of constitution/incorporation/registration</b>			
<b>Year of constitution/incorporation/registration</b>			
<b>Corporate or registration number</b>			
<b>Joint Venture Partner's or Specialist Subcontractor's authorized representative information</b> (name, address, telephone number(s), fax number(s), e-mail address)			
<b>Attached are copies of the following documents:</b> <ol style="list-style-type: none"> <li>1) Articles of incorporation or constitution and company incorporation/registration of the legal entity named above, in accordance with ITB 4.1 and ITB 4.2.</li> <li>2) Authorization to represent the firm named above, in accordance with ITB 20.2.</li> <li>3) In the case of a government-owned enterprise, documents establishing legal and financial autonomy and compliance with commercial law, in accordance with ITB 4.5.</li> </ol>			

### Form CON - 1: Historical Contract Nonperformance

Each Bidder must fill out this form in accordance with Criterion 2.2(b) of Section 3 (Evaluation and Qualification Criteria) to describe any history of nonperforming contracts and pending litigation or arbitration formally commenced against it.

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: \_\_\_\_\_

**Table 1: History of Nonperforming Contracts**

Choose one of the following:			
<input type="checkbox"/> No nonperforming contracts.			
<input type="checkbox"/> Below is a description of nonperforming contracts involving the Bidder (or each Joint Venture partner if Bidder is a Joint Venture).			
Year	Description	Amount of Nonperformed Portion of Contract (\$ equivalent)	Total Contract Amount (\$ equivalent)
[insert year]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country] Reason(s) for nonperformance: [indicate main reason(s)]	[insert amount]	[insert amount]

**Table 2: Pending Litigation and Arbitration**

Choose one of the following:			
<input type="checkbox"/> No pending litigation, arbitration or any other material events impacting the net worth and/or liquidity of the bidder.			
<input type="checkbox"/> Below is a description of all pending litigation, arbitration involving the Bidder or any other material events impacting the net worth and/or liquidity of the bidder (or each Joint Venture partner if Bidder is a Joint Venture).			
Year	Matter in Dispute	Value of Pending Claim in \$ Equivalent	Value of Pending Claim as a Percentage of Net Worth
[insert year]	Contract Identification, as applicable: [indicate complete contract name/ number, and any other identification] Name of Employer, parties involved in the material events impacting the net worth and/or liquidity of the bidder: [insert full name] Address of Employer, parties involved in the material events impacting the net worth and/or liquidity of the bidder: [insert street/city/country] Matter of Dispute: [indicate full description of dispute] Party who initiated the dispute: [indicate "Employer" or "Contractor"] Status: [indicate status of dispute]	[insert amount]	[insert amount]

**Note -**

Table 2 of this form shall only be included if Criterion 2.2(b) of Section 3 (Evaluation and Qualification Criteria) is applicable.

## Form CON – 2: EHS Performance Declaration

Each Bidder must fill out this form in accordance with Criterion 2.2.4 of Section 3 (Evaluation and Qualification Criteria).

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: \_\_\_\_\_

In case of a Specialist Subcontractors, each Specialist Subcontractor must fill out this form and provide the Specialist Subcontractor's name:

Specialist Subcontractor: \_\_\_\_\_

Environmental and Health and Safety Performance Declaration in accordance with Section 3 (Evaluation and Qualification Criteria)			
<input type="checkbox"/> <b>No suspension or termination of contract:</b> An employer has not suspended or terminated a contract and/or called the performance security for a contract for reasons related to Environmental or Health and Safety performance since the date specified in Section 3 (Evaluation and Qualification Criteria), Criterion 2.5.			
<input type="checkbox"/> <b>Declaration of suspension or termination of contract:</b> The following contract(s) has/have been suspended or terminated and/or Performance Security called by an employer(s) for reasons related to Environmental or Health and Safety performance since the date specified in Section 3 (Evaluation and Qualification Criteria), Criterion 2.5. Details are described below:			
<input type="checkbox"/> <b>Declaration of request for replacement of Key Environment, Health and Safety Personnel:</b> The following contract(s) has/have experienced a request by the Employer to replace Environmental, Health and Safety Personnel for reasons related to Environmental or Health and Safety performance since the date specified in Section 3 (Evaluation and Qualification Criteria), Criterion 2.5. Details are described below:			
<input type="checkbox"/> <b>Declaration of past fatality resulted from EHS issues on site:</b> The following contract(s) has/have experienced a fatality resulted from EHS issues on site since the date specified in Section 3 (Evaluation and Qualification Criteria), Criterion 2.5. Details are described below:			
Year	Suspended or terminated portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and US\$ equivalent)
[insert year]	[insert amount and percentage]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country] Reason(s) for suspension or termination: [indicate main reason(s) e.g. discharge over environmental limit, workers did not have required health and safety permits to undertake high risk work, work carried out was not adhered to approved construction methodology and quality control plan]	[insert amount]
[insert year]	[insert amount and percentage]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name]	[insert amount]



		Address of Employer: <i>[insert street/city/country]</i> Reason(s) for suspension or termination: <i>[indicate main reason(s)]</i>	
...	...	<i>[list all applicable contracts]</i>	...
<b>Performance Security called by an employer(s) for reasons related to EHS performance</b>			
Year	Contract Identification		Total Contract Amount (current value, currency, exchange rate and US\$ equivalent)
<i>[insert year]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Employer: <i>[insert full name]</i> Address of Employer: <i>[insert street/city/country]</i> Reason(s) for suspension or termination: <i>[indicate main reason(s) e.g. discharge over environmental limit, workers did not have required health and safety permits to undertake high risk work, work carried out was not adhered to approved construction methodology and quality control plan]</i>		<i>[insert amount]</i>
<b>Key EHS personnel replacement requested by the Employer for reasons related to EHS performance</b>			
Year	Contract Identification and Reasons		Personnel replacement action and results
<i>[insert year]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Employer: <i>[insert full name]</i> Address of Employer: <i>[insert street/city/country]</i> Reason(s) for requesting for replacement: <i>[indicate main reason(s)]</i>		<i>[insert description]</i>
<b>Fatality due to EHS issues on Site</b>			
Year	Contract Identification		Follow-on actions taken by the contractor
<i>[insert year]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Employer: <i>[insert full name]</i> Address of Employer: <i>[insert street/city/country]</i> Description of fatality event: Causation:		<i>[insert description]</i>

**Form FIN - 1: Historical Financial Performance**

Each Bidder must fill out this form.

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: \_\_\_\_\_

Financial Data for Previous _____ Years [PKR or \$ Equivalent]		
Year 1:	Year 2:	Year __:

**Information from Balance Sheet**

Total Assets (TA)			
Total Liabilities (TL)			
Net Worth = TA – TL			
Current Assets (CA)			
Current Liabilities (CL)			
Working Capital = CA - CL			

Most Recent Working Capital		To be obtained for most recent year and carried forward to FIN - 3 Line 1; in case of Joint Ventures, to the corresponding Joint Venture Partner's FIN - 3.
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**Information from Income Statement**

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

- ☐ Attached are copies of financial statements (balance sheets including all related notes and income statements) for the last \_\_\_\_\_ years, as indicated above, complying with the following conditions:
- 1) Unless otherwise required by Section 3 of the Bidding Document, all such documents reflect the standalone financial situation of the legal entity or entities comprising the Bidder and not the Bidder's parent companies, subsidiaries, or affiliates.
  - 2) Historical financial statements must be audited by a certified accountant.
  - 3) Historical financial statements must be complete, including all notes to the financial statements.
  - 4) Historical financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

**Form FIN - 2: Average Annual Construction Turnover**

Each Bidder must fill out this form.

The information supplied should be the Annual Turnover of the Bidder or each partner of a Joint Venture for the total certified payments received from the clients for contracts in progress or completed, converted to US dollars at the rate of exchange at the end of the period reported.

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: \_\_\_\_\_

Annual Turnover Data for the Last _____ Years (Construction only)			
Year	Amount Currency	Exchange Rate	PKR or \$ Equivalent

Average Annual Construction Turnover

## Section 5: Eligible Countries

This section contains the list of eligible countries.

- |                                      |                                     |
|--------------------------------------|-------------------------------------|
| 1. Afghanistan                       | 35. Micronesia, Federated States of |
| 2. Armenia                           | 36. Mongolia                        |
| 3. Australia                         | 37. Myanmar                         |
| 4. Austria                           | 38. Nauru                           |
| 5. Azerbaijan                        | 39. Nepal                           |
| 6. Bangladesh                        | 40. The Netherlands                 |
| 7. Belgium                           | 41. New Zealand                     |
| 8. Bhutan                            | 42. Norway                          |
| 9. Brunei Darussalam                 | 43. Pakistan                        |
| 10. Cambodia                         | 44. Palau                           |
| 11. Canada                           | 45. Papua New Guinea                |
| 12. China, People's Republic of      | 46. Philippines                     |
| 13. Cook Islands                     | 47. Portugal                        |
| 14. Denmark                          | 48. Samoa                           |
| 15. Fiji                             | 49. Singapore                       |
| 16. Finland                          | 50. Solomon Islands                 |
| 17. France                           | 51. Spain                           |
| 18. Georgia                          | 52. Sri Lanka                       |
| 19. Germany                          | 53. Sweden                          |
| 20. Hong Kong, China                 | 54. Switzerland                     |
| 21. India                            | 55. Tajikistan                      |
| 22. Indonesia                        | 56. Taipei, China                   |
| 23. Ireland                          | 57. Thailand                        |
| 24. Italy                            | 58. Timor-Leste                     |
| 25. Japan                            | 59. Tonga                           |
| 26. Kazakhstan                       | 60. Turkey                          |
| 27. Kiribati                         | 61. Turkmenistan                    |
| 28. Korea, Republic of               | 62. Tuvalu                          |
| 29. Kyrgyz Republic                  | 63. United Kingdom                  |
| 30. Lao People's Democratic Republic | 64. United States                   |
| 31. Luxembourg                       | 65. Uzbekistan                      |
| 32. Malaysia                         | 66. Vanuatu                         |
| 33. Maldives                         | 67. Viet Nam                        |
| 34. Marshall Islands                 | 68. Niue                            |

# Section 6: Employer’s Requirements

This Section contains the Specifications, Drawings, Supplementary Information that describe the Works to be procured, Personnel Requirements, and Equipment Requirements.

## Table of Contents

Specifications .....6-2

Environmental, Health and Safety Management Requirement .....6-3

Drawings .....6-4

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Personnel Requirements .....6-6

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Bill of Quantities

## Specifications

- (a) General Specifications (NHA's General Specifications 1998) attached as Bidding Document, Volume–II : Specifications
  
- (b) Special Specifications / Provisions (SS & SP–Items) Attached within Bidding Document as Special Specifications / Provisions (SP) under this Section 6 (as follows)

## Part B: Special Specifications / Provision (SS - SP)

<b>SS- SP</b>	<b>ADDENDUM TO NHA GENERAL SPECIFICATIONS (Dec 1998) and SPECIAL SPECIFICATIONS / PROVISIONS</b>
<b>ITEM 101</b>	<b>Clearing and Grubbing</b>
<b>SS</b>	<b>ROCK FILLING FROM BORROW IN PONDING AREA</b>
<b>SS</b>	<b>REMOVAL OF DUMPED SOIL / MATERIAL ON ROAD SIDES / EDGES</b>
<b>ITEM 106</b>	<b>EXCAVATION OF UNSUITABLE OR SURPLUS MATERIAL</b>
<b>SS – SP-</b>	<b>PVC PIPES FOR WEEP HOLES (25 mm DIAMETER)</b>
<b>ITEM 400(A)</b>	<b>BRIDGES AND CULVERTS</b>
<b>SS- SP</b>	<b>REPAIR AND STRENGTHENING OF STRUCTURES</b>
<b>SP-</b>	<b>PVC SERVICE PIPES 150 mm DIAMETER</b>
<b>SP-</b>	<b>GALVANISED IRON (G.I) DRAINAGE PIPE</b>
<b>SP-</b>	<b>STRUCTURAL STEELWORK</b>
<b>SS</b>	<b>EMPLOYER'S AND ENGINEER'S FACILITIES</b>

### SPECIAL SPECIFICATIONS - Bill-7

#### Bill 7 - GENERAL ITEMS

##### DESCRIPTION

##### The Engineer / Project Facilities

- I (A)** Employer's Facilities- Provide Employer's Vehicles  
**1** Employer Vehicles

- II (B)** Engineer's Facilities- Provide Engineer's Vehicles  
**2** - Team Leader  
**3** - Resident Engineer  
**4** - Assistant Resident Engineer

##### Team Leader's Facilities-

- 5.1** - Provide, Furnish and Equipped Office  
**5.2** - Provide, Furnish and Equipped Residential Accommodation

##### Resident Engineer's Facilities-

- 5.3** - Provide, Furnish and Equipped Office  
**5.4** - Provide, Furnish and Equipped Residential Accommodation

- 5.5      Assistant Resident Engineer's Facilities**
  - Provide, Furnish and Equipped Office and Residential Accommodation**
- 5.6      Resident Engineer's Facilities- - Provide, Furnish and Equipped**
  - Base Laboratory**
- 5.7      Assistant Engineer's Facilities- Provide, Furnish and Equipped**
  - Field Laboratory**
- 5.8      Assistant Engineer's Facilities- Provide and Maintain**
  - Survey Equipment**



## **SS- SP ADDENDUM TO NHA GENERAL SPECIFICATIONS (DEC 1998) AND SPECIAL SPECIFICATIONS / PROVISIONS**

### **ITEM 101 CLEARING AND GRUBBING**

#### **Delete & Replace by**

CLEARING AND GRUBBING (INCLUDING JUNGLE CUTTING / THORNY BUSHES)

#### **101.1 Description**

##### **Delete & Replace by**

This work shall consist of removal to the specified depth, grubbing and disposal of all surface objects, as and where directed in writing by the Engineer, stumps, roots, jungle, thorny bushes, vegetation, logs, rubbish and other objectionable material except such objects as are designated to remain or are to be removed in accordance with other section of specification.

#### **101.2.1 Clearing/Grubbing**

##### **Para 5 Delete & Replace by**

The excavation and removal of jungle, thorny bushes, roots and stumps including backfilling and compacting of holes and restoring the natural ground to the original condition shall be responsibility of the contractor for which no extra payment shall be made to him. The trees, stumps & roots remains the property of the Employer, which shall be delivered at designated place as directed by the Engineer.

#### **101.3.1 Measurement**

##### **Para 1 Delete & Replace by**

Clearing and grubbing including jungle cutting / thorny bushes will be measured for payment only on areas so designated in writing by the Engineer or shown on the drawings. The accepted quantity to be paid for shall be the number of square meters satisfactorily cleared and grubbed.

## **SS ROCK FILLING FROM BORROW IN PONDING AREA**

### **1.1 DESCRIPTION**

This work shall consist of hauling of rock from borrow/quarry and placing in ponding area according to the typical section, level, lines and drawings or as directed by the Engineer.

### **1.2 Material Requirements**

Borrow rock for filling in ponding area shall be hard, tough, sound, dense and durable, resistant to the action of water and suitable in all respect for the purpose intended.

Sample of rock to be used shall be submitted to and approved by the Engineer before use in permanent work.

Rock shall comply the following requirements.

- Los Angeles Abrasion shall not be more than 40%
- Apparent specific gravity not less than 2.5
- Water absorption shall not be more than one Percent.
- Weight of stones shall be ranging between 50 kg to 80 kg.

Shale and fractured rock shall not be allowed for filling in ponding area.

### 1.3 Measurement and Payment

#### 1.3.1 Measurement

Quantity of rock to be paid for shall be measured by the theoretical volume in place in cubic meter as shown on drawing/ typical cross section. No-allowance shall be given for rock materials placed out side the theoretical limits, shown on the cross section.

#### 1.3.2 Payment

The accepted quantities measured as above shall be paid for at the contract unit price per cubic meter of rock, for the item listed below and shown in the Bill of Quantities, which price and payment shall constitute full compensation for furnishing all materials, hauling, placing, watering, rolling, labour, equipment, tools and incidentals necessary to complete this item.

Pay Item No.	Description	Unit of Measurement
-----		
SS	Rock filling in ponding area	CM

## SS REMOVAL OF DUMPED SOIL / MATERIAL ON ROAD SIDES / EDGES

### 1.1 Description

The work shall consist of removal and dispose off the dumped material / soil on road sides / edges to designated place or as directed by the Engineer, which is declared to be removed and disposed of in writing by the Engineer

### 1.2 Measurement and Payment

The quantity of removal of dumped soil / material shall not be measured separately and deemed to be included and paid in other pay items.

### 1.3 Payment

The quantities determined as provided above shall not be paid separately and deemed to be considered inclusive in other pay items including labour, equipment, tools and incidentals necessary to complete the item.

## ITEM 106 EXCAVATION OF UNSUITABLE OR SURPLUS MATERIAL

## 106.2 Constructions & Requirements

### Para 2 Delete and Replace by

Any material surplus to the requirements or any material declared in writing by the Engineer to be unsuitable shall be disposed of and leveled in thin layers by the Contractor outside the right of way as directed by the Engineer. The Engineer shall decide regarding the unsuitability of the material by conducting appropriate laboratory tests and surplus.

## SS – SP- PVC PIPES FOR WEEP HOLES (25 mm DIAMETER)

### 1.1 Description

The work shall consist of providing and fixing in position PVC for weep holes sizes of spacing shown on the drawing including in all respects and fixing in concrete properly as indicated on the drawing.

### 1.2 Material Requirements

PVC pipes and its fixture shall conform to BSS and ASTM standards.

### 1.3 Construction Requirements

The pipes should be free from all blemishes. Proper length of pipes as required should be fixed in the concrete. All work are to be completed as per drawing specifications and as directed by the Engineer.

### 1.4 Measurement and Payment

Pay Item No.	Description	Unit of Measurement
SP-	Providing and PVC pipe 25 mm diameter for weep holes	M

## ITEM 400(A) BRIDGES AND CULVERTS

### 400.A.3 Construction Requirements

#### a. Clearing the Site

Add text "bridges and culverts" after text "concrete pavement" in the fourth line of first paragraph. and add text "All faces of concrete which are to come in contact with the backfill soil or pavement materials shall be covered with two coats of hot bitumen of approved quality, before placing of any material around concrete" the end of the first paragraph.

## SS- SP REPAIR AND STRENGTHENING OF STRUCTURES

### 1.1 Description

The work shall consist of furnishing all materials, labour and equipment in performing all operations, in connection with the repair and strengthening of existing reinforced concrete, brickwork, masonry and steel structures.

## **1.2 Condition Survey and Cleaning**

The Contractor shall carryout the Condition Survey of the existing structures. For each and every structure details of the elements along with their condition shall be recorded and submitted to the Engineer for his decision. The details shall be in the form drawings along with photographs. The Engineer shall decide the level and details of rehabilitation required. No separate payment shall be made to the Contractor on this account. The rates and prices submitted by the Contractor shall be deemed to include the cost of all surveys and investigations.

The Contractor shall also carryout cleaning of the culverts and bridges and shall remove all vegetation organic matter from the structures. In addition to this de-silting of the culverts shall also be carried out. No additional payment shall be made on this account. The rates and prices submitted by the Contractor shall be deemed to include the cost of all cleaning, removal of organic matter and de-silting.

## **1.3 Material**

The materials for concrete shall conform to the requirements of Section 401 or otherwise specified.

The materials for brickwork and masonry shall conform to the requirements of Sections 410 respectively, or otherwise specified.

The reinforcement shall conform to the requirements of Section 404.

Epoxy resins shall be obtained from an approved manufacturer, such as Master Builder Technologies, Sika, Fosroc or equivalent whose products have proven to be highly satisfactory in similar works.

The epoxy to be used shall conform to the manufacturer's specifications and to the following requirements:

- To have mechanical strength and final appearance similar to that of the replaced concrete.
- To be highly adhesive (adhesion greater than concrete tensile stress).
- To have a modulus of elasticity 15 to 25% less than that of the replaced concrete in order to ensure a proper bond.
- To be abrasion resistant.

Anticorrosive epoxy paint, or approved equivalent, shall be used wherever the reinforcing steel is found to be uncovered.

## **1.4 Construction Requirements**

### **1.4.1 Reinforced Concrete Repair**

#### **1.4.1.1 Repair of Reinforced Concrete Surface or Masonry**

- Fine cracks shall be filled up with the binding material epoxy, such as, non-shrinkage Masterflow 524 or equivalent, using injecting system. Other cracks shall be routed out by cutting grooves, and filled up with non-shrink grout of plastic consistency as directed by the Engineer.

#### **1.4.1.2 Repair of Corrosion Induced Reinforced Concrete**

- Poor quality, deteriorated, unsound concrete shall be removed by using any concrete removal technique as per job specification, after adequate propping of structure from the ground.
- The surface of the concrete shall be thoroughly cleaned by approved method in order to remove all dirt.
- Full circumference of corroded and exposed steel rebars shall be cleaned to bare metal.
- After the removal of concrete, the reinforcement shall be cleaned by sand blasting or any other equivalent approved technique to bare metal. Existing steel shall be painted with an anti-corrosive material or approved equivalent. Additional steel dowels shall be used to achieve required development.

#### 1.4.1.3 Repair of Cracked or Unsound Concrete

- The rectification of cracked or unsound concrete shall be carried out by plastering.
- All plaster shall be Portland cement plaster, all coats of which shall be mixed in the following proportions by volume or otherwise specified.

One part cement

4 parts sand

Except where hand-mixing of small batches is approved by the Engineer, mechanical mixers of an approved type shall be used for the mixing of mortar. Mortar shall be thoroughly mixed with the proper amount of water until uniform in colour and consistency. Re-tempering will not be permitted. The walls shall be washed with fresh water and shall be kept damp for 2 hours before the plaster is applied. All masonry joints and concrete surfaces shall be properly prepared before plasterwork is commenced as per the directions of Engineer. Cement slurry shall be applied to the surface to be plastered and allowed to dry before plasterwork is commenced.

All joints in the masonry work, which are to be plastered, shall be raked out to a depth equal to not less than the width of the joints or as directed by the Engineer. Care shall be taken to avoid chipping of masonry, while raking out the joints. In case of new work, the raking out shall be done when mortar in joints is still green. The concrete surface shall be suitably roughened to provide necessary bound for plaster. All dirt, oil, grease, paint, etc. shall be cleaned and scrubbed with fresh water prior to plastering. Before commencement of plastering, the surface preparation shall be got approved in writing from the Engineer.

In case the thickness of plaster required is more than that specified in the respective item, the same shall be carried out in two layers. G.I. hexagonal wire netting 24 SWG X 3/4" (19 mm) shall be fixed over first layer by using 'U' nails or any other suitable arrangement approved by the Engineer, and finished in line and level in the final layer. No additional payment shall be made for extra thickness of plaster. The cost of providing G.I. netting and fixing shall be deemed to be included in the rates and prices quoted by the Contractor.

Patches of plaster size 150 mm x 150 mm shall be made at site about 2.0 m apart as gauge to ensure even plaster in one plane.

In any continuous face of wall, finishing treatment of any type should be carried out continuously and day-to-day breaker made to coincide with architectural breaks in order to avoid unsightly junctions. The entire work, including moulding, grooves, band, etc. shall be carried out in true line and level.

All plaster work shall be kept damp continuously for a period of 7 days. To prevent excessive evaporation due to weather condition, gunny bags may be hung/kept over the plaster and kept moist

for a period of 7 days. In case the contractor fails to carry out the curing work as specified, at any time, on any day, the Engineer shall, without serving any separate notice, engage at the risk and cost of the contractor, requisite labour, materials and equipment. The cost incurred towards curing operations made shall be recovered from the Contractor.

The plaster on all surfaces shall be perfectly plumb and shall be steel floated finished. The edges and corners shall represent a straight line. No extra payment shall be allowed for jambs, junctions, corners, edges, round surfaces, cement slurry base etc. The rates and prices quoted by the Contractor shall be deemed to include the cost of all materials, workmanship, labour, tools and plants and conformance of the works to these specifications.

#### **1.4.2 Brickwork and Masonry Repair**

##### **1.4.2.1 Repair of Brick on Masonry Surface**

It is intended to carryout flush pointing of the existing masonry walls of the culverts. The mortar to be used for pointing shall be 1:3 cement, sand, mortar with enough water content to make it workable. Sand, cement and water shall conform to the specifications laid down for the plaster work.

All joints are to raked out are cut out to a minimum depth of 25 mm. Joints which have weathered back deeper or are friable must be cut back to a firm seating. If the parts of the old masonry have weathered they must be replaced by the new masonry pieces fulfilling the requirements of brick masonry given in these specifications.

Prior to filling with new mortar pointing, the joint shall be cleaned out by careful brushing or the use of a pneumatic airline. The joint should be thoroughly flushed out with water from a large water spray using clean potable water to remove dust and loose material. Cement slurry shall be applied to effect bond between the pointing mortar and old surfaces.

Spray fully cleaned joints with clean 'potable' water on a fine mist setting before placing new mortar to avoid undue suction. Wipe dry, dense non-porous brick of surface water. Push new stiff mortar into the joint from a dampened hawk board and iron in with maximum possible pressure, against the back of the old mortar joint. Use appropriate (to suit joint widths) pointing keys made of flat steel, beaten-out rod or wood or a traditional flat bladed brick jointer, and push in evenly for the full joint width.

In case the loss of mortar in the old brick work is very deep the Contractor shall use dry mortar with little water and push it into the joint using wooden hammers as much as possible.

The Contractor shall be paid on the basis of the area to be pointed. The rates and prices quoted by the Contractor shall be deemed to include the supply of all materials, labour, workmanship, tools and plants necessary to complete the works in all respects.

#### **1.4.3 Connecting old Concrete / Masonry using Dowel bars**

In case it is necessary to connect the old concrete with the new concrete or old masonry walls within new ones dowel bars shall be used. The dowel bars shall be drilled into the old concrete / masonry parts as shown on the drawings. After the drilling is complete the hole shall be filled with epoxy of approved specifications.

#### **1.4.4 Removal of old Expansion Joints**

In case it becomes necessary to replace the old expansion joints of the bridges they shall be carefully removed by cutting a part of existing slab as shown on the drawings by using hand tools. The old expansion joints shall be handed over to the Employer. Care shall be taken not to damage the deck slabs as much as possible.

<b>Pay Item No.</b>	<b>Description</b>	<b>Unit of Measurement</b>
SS-SP(a)	Repair and Strengthening of existing structures (bridges):	
	(i) Repair of reinforced concrete surface or masonry	SM
	(ii) Repair of Corrosion induced reinforced concrete	SM
	(iii) Repair of Cracked or Unsound Concrete	
	a. Upto 20 mm thick	SM
	b. More than 20 mm thick upto 40 mm	SM
	(iv) Repair of brick or masonry surface	SM
	(v) Connecting Old Concrete / Masonry Using Dowel Bars	Ton
	(vi) Removal of Old Expansion Joints	M
SS-SP(b)	Repair and strengthening of existing structures (culverts and causeways):	
	(i) Repair of reinforced concrete surface or masonry	SM
	(ii) Repair of Corrosion induced reinforced concrete	SM
	(iii) Repair of Cracked or Unsound Concrete	
	a. Upto 20 mm thick	SM
	b. More than 20 mm thick upto 40 mm	SM
	(iv) Repair of brick or masonry surface	SM
	(v) Connecting Old Concrete / Masonry Using Dowel Bars	Ton
	(vi) Removal of Old Expansion Joints	M

**SP- PVC SERVICE PIPES 150 mm DIAMETER****1.1 Description**

The work shall consist of providing and fixing in position PVC for the services in deck slab of sizes of spacing shown on the drawing including all joining bends and fixing in concrete properly as indicated on the drawing.

**1.2 Material Requirements**

PVC pipe and its fixture shall conform to BSS and ASTM standards.

**1.3 Construction Requirements**

The pipes should be free from all blemishes. Proper length of pipes as required should be fixed in the concrete. All work are to be completed as per drawing specifications and as directed by the Engineer.

**1.4 Measurement and Payment**

<u>Pay Item No.</u>	<u>Description</u>	<u>Unit of Measurement</u>
SP-	Providing and PVC 150 mm diameter service pipe In bridge deck	M



**SP- GALVANISED IRON (G.I) DRAINAGE PIPE****1.1 DESCRIPTION**

This work shall consist of providing, making and fixing in position G.I pipes for the drainage of deck slab of sizes and spacing shown on the drawings including all threading, joining, tees, bends and fixing in concrete properly as indicated in the drawings. The pipes shall be painted with three coats of approved enamel paint.

**1.2 MATERIAL REQUIREMENT**

G.I. pipes having wall thickness of minimum 2 mm and its fixtures shall conform to BSS & ASTM standards.

**1.3 CONSTRUCTION REQUIREMENT**

The pipes should be free from all blemishes. Proper length of the pipes as referred should be cut and fixed with all fittings including fixing in the concrete. All works are to be completed as per drawings, specifications and as directed by the Engineer.

**1.4 MEASUREMENT AND PAYMENTS**

The measurement and payment for the pipe shall be the number of pipes provided, fitted and fixed in position. The accepted quantity measured as provided above shall be paid at the contract unit price as listed below and the BOQ, which price and payment shall constitute full compensation for labour, equipment and incidental necessary to complete the item in all respects.

<u>Pay Item No.</u>	<u>Description</u>	<u>Unit of Measurement</u>
SP-	Providing and fixing drainage 100 mm dia G.I Pipe in bridge deck.	M

**SP- STRUCTURAL STEELWORK****1. SCOPE**

These Specifications relate to the structural steelwork in all parts of the Works.

**2. MATERIALS****2.1 Steel**

All structural and rivet steel shall, before fabrication, comply with ASTM A36 and ASTM A572.

**2.2 Electrodes**

Mild steel electrodes for electric arc welding shall comply with the requirements of AWS D1.5.

**2.3 Steel for Bolts and Nuts**

All mild steel bolts and nuts shall conform to ASTM A325.

## 2.4 Washers

Plain washers shall be made of mild steel.

## 3. DIMENSIONS

All structural rolled shapes and the frames, weights, tolerances, etc., of all rolled shapes and other members used in any structure shall conform to the Eurocode or AISC and other relevant British Standards except as otherwise shown on the drawings.

Dimension, form, weight and tolerances, etc., of all rivets, bolts, nuts, studs, etc., shall conform to the requirements of the latest appropriate British Standards except as otherwise shown on the drawings.

## 4. WORKMANSHIP

### 4.1 Fabrication

All materials, before and after fabrication, shall be straight and shall be free from twists and loose scale or rust.

The cutting of member's lengths shall be performed by shearing, sawing or machine flame cutting. Hand flame cutting may be permitted subject to the approval of the Engineer. Sheared or cropped edges shall be dressed to a neat workman-like finish and shall be free from distortion where parts are to be in metal-to-metal contact. Care shall be taken to ensure that the clearance specified on the drawings are worked to. Clearance shall not be greater than 1.5 mm at each end. The erection clearance at ends of beams without web cleats shall not be more than 3 mm at each end. Where black bolts are used the holes may be made not more than 1.5 mm greater than the diameter of the bolts unless otherwise required by the Engineer.

Holes through more than one thickness of material for members, where possible, shall be drilled after the members are assembled and tightly clamped or bolted together. Punching may be permitted before assembly, provided the holes are punched 3 mm less in diameter than the required size and reamed after assembly to the full diameter. The thickness of material punched shall be not greater than 20 mm.

When holes are drilled in one operation through two or more separable parts, these parts, when so required by the Engineer, shall be separated after drilling and the burrs removed.

Holes in connecting angles and plates, other than splices, also in secondary members and light framing may be punched full size through material not over 12 mm thick, except where required for close tolerance or barrel bolts.

All matching holes for rivets and black bolts shall register with each other so that a gauge 1.5 mm in diameter larger than the diameter of hole will pass free through the assembled members in a direction at right angles to such members. Finished holes shall be not more than 1.5 mm in diameter larger than the diameter of the rivet or black bolt passing through them, unless otherwise required by the Engineer.

Holes for close tolerance and barrel bolts shall be drilled to a diameter equal to the nominal diameter of the shank or barrel subject to a tolerance of + 1.0 mm and 0 mm. Preferably, parts to be connected with close tolerance or barrel bolts shall be firmly held together by taking bolts or clamps and the holes drilled through all the thicknesses at one operation and subsequently reamed to size. All holes not drilled through all thicknesses at one operation shall be drilled to a smaller size and reamed out after assembly. Where this is not practicable, the parts shall be drilled and reamed separately through hard bushed steel jigs.

Holes for rivets or bolts shall not be formed by a gas cutting process.

The component parts shall be assembled in such a manner that they are neither twisted nor otherwise damaged, and shall be so prepared that the specified cambers are provided.

#### 4.2 **Bolting**

Where necessary, washers shall be tapered or otherwise suitably shaped to give the heads and nuts of bolts a satisfactory bearing.

The threaded portion of each bolt shall project through the nut at least one thread. The threaded length shall be clear of the total thickness of materials of members.

In all cases where the full bearing area of the bolt is to be developed, the bolt shall be provided with a washer of sufficient thickness under the nut to avoid any threaded portion of the bolt being within the thickness of the parts bolted together.

#### 4.3 **Welding**

Welding shall be in accordance with AWS D1.5.

The welders shall be experienced persons in structural steel work welding and shall qualify tests prescribed in AWS D1.5.

#### 4.4 **Machining of Butts, Caps and Bases**

Stanchion splices and butt joints of compression members dependent on contact for the transmission or compressive stresses, shall be accurately prepared to butt so that the permitted stress in bearing is not exceeded nor eccentricity of loading created which would induce secondary bending in the members. Stanchion caps and bases shall be prepared in a similar manner to the above and, where this is obtained by machining, care shall be taken that any attached gussets, connecting angles or channels are fixed with such accuracy that they are not reduced in thickness by more than 1.5 mm.

#### 4.5 **Slab Bases and Caps**

Slab bases and slab caps, except when cut from material with true surfaces, shall be accurately machined over the bearing surfaces and shall be in effective contact with the end of the stanchion. A bearing face which is to be grouted direct into a foundation need not be machined if such face is true and parallel to the upper face.

To facilitate grouting, holes shall be provided where necessary in stanchion bases for the escape of air.

#### 4.6 **Marking**

Each piece of steelwork shall be distinctly marked before delivery, in accordance with a marking diagram, and shall bear such other marks as will facilitate erection.

#### 4.7 **Prime Painting**

All surfaces shall be painted with one coat of red oxide alkyd primer unless otherwise required. The surface to be painted shall be cleaned to remove all loose scale and loose rust.

Shop contact surfaces shall be prime painted unless specified to the contrary. They shall be brought together while the paint is still wet.

Surfaces not in contact, but inaccessible after shop assembly, shall receive the full specified protective treatment before assembly. This does not apply to the interior of sealed hollow sections.

In the case of surfaces to be welded, the steel shall not be painted or metal coated within a suitable distance of any edges to be welded if the paint specified of the metal coating would be harmful to welders or impair the quality of the welds.

Welds and adjacent parent metal shall not be painted prior to de-slagging, inspection and approval.

Parts to be encased in concrete shall not be painted or oiled.

#### 4.8 Erection

The suitability and capacity of all plant and equipment used for erection shall be to the satisfaction of the Engineer.

All structural steel at the site shall be stored and handled so that the members are not subjected to excessive stresses and damage.

The positioning and levelling of all steelwork, the plumbing of stanchions and the placing of every part of the structure with accuracy shall be in accordance with the drawings and to the satisfaction of the Engineer.

During erection the work shall be securely bolted or otherwise fastened, and if necessary temporarily braced, so as to make adequate provision for all erection stresses and conditions, including those due to erection equipment and its operation. Neither riveting, permanent bolting nor welding shall be done until proper alignment has been obtained.

The erection of steel trusses and shuttering plates for concreting roof slab of blending silo shall also be carried out by the Contractor. This erection shall take place after completion of slip forming up to the top level of the silo.

#### 4.9 Painting After Erection

All surfaces to be painted shall be dry and thoroughly cleaned from all loose scale and rust. All rivet and bolt heads and site welds after de-slagging shall be cleaned. Damaged or deteriorated paint surfaces shall first be made good with the same type of paint as shop primer paint. The steelwork shall be painted with two coats of epoxy paint of approved make and shade. The cost of all painting is included in the unit rates of steelwork. In the galvanised steel pipe railing, all welds shall be ground smooth and painted with two coats of grey zinc base paint of approved quality.

The site painting shall not be done in rainy weather or when the humidity is such as to cause condensation on the surfaces to be painted.

The following type and thickness of paint have to be used on the steel structure and equipment.

##### For high temperature equipments

- a. Ethyl Zinc Phosphate ICI brand single coat as a primer with a thickness of 50 - 75μ.

- b. Deluxe dual pack aluminium finish paint ICI brand two coats with a thickness of 20 - 30μ of each coat.

For normal steel structure

- a. Zinc phosphate ICI brand two coats as a primer with a thickness of 75μ each coat.
- b. Polyurethane finish ICI brand two coats with a thickness of 50μ each coat.

#### 4.10 Bedding of Steelwork on Concrete

Bedding shall be carried out with neat cement grout of a consistency to completely fill the distance between the base plate and the top of concrete surface. The bedding shall not be carried out until the steelwork has been finally levelled and plumbed.

#### 4.11 Shop Drawings

The steelwork drawings supplied are design drawings.

The shop drawings shall also be supplied by the Civil Consultant, however in case of any emergency work Contractor may be asked for preparation of these drawings to some extent. Separate rates may be quoted for this job in per ton of steel basis.

### 5. MEASUREMENT AND UNIT PRICE

The measurement for payment of steelwork shall be of net weight of the steelwork erected in final position.

The unit rate shall include the cost of:

- all materials, fixtures and fitting
- fabrication, shop assembly, disassembling, dispatch to the Site of the Works, site assembly and erection
- prime painting and painting after erection
- all welding, bolts, nuts and washers
- all tools, jigs and templates required.

The Unit Prices tendered shall be full payment for completion of the Works specified herein and in accordance with the terms of this Contract.

<b>Pay Item No.</b>	<b>Description</b>	<b>Unit of Measurement</b>
SP-	Providing and Fixing MS grating as per specification shown in the drawings as directed by the engineer complete all respects.	KG.

## SS SPECIAL SPECIFICATIONS - BILL-7

### SUMMARY- EMPLOYER'S AND ENGINEER'S FACILITIES

Bill 7 - GENERAL ITEMS	
	DESCRIPTION
	The Engineer / Project Facilities
I (A) 1	Employer's Facilities- Provide Employer's Vehicles Employer Vehicles
II (B) 2 3 4	Engineer's Facilities- Provide Engineer's Vehicles - Team Leader - Resident Engineer - Assistant Resident Engineer
5.1 5.2	Team Leader's Facilities- - Provide, Furnish and Equipped Office - Provide, Furnish and Equipped Residential Accommodation
5.3 5.4	Resident Engineer's Facilities- - Provide, Furnish and Equipped Office - Provide, Furnish and Equipped Residential Accommodation
5.5	Assistant Resident Engineer's Facilities - Provide, Furnish and Equipped Office and Residential Accommodation
5.6	Resident Engineer's Facilities- - Provide, Furnish and Equipped - Base Laboratory
5.7	Assistant Engineer's Facilities- Provide, Furnish and Equipped - Field Laboratory
5.8	Assistant Engineer's Facilities- Provide and Maintain - Survey Equipment

**SS SPECIAL SPECIFICATIONS****I(A) EMPLOYER'S FACILITIES- PROVIDE EMPLOYER'S VEHICLES**

The Contractor shall be responsible for providing the Employer and his staff with all the facilities listed in Bill 7. of this contract, where applicable. All vehicles must be delivered by the contractor to the Employer within 15 days as per the Engineer's instructions. All the vehicles shall be the Employer's property.

**II(B) THE ENGINEER'S FACILITIES****A General**

The Contractor shall provide the facilities to the Engineer and his staff as per attached Bill-7 of this contract / package on the locations as approved/directed by the Engineer. All the vehicles provided to the Employer and the Engineer shall be the Employer's property. All vehicles shall be comprehensive insured for whole Contract period. The payment shall be made by the Employer for the vehicles through Provision Sum as shown in Bill-7. These facilities, where applicable, shall include the following:

**A Employer's Facilities- Provide Employer's Vehicles****B Engineer's Facilities- Provide Engineer's Vehicles**

- 2 - Team Leader
- 3 - Resident Engineer
- 4 - Assistant Resident Engineer

**Team Leader's Facilities-**

- 5.1 - Provide, Furnish and Equipped Office
- 5.2 - Provide, Furnish and Equipped Residential Accommodation

**Resident Engineer's Facilities-**

- 5.3 - Provide, Furnish and Equipped Office
- 5.4 - Provide, Furnish and Equipped Residential Accommodation

**Assistant Resident Engineer's Facilities**

- 5.5 - Provide, Furnish and Equipped Office and Residential Accommodation

**Resident Engineer's Facilities- - Provide, Furnish and Equipped**

- 5.6 - Base Laboratory

**Assistant Engineer's Facilities- Provide, Furnish and Equipped**

- 5.7 - Field Laboratory

### Assistant Engineer's Facilities- Provide and Maintain 5.8 - Survey Equipment

All the facilities with regard to provide, furnished and equipped the Engineer's Office(s) and Accommodation as listed above and as per Bill-7 by the contractor, where applicable, upon completion of the project (24 months) shall become the property of the contractor and taken over by the Contractor after completion of the entire project. The Contractor put into operation all facilities within 15 days of receiving the Engineer's instructions. The location(s) of all facilities shall be approved/directed and as per Bill-7 by the Engineer.

The contractor shall provide, furnish and equip offices and residential accommodation as per instruction of the Engineer. The cost of these items shall not be paid separately and deemed to be included in other pay items of BoQ as mentioned in Bill-7.

The contractor shall provide, furnish, equipped and maintain Base Laboratory and Filed Laboratories at location as per Bill-7 and / or as directed / instructed by the Engineer. The buildings having sufficient space for the Base Laboratory and Filed Laboratories shall also be provided / hired by the Contractor. The Base Laboratory will remain with the Engineer and maintained for 24 months (upto entire project completion). The Field Laboratories will remain with the Engineer and maintained upto packages completion as per instructions of the Engineer. The cost of these items / facilities shall not be paid separately but deemed to be included in other pay items of BoQ as mentioned in Bill-7. All items of both Laboratories provided by the contractor shall be returned / taken over by the Contractor upon completion of the entire project.

The contractor shall provide and maintain Survey Equipment as per instruction of the Engineer. The cost of these items shall not be paid separately and deemed to be included in other pay items of BoQ as mentioned in Bill-7. All survey equipment provided by the contractor shall be returned / taken over by the Contractor upon completion of the entire project.

Contractor shall take all necessary steps to ensure the security of all the Engineer's facilities (Base and Field Laboratories) and shall appoint guards or watchmen as per instructions of the Engineer.

### **5.1. Provide, Furnish and Equipped Office of the Team Leader at Hyderabad**

The Contractor of the respective package where this facility is provided in Bill-7 is responsible to provide, furnish and equipped the office as mentioned herein and as approved/directed by the Engineer.

All furnishings, fixtures, and equipment shall remain with the Engineer and shall be handover upon completion of the entire project (24 months) to the Contractor. All furnishings, furniture and equipment are solely for the Engineer and their staff's use. This may include but not limited to furniture, equipment, curtains, linen, glassware, cutlery, dishes, and kitchenware as necessary. The list provided herein is only intended as a guide to



indicate the minimum furnishing, furniture and equipment requirements that will be acceptable to the satisfaction of the Team Leader/The Engineer, the Contractor shall provide, furnish, and equipped as listed (minimum) and any additional item(s) as required by the Team Leader/The Engineer and his staff for the facilitation in a proper manner.

**i) Office**

<b>Quantity (Nos)</b>		<b>Item</b>
1	-	Light table, (1.60 x 0.80 x 0.75 m high) with in-laid opaque plate glass 1.4 m x 0.60 m x 5 mm and 6 no. fluorescent lamps, 40 watts each, mounted 10 cm under the plate glass.
5	-	Lockable metal filing cabinets for drawings (1.0.x 0.80 x 0.75 m) with 4 no. drawers.
5	-	Metal filing cabinets with 4 no. lockable drawers
As Req'd.	-	Metal waste baskets
5	-	Standard good quality office desks
5	-	Swivel type padded desk chairs with arms and castors
4	-	Executive desk with lockable drawers & glass top
4	-	Executive type upholstered desk chair
2	-	Computer Operator desk with chair and matching computer table.
1	-	Conference table with padded swivel chairs for fifteen (10) persons
10	-	Standard office chairs
2	-	Book cases with two shelves
2	-	Display boards
5	-	Fire ,extinguishers (CO2) wall hung
6	-	Standard size staplers
1	-	Heavy duty stapler
2	-	Paper cutters
6	-	Paper hole punches
As Req'd.	-	Pencil sharpeners
4	-	Pencil sharpeners, desk mounted
1	-	Electric water cooler
6	-	Calculators, Casio (Scientific) latest model
As Req'd	-	Venetian blinds and traverse drapes on all windows.
6	-	Air conditioners split (cooling & heating) 18,000 BTU or as required.
4	-	Plastic trash containers, 50 cm diameter. minimum by 75 cm high
10	-	Construction hard hats

1	-	Binding machine, Model No.212 PB by General Binding Corp or similar.
As Req'd.	-	ZEA 2500 W voltage regulator.
1	-	Facsimile Machine, heavy duty.
2	-	Branded Core i7 computers including required hard and soft wares, laser printer, stabilizer, USB devices, other accessories and unlimited internet services.
2	-	Laser Printer latest model.
3	-	Lap top computer Sony or equivalent Core i7 latest model of specifications to be approved by the Engineer
2	-	UPS, 1 KVA
1	-	Scanners
1	-	Digital camera Sony or equivalent
4	-	Mobile Phones (Samsung) with accessories (monthly maximum limit of phone bills shall be Rs. 3000 for each phone)
-	-	Generator set of adequate capacity for standby power supply to office

## ii) Kitchen

1	-	Single Stainless Steel Sink with Drainboard.
1	-	Electric Refrigerator, 0.40 cu.m capacity with separate freezer compartment, self defrost type.
1	-	Gas stove with 3 burners with gas bottles as required
1	-	Set of kitchen cabinets, lockable, with formica top for working space
2	-	Thermic jugs
2 Set	-	Pots, cups, saucers, water glasses, spoons and serving trays adequate for 20 persons
1 Set	-	Tea towels, w/towel rack and miscellaneous cooking pans, knives, forks, spoons etc. as required
As Req'd.	-	Exhaust fan

## iii) Toilets 04 or more as per no. of rooms and common

4 or more	-	Water closets, European Style
4 or more	-	Wash basins with hot and cold water and mirror
4 or more	-	Stainless steel toilet paper holders
4 or more	-	Paper towel dispensers
4 or more	-	Mirrors, 40 cm x 50 cm
4 or more	-	Ceramic urinals
4 or more	-	Exhaust fan, W/screen, 1/2 Hp, 220 Volt
4 or more	-	Towel holder

## 5.2. Provide, Furnish and Equipped Residential Accommodation for Team Leader at Hyderabad

## A. General

The Contractor of the respective package where this facility is provided in Bill-7 is responsible to provide, furnish and equipped the Residential Accommodation as mentioned herein and as approved/ directed by the Engineer.

All furnishings, fixtures, and equipment shall remain with the Engineer and shall be handover upon completion of the entire project (24 months) to the Contractor. All furnishings, furniture and equipment are solely for the Engineer and their staff's use. This may include but not limited to furniture, equipment, curtains, linen, blankets, glassware, cutlery, dishes, and kitchenware as necessary. The list provided herein is only intended as a guide to indicate the minimum furnishing, furniture and equipment requirements that will be acceptable to the satisfaction of the Team Leader/The Engineer, the Contractor shall provide, furnish, and equipped as listed (minimum) and any additional item(s) as required by the Team Leader/The Engineer and his staff for the facilitation in a proper manner.

Item	Quantity (Nos)
Single Bed plus mattresses and pillows	6
Double Bed plus mattresses and pillows	1
Wardrobes	7
Chairs	10
Dining table and chairs (to seat 10 persons)	1 Set
Sofa Set (5-Seater)	3 Set
Kitchen cupboards and tables or fitted units	1 Set
Electric Water Coolers	1
Refrigerator large	2
Refrigerator small	1
Air Conditioners	8
Cooking Range	1
Bathroom wall mirror Shelf, medicine cabinet and towel rails	As Reqd
Elect. Gas water heater (geyser)	As Reqd
Glassware, cutlery, crockery, kitchen utensils etc	As Reqd
Towels, bed sheets, blankets/ quilts etc	As Reqd
Television Samsung 32 inch or equivalent	2
Fire Extinguisher	As Reqd
Room Heater (Electrical)	6 Nos.

### Measurement & Payment

Provide, Furnish and Equ

## B. Measurement & Payment

Provide, furnish and equipped for the office and residential accommodation shall not be measured / paid separately and shall be deemed to be included in the other pay items.

Item No	Description	Unit of Measurement
5.1	Provide Furnish and Equipped Office for Team Leader	Not Payable Separately, Inclusive in other BoQ items
5.2	Provide, Furnish and Equipped Team Leader's Accommodation	Not Payable Separately, Inclusive in other BoQ items

### 5.3. Provide Furnish and Equipped for the Office of the Resident Engineer

The Contractor of the respective package where this facility is provided in Bill-7 is responsible to provide, furnish and equipped the office as mentioned herein and as approved/directed by the Engineer.

All furnishings, fixtures, and equipment shall remain with the Engineer and shall be handover upon completion of the entire project (24 months) to the Contractor. All furnishings, furniture and equipment are solely for the Engineer and their staff's use. This may include but not limited to furniture, equipment, curtains, linen, glassware, cutlery, dishes, and kitchenware as necessary. The list provided herein is only intended as a guide to indicate the minimum furnishing, furniture and equipment requirements that will be acceptable to the satisfaction of the Engineer/Resident Engineer, the Contractor shall provide, furnish, and equipped as listed (minimum) and any additional item(s) as required by the Team Leader/The Engineer and his staff for the facilitation in a proper manner.

#### i) Office

Quantity (Nos)	Item
1	- Light table, (1.60 x 0.80 x 0.75 m high) with in-laid opaque plate glass 1.4 m x 0.60 m x 5 mm and 6 no. fluorescent lamps, 40 watts each, mounted 10 cm under the plate glass.
5	- Lockable metal filing cabinets for drawings (1.0 x 0.80 x 0.75 m) with 4 no. drawers.
5	- Metal filing cabinets with 4 no. lockable drawers
As Reqd.	- Metal waste baskets
5	- Standard good quality office desks
5	- Swivel type padded desk chairs with arms and castors
4	- Executive desk with lockable drawers & glass top
4	- Executive type upholstered desk chair
2	- Computer Operator desk with chair and matching

- computer table.
- 1 - Conference table with padded swivel chairs for fifteen (10) persons
- 10 - Standard office chairs
- 2 - Book cases with two shelves
- 2 - Display boards
- 5 - Fire, extinguishers (CO2) wall hung
- 6 - Standard size staplers
- 1 - Heavy duty stapler
- 2 - Paper cutters
- 6 - Paper hole punches
- As Req'd. - Pencil sharpeners
- 4 - Pencil sharpeners, desk mounted
- 1 - Electric water cooler
- 6 - Calculators, Casio (Scientific) latest model
- 1 - Xerox or equivalent Photocopier including enlarging reduction etc. and automatic voltage stabilizer.
- As Req'd. - Venetian blinds and traverse drapes on all windows.
- 6 - Air conditioners split (cooling & heating) 18,000 BTU or as required.
- 4 - Plastic trash containers, 50 cm diameter. minimum by 75 cm high
- 10 - Construction hard hats
- 1 - Binding machine, Model No.212 PB by General Binding Corp or similar.
- As Req'd. - ZEA 2500 W voltage regulator.
- 1 - Facsimile Machine, heavy duty.
- 2 - Branded Core i7 computers including required hard and soft wares, laser printer, stabilizer, USB devices, other accessories and unlimited internet services.
- 2 - Laser Printer latest model.
- 2 - Lap top computer Core i7 Sony or equivalent latest model of specifications to be approved by the Engineer
- 2 - UPS, 1 KVA
- 1 - Scanners
- 1 - Digital camera Sony or equivalent
- 4 - Mobile Phones (Samsung) with accessories (monthly maximum limit of phone bills shall be Rs. 3000 for each phone)
- - Generator set of adequate capacity for standby power supply to office

## ii) Kitchen

- 1 - Single Stainless Steel Sink with Drainboard.

1	-	Electric Refrigerator, 0.40 cu.m capacity with separate freezer compartment, self defrost type.
1	-	Gas stove with 3 burners with gas bottles as required
1	-	Set of kitchen cabinets, lockable, with formica top for working space
2	-	Thermic jugs
2 Set	-	Pots, cups, saucers, water glasses, spoons and serving trays adequate for 20 persons
1 Set	-	Tea towels, w/towel rack and miscellaneous cooking pans, knives, forks, spoons etc. as required
As Req'd.	-	Exhaust fan

**iii) Toilet 04 or more as per no. of rooms and common**

4 or more	-	Water closets, European Style
4 or more	-	Wash basins with hot and cold water and mirror
4 or more	-	Stainless steel toilet paper holders
4 or more	-	Paper towel dispensers
4 or more	-	Mirrors, 40 cm x 50 cm
4 or more	-	Ceramic urinals
4 or more	-	Exhaust fan, W/screen, 1/2 Hp, 220 Volt
4 or more	-	Towel holder

## **5.4 Provide Furnish and Equipped Residential Accommodation for Resident Engineer**

### **A. General**

The Contractor of the respective package where this facility is provided in Bill-7 is responsible to provide, furnish and equipped the Residential Accommodation as mentioned herein and as approved/ directed by the Engineer.

All furnishings, fixtures, and equipment shall remain with the Engineer and shall be handover upon completion of the entire project (24 months) to the Contractor. All furnishings, furniture and equipment are solely for the Engineer and their staff's use. This may include but not limited to furniture, equipment, curtains, linen, blankets, glassware, cutlery, dishes, and kitchenware as necessary. The list provided herein is only intended as a guide to indicate the minimum furnishing, furniture and equipment requirements that will be acceptable to the satisfaction of the Team Leader/The Engineer, the Contractor shall provide, furnish, and equipped as listed (minimum) and any additional item(s) as required by the Engineer / Resident Engineer and his staff for the facilitation in a proper manner.

<b>Item</b>	<b>Quantity (Nos)</b>
Single Bed plus mattresses and pillows	6
Double Bed plus mattresses and pillows	1
Wardrobes	7

Chairs	10
Dining table and chairs (to seat 10 persons)	1 Set
Sofa Set (5-Seater)	3 Set
Kitchen cupboards and tables or fitted units	1 Set
Electric Water Coolers	1
Refrigerator large	2
Refrigerator small	1
Air Conditioners	8
Cooking Range	1
Bathroom wall mirror Shelf, medicine cabinet and towel rails	As Reqd
Elect. Gas water heater (geyser)	As Reqd
Glassware, cutlery, crockery, kitchen utensils etc	As Reqd
Towels, bed sheets, blankets/ quilts etc	As Reqd
Television Samsung 32 inch or equivalent	2
Fire Extinguisher	As Reqd
Room Heater (Electrical)	6 Nos.

### Measurement & Payment

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### B. Measurement & Payment

Provide, furnish and equipped for the office and residential accommodation shall not be measured / paid separately and shall deemed to be included in the other pay items.

Item No	Description	Unit of Measurement
5.3	Provide Furnish and Equipped Office for Resident Engineer	Not Payable Separately, Inclusive in other BoQ items
5.4	Provide, Furnish and Equipped Resident Engineer's Accommodation	Not Payable Separately, Inclusive in other BoQ items

## 5.5 Provide Furnish and Equipped for the Office and Residential Accommodation of the Assistant Resident Engineer

### A. General

The Contractor of the respective package where this facility is provided in Bill-7 is responsible to provide, furnish and equipped the office and residential as mentioned herein and as approved/ directed by the Engineer.

All furnishings, fixtures, and equipment shall remain with the Engineer and shall be handover upon completion of the entire project to the Contractor. All furnishings, furniture and equipment are solely for the Engineer and their staff's use. This may include but not limited to furniture, equipment, curtains, linen, glassware, cutlery, dishes, and kitchenware as necessary. The list provided herein is only intended as a guide to indicate the minimum furnishing, furniture and equipment requirements that will be acceptable to the satisfaction of the Engineer/ Resident Engineer / Assistant Resident Engineer, the Contractor shall provide, furnish, and equipped as listed (minimum) and any additional item(s) as required by the Team Leader/The Engineer and his staff for the facilitation in a proper manner.

#### **i) Office**

<b>Quantity (Nos)</b>		<b>Item</b>
1	-	Light table, (1.60 x 0.80 x 0.75 m high) with in-laid opaque plate glass 1.4 m x 0.60 m x 5 mm and 6 no. fluorescent lamps, 40 watts each, mounted 10 cm under the plate glass.
5	-	Lockable metal filing cabinets for drawings (1.0.x 0.80 x 0.75 m) with 4 no. drawers.
5	-	Metal filing cabinets with 4 no. lockable drawers
As Reqd.	-	Metal waste baskets
5	-	Standard good quality office desks
5	-	Swivel type padded desk chairs with arms and castors
4	-	Executive desk with lockable drawers & glass top
4	-	Executive type upholstered desk chair
2	-	Computer Operator desk with chair and matching computer table.
1	-	Conference table with padded swivel chairs for fifteen (10) persons
10	-	Standard office chairs
2	-	Book cases with two shelves
2	-	Display boards
5	-	Fire, extinguishers (C02) wall hung
6	-	Standard size staplers
1	-	Heavy duty stapler
2	-	Paper cutters



6	-	Paper hole punches
As Req'd.	-	Pencil sharpeners
4	-	Pencil sharpeners, desk mounted
1	-	Electric water cooler
6	-	Calculators, Casio (Scientific) latest model
1	-	Xerox or equivalent Photocopier including enlarging reduction etc. and automatic voltage stabilizer.
As Req'd	-	Venetian blinds and traverse drapes on all windows.
6	-	Air conditioners split (cooling & heating) 18,000 BTU or as required.
4	-	Plastic trash containers, 50 cm diameter. minimum by 75 cm high
10	-	Construction hard hats
1	-	Binding machine, Model No.212 PB by General Binding Corp or similar.
As Req'd.	-	ZEA 2500 W voltage regulator.
1	-	Facsimile Machine, heavy duty.
1	-	Branded Core i7 computers including required hard and soft wares, laser printer, stabilizer, USB devices, other accessories and unlimited internet services.
2	-	Laser Printer latest model.
3	-	Lap top computer Sony or equivalent latest model of specifications to be approved by the Engineer
2	-	UPS, 1 KVA
1	-	Scanners
1	-	Digital camera Sony or equivalent
4	-	Mobile Phones (Samsung) with accessories (monthly maximum limit of phone bills shall be Rs. 3000 for each phone)
-	-	Generator set of adequate capacity for standby power supply to office

## ii) Kitchen

1	-	Single Stainless Steel Sink with Drainboard.
1	-	Electric Refrigerator, 0.40 cu.m capacity with separate freezer compartment, self defrost type.
1	-	Gas stove with 3 burners with gas bottles as required
1	-	Set of kitchen cabinets, lockable, with formica top for working space
2	-	Thermic jugs
2 Set	-	Pots, cups, saucers, water glasses, spoons and serving trays adequate for 20 persons
1 Set	-	Tea towels, w/towel rack and miscellaneous cooking pans, knives, forks, spoons etc. as required

As Reqd.	-	Exhaust fan
<b>iii)</b>	<b>Toilet</b>	<b>04 or more as per no. of rooms and common</b>
4 or more	-	Water closets, European Style
4 or more	-	Wash basins with hot and cold water and mirror
4 or more	-	Stainless steel toilet paper holders
4 or more	-	Paper towel dispensers
4 or more	-	Mirrors, 40 cm x 50 cm
4 or more	-	Ceramic urinals
4 or more	-	Exhaust fan, W/screen, 1/2 Hp, 220 Volt
4 or more	-	Towel holder

### Residential Accommodation

Item	Quantity (Nos)
Single Bed plus mattresses and pillows	6
Double Bed plus mattresses and pillows	1
Wardrobes	7
Chairs	10
Dining table and chairs (to seat 10 persons)	1 Set
Sofa Set (5-Seater)	3 Set
Kitchen cupboards and tables or fitted units	1 Set
Electric Water Coolers	1
Refrigerator large	2
Refrigerator small	1
Air Conditioners	8
Cooking Range	1
Bathroom wall mirror Shelf, medicine cabinet and towel rails	As Reqd
Elect. Gas water heater (geyser)	As Reqd
Glassware, cutlery, crockery, kitchen utensils etc	As Reqd
Towels, bed sheets, blankets/ quilts etc	As Reqd
Television Samsung 32 inch or equivalent	2
Fire Extinguisher	As Reqd
Room Heater (Electrical)	6 Nos.

### Measurement & Payment

Furniture an

## Measurement & Payment

### B. Measurement & Payment

Provide, furnish and equipped for the office and Residential Accommodation for Assistant Residential Engineer shall not be measured / paid separately and shall deemed to be included in other pay items.

Item No	Description	Unit of Measurement
5.5	Provide Furnish and Equipped for Office and Accommodation for Assistant Resident Engineer	Not Payable Separately, Inclusive in other BoQ items

## 5.6 RESIDENT ENGINEER'S BASE LABORATORY

### A General

The Contractor shall provide, furnish, equip and maintain, for the entire Contract duration (24 months) for the exclusive use of the Engineer and his staff, for testing soils, aggregates, concrete and bituminous materials. The laboratory shall be housed in a rental building, fully equipped with all utilities, furniture, apparatus and fittings appropriate to such use.

The Base Laboratory shall be located adjacent to the Resident Engineer Office or elsewhere as required by the Engineer. It shall consist of a hall and two offices with storage, lavatory and washing facilities. The total area of the laboratory building shall be 250 sq m. The hall shall be divided into bitumen section, soil and aggregates sections and a concrete section.

Outside the laboratory water tanks shall be constructed for curing concrete samples, of a size and location approved by the Engineer.

The laboratory shall be provided with electricity and shall be fully air-conditioned. It shall have a regular and dependable supply of water, gas and electricity available throughout 24 hours of each day. Payment of utility bills such as for electricity, gas, water supply and drainage will be the responsibility of the Contractor.

All rooms shall be provided with exhaust fans, located particularly over fume cupboards and the like.

The water supply shall be maintained by an elevated or pressure tank of adequate capacity.

The Contractor shall provide qualified materials technicians and qualified laboratory technicians and helpers as deemed necessary by the Engineer to assist in operating the laboratory.

The Contractor shall maintain the Engineer's laboratory including the repair and / or replacement of any item. The Contractor shall maintain the laboratory and testing equipment in a satisfactory working condition at all times to enables the Engineer to test the materials and workmanship of the works during construction whenever required, damaged testing

equipment shall be replaced by the Contractor and consumable goods shall be supplied in sufficient quantities when ordered by the Engineer for the sole use of testing the construction works. The Contractor shall meet all operating expenses.

The Engineer's Laboratory fittings, equipments including testing equipment and furnishings shall remain the property of the Contractor and shall be handed over back to him upon completion of the contract (24 months). The rental building shall be handed over back to its owner on Taking Over of the Works.

## **B Sampling**

It shall be the responsibility of the Contractor to take samples as required by the Engineer and to provide all necessary transport, labour, tools, containers, wrappings and so forth for uplifting and dispatching samples to the Engineer's Base Laboratory.

## **C Tests**

The Engineer's Base Laboratory shall be equipped to perform the following in-house tests:

TEST	AASHTO DESIGNATION
Moisture content test by oven drying	
Atterberg limits	T-89 & T-90
Moisture density relationship of soils (standard method)	T-99
Moisture density relationship of soils (modified method)	T-180, Method B and D
Specific gravity of soils	T-100
CBR test	T-193
Sieve analysis of soils and aggregate and mineral filler	T-88, T-27 and T-37
Specific gravity and water absorption of fine aggregates	T-84
Specific gravity and water absorption of coarse aggregates	T-85
Unit weight of aggregates	T-19
Los Angeles abrasion test for aggregates	T-96
Chemical tests:	
- Organic impurities for sand in concrete	T-21
- Chlorides and Sulphates in fine aggregates	ASTM-1411
- Potential alkali reactivity test	ASTM-C 289
Amount of material passing No. 200 sieve	T-11
Soundness of aggregates	T-104
Clay lumps and friable particles in aggregates	T-112
Curing concrete compressive test specimens	T-23
Compressive strength of concrete cylinder specimens	T-22
Quality of water to be used in concrete	T-26
Making and curing concrete test specimens in the laboratory	T-126
Plastic fines in graded aggregates and soils by use of sand equivalent test	T-176
Sampling bituminous materials	T-40
Marshall test and loss in stability	T-245
Specific gravity of compacted bituminous mixtures	T-166
Quantitative extraction of bitumen from bituminous paving mixtures	T-164

Viscosity of bitumen	T-20, T-202
Penetration of bitumen	T-49
Flash and fire points	T-48
Solubility of bituminous materials in organic solvents	T-44
Coating and stripping of bitumen-aggregate mixture	T-182
Petrographic analysis	

The Engineer's Base Laboratory shall be equipped to perform the following field tests:

TEST	AASHTO DESIGNATION
In-place density by sand cone method (with 15.25 cms and 30.5 cms cone)	T-191
In-place density of compacted base course containing large sizes of coarse	T-181
Coarse aggregates	
Sampling fresh concrete	T-141
Concrete slump	T-119
Sampling bituminous materials	T-40
Determining the temperature of bituminous paving mixtures	-
Coring and determination of bulk specific gravity of compacted bituminous	T-230, T-166
Mixtures	

If any additional testing is required other than mentioned above, the Contractor shall provide all assistance to conduct the test. The cost of all such tests shall be born by the Contractor.

## D Furnishing

The Contractor shall provide, for the whole contract duration, furnishings for the Engineer's Base Laboratory described in the following list to a quality approved by the Engineer. Substitution of type may be made only upon approval of the Engineer.

No.	DESCRIPTION
3	Standard office desks
3	Swivel type padded desk chairs
7	Work tables
15	Standard office chairs
6	Small tables
3	Side racks
3	Metal filing cabinets, 4-drawer
6	Electronic calculators
4	Air conditioners (cooling and heating)
2	Electric water coolers
1	Display board
3	Desk lamps, fluorescent, 20 watts
3	Standard size staplers
1	Heavy duty staplers

- 2 Paper cutters
- 2 Paper hole punches
- 2 Pencil sharpeners
- 4 Fire extinguishers

## **E Equipment**

The Contractor shall provide new laboratory equipment as noted in the list Equipment for the Engineer's Base Laboratory included herein. The equipment shall be purchased from Messrs Controls, or from equivalent international suppliers, all to the approval of the Engineer.

The Contractor shall submit a complete list of the equipment, apparatus and supplies he proposes to furnish for the Engineer's Laboratory. The list shall include the manufacturer's name and descriptive literature.

Additional equipment and materials shall be supplied by the Contractor at no additional cost as and when required by the Engineer to perform any test relevant to the Works.

**F Measurement and Payment**

Providing, furnishing, equipped and maintaining the base laboratory shall not be paid separately and shall be deemed to be included in other pay items.

Item No	Description	Unit of Measurement
5.6	Provide Furnish and Equipped Base Laboratory for The Engineer	Not Payable Separately, Inclusive in other BoQ items
	Maintain Engineer's Base Laboratory	Not Payable Separately, Inclusive in other BoQ items

**EQUIPMENT FOR THE ENGINEER'S BASE LABORATORY**

SR. No.	EQUIPMENT DESCRIPTION	MODEL No. / Make	UNIT	QTY
<b>A.</b>	<b>GENERAL EQUIPMENT</b>			
1	Laboratory oven, capacity 220 litre	UNE-600	Each	1
2	Laboratory oven, capacity 100 litre	10-D1390	Each	1
3	Hot plate, maximum temperature 350°C	10-D1405/A	Each	1
4	Gas burner, two flames	999-G/S	Each	1
5	Bunsen burner with tripod	86D/1/1420	Each	1
6	Heavy duty straight spring scale	11-D695	Each	1
7	Heavy duty balance, 20 kg.	11-D610	Each	1
8	Triple beam balance, 2,610 grams	11-D605	Each	1
9	Cent-O-Gram balance, 311 grams	11-D600	Each	2
10	Platform balance 150 kg	11-D690/A	Each	1
11	Electronic precision balance	11-D629/Z	Each	1
12	Digital top pan balance 30 kg x 1 gram capacity with cradle	11-D612/A, D627/C	Each	1
13	Wall clock	-	Each	1
14	Stop watch	86-D1231	Each	1
15	Vernier caliper	86-D1652	Each	1
16	Thermometer, general, 0°C - 200°C	86-D1202		2
17	Maximum - minimum thermometer	86-D1215	Each	1
18	Sampling tools, complete set	40-T10/A	Each	1
19	Tongs	86-D1455	Each	2
20	Desicator	86-D1110	Each	1
21	Beaker, pyrex, 250 ml	86-D1073	Each	2
22	Beaker, pyrex, 600 ml	86-D1074	Each	2
23	Beaker, pyrex, 1,000 ml	86-D1075	Each	2
24	Funnel, 250 ml	86-G001	Each	2
25	Funnel, 500 ml	86-G002	Each	2
26	Volumetric flask, 100 ml	86-D1059	Each	2

SR. No.	EQUIPMENT DESCRIPTION	MODEL No. / Make	UNIT	QTY
27	Volumetric flask with stopper, 250 ml	86-D1060	Each	2
28	Volumetric flask with stopper, 500 ml	86-D1061	Each	2
29	Volumetric bottle flask, 250 ml	86-D1050	Each	2
30	Volumetric bottle flask, 500 ml	86-D1051	Each	2
31	Wash bottle, 100 ml	86-D1535	Each	2
32	Wash bottle, 250 ml	86-D1536	Each	2
33	Wash bottle, 500 ml	86-D1537	Each	2
34	Specific gravity bottles 100 ml (86D-1127)	86-D1003	Each	1
35	Graduated cylinder, 100 ml	86-D1004	Each	2
36	Graduated cylinder, 250 ml	86-D1006	Each	2
37	Graduated cylinder, 1,000 ml	86-D1092	Each	2
38	Reagent bottle stoppered, 2 litre	86-D1332	Each	2
39	Aluminium cans with cover, 2" diameter	86-D1333	L.S	*
40	Aluminium cans with cover, 3" diameter	86-D1334	L.S	*
41	Scoop	86-D1602	Each	2
42	Brush, fine	86-D1671	Each	1
43	Wire brush, coarse	86-D1670	Each	1
44	Wire brush, fine	86-D1673	Each	1
45	Bucket, 12 litre		Each	2
46	Trolley	86-D1703	Each	1
47	Shovel, large		Each	1
48	Pickaxe		Each	1
49	Sample splitter, coarse	15-D437	Each	1
50	Sample splitter, fine	15-D433	Each	1
51	Sieve shaker for 8" diameter sieve, motorised	15-D407	Each	1
52	Tin pan/tray, 12" x 12" x 2"		Each	4
53	Tin pan/tray, 16" x 16" x 3"		Each	4
54	Tin pan/tray, 24" x 16" x 3"		Each	4
55	Tin pan/tray, 20" x 16" x 4"		Each	4
56	Mortar porcelain, 200 mm diameter with rubber covered pestle	15-D1180	Each	1
<b>B.</b>	<b>COARSE AND FINE AGGREGATES SIEVE ANALYSIS</b>			
	<b>Sieve set 8" diameter:</b>			
1	1 inch	15-D110/2	Each	3
2	3/4 inch	15-D112/2	Each	2
3	1/2 inch	15-D115/2	Each	2



SR. No.	EQUIPMENT DESCRIPTION	MODEL No. / Make	UNIT	QTY
4	3/8 inch	15-D117/2	Each	2
5	No. 4 (4.74 mm)	15-D122/2	Each	2
6	No. 8 (2.36 mm)	15-D126/2	Each	2
7	No. 10 (2.00 mm)	15-D127/2	Each	3
8	No. 16 (1.18 mm)	15-D130/2	Each	2
9	No. 30 (0.60 mm)	15-D134/2	Each	2
10	No. 40 (0.425 mm)	15-D136/2	Each	3
11	No. 50 (0.300 mm)	15-D138/2	Each	2
12	No. 80 (0.180 mm)	15-D141/2	Each	1
13	No. 100 (0.150 mm)	15-D142/2	Each	2
14	No. 200 (0.075 mm)	15-D146/2	Each	3
15	Wet washing No. 200	15-D160/2	Each	3
	<b>Sieve set 12" diameter:</b>			
16	3 inch (75 mm)	15-D102/3	Each	2
17	2 1/2 inch (63 mm)	15-D103/3	Each	2
18	2 inch (50 mm)	15-D105/3	Each	2
19	1 1/2 inch (38 mm)	15-D107/3	Each	2
20	1 inch (25 mm)	15-D110/3	Each	2
21	3/4 inch (19 mm)	15-D112/3	Each	2
22	1/2 inch (12.5 mm)	15-D115/3	Each	2
23	3/8 inch (9.5 mm)	15-D117/3	Each	2
24	No. 4 (4.74 mm)	15-D122/3	Each	2
	<b>Sieve set 18" diameter:</b>			
25	3 inch (75 mm)	15-D102/45	Each	2
26	2 1/2 inch (63 mm)	15-D103/45	Each	2
27	2 inch (50 mm)	15-D105/45	Each	2
28	1 1/2 inch (38 mm)	15-D107/45	Each	2
29	1 inch (25 mm)	15-D110/45	Each	2
30	3/4 inch (19 mm)	15-D112/45	Each	2
31	1/2 inch (12.5 mm)	15-D115/45	Each	2
32	3/8 inch (9.5 mm)	15-D117/45	Each	2
33	No. 4 (4.74 mm)	15-D122/45	Each	2
34	Pan	15-D152/2 /3/45	Each	2
35	Cover	15-D152/2 /3/45	Each	2

<b>SR. No.</b>	<b>EQUIPMENT DESCRIPTION</b>	<b>MODEL No. / Make</b>	<b>UNIT</b>	<b>QTY</b>
36	Large Capacity Sample Splitter	15-D430	Each	1
37	Sample Splitter	15-D437	Each	1
<b>C.</b>	<b>ATTERBERG LIMITS</b>			
1	Liquid limit test set with all accessories	22-T32/AP	Each	1
2	Mixing Dish	86-D1172	Each	2
3	Moisture Tin	86-D1330	Each	10
4	Spatula	86-D1630	Each	2
5	Plastic limit test set with all accessories	22-T41	Each	1
<b>D.</b>	<b>SAND EQUIVALENT</b>			
1	Apparatus complete	22-T50/A	Set	1
<b>E.</b>	<b>COARSE AND FINE AGGREGATE UNIT WEIGHT</b>			
1	Density basket, brass	11-D612	Each	1
2	Sand absorption cone and tamper	47-D440	Each	1
3	Pycnometers	47-D441	Each	2
4	Specific gravity bottle	86-D1125	Each	1
5	Specific gravity bottle	86-D1126	Each	1
6	Specific gravity bottle	86-D1127	Each	1
<b>F.</b>	<b>ABRASION</b>			
1	Los Angeles abrasion machine with abrasion charges set	48-D500	Each	1
<b>G.</b>	<b>COARSE AND FINE AGGREGATE SOUNDNESS</b>			
1	Distilled water	-	L.S.	*
2	Sodium sulphate solution	-	L.S.	*
<b>H</b>	<b>AGREEGATE FLAKINESS AND ELONGATION</b>			
1	Flakiness sieve test set	47-D415		1
2	Thickness Gauge	47-D540		1
3	Length Gauge	46-D541		1
<b>I.</b>	<b>MODIFIED COMPACTION</b>			
1	Straight edge	34-T99	Each	1
2	Scoop	86-D1601	Each	1
3	Scoop	86-D1602	Each	1

<b>SR. No.</b>	<b>EQUIPMENT DESCRIPTION</b>	<b>MODEL No. / Make</b>	<b>UNIT</b>	<b>QTY</b>
4	Mixing spoons	35-T143	Each	1
5	Sample ejector	16-T80	Each	1
6	Modified compaction hammer, 10 lbs	33-T76	Each	2
7	Modified compaction mould, 6" diameter	33-T71	Each	2
8	Modified compaction mould, 4" diameter	33-T70	Each	2
9	Preparation knife	Local	Each	1
10	Wooden hammer	Local	Each	1
11	Spatula	Local	Each	1
12	Mixing tray, 24" x 24" x 3"	Local	Each	*
<b>J.</b>	<b>LABORATORY CBR</b>			
1	Soaking, tank 60" x 120" x 24"	Local	Each	1
2	CBR mould, 6" diameter with collars, plate, screws	34-T90	Each	9
3	Filter Paper	86-D1800	L.S.	*
4	Swell Plates	34-T92	Each	9
5	Surcharge weights	34-T94	Each	18
6	Surcharge weights, slotted	34-T95	Each	2
7	Tripod attachment	34-T93	Each	9
8	Dial indicator	86-D1256	Each	9
9	Spacer, disc	34-T91	Each	2
10	CBR loading press, hydraulic, motorized	34-T105	Each	1
11	Proving ring, 2,000 lbs	82-T1002	Each	1
12	Proving ring, 6,000 lbs	82-T1007	Each	1
13	Proving ring, 13,000 lbs	82-T1009	Each	1
<b>K.</b>	<b>FIELD DENSITY</b>			
1	6 inches sand density cone apparatus (Complete Set)	35-T130	Each	3
2	Spoon	Local	Each	2
3	Plastic bags	Local	L.S	*
4	Chisel, 12"	Local	Each	2
5	Hammer, 2.5 lbs	Local	Each	2
6	Field balance	11-D608	Each	2
7	Speedy moisture tester	19-T24	Each	2
8	Nuclear density gauge, Troxler XFL		Each	1
9	Sieve No. 30 (0.60 mm)	15-D136/6	Each	2

<b>SR. No.</b>	<b>EQUIPMENT DESCRIPTION</b>	<b>MODEL No. / Make</b>	<b>UNIT</b>	<b>QTY</b>
<b>L.</b>	<b>BITUMEN</b>			
1	Bitumen penetration test, penetrometer (Complete Set)	81-B100/A	Set	1
<b>M.</b>	<b>ASPHALT</b>			
1	Marshall stability compressive machine (with all Accessory)	76-B29A	Each	1
2	Marshall compaction hammer	76-B58	Each	1
3	Marshall specimen mould holder	76-B56/B	Each	1
4	Marshall breaking head	76-B33	Each	1
5	Marshall flow mete	76-B34	Each	1
6	Marshall mixing apparatus	16-B72	Each	1
7	Water bath (thermostatic) controlled to 60°C	76-B66/S	Each	1
	<b>Bituminous extractor apparatus</b>	75-B23/A		
1	Filter disc	75-B22/1	L.S.	*
2	Mixing bowl (steel)	75-B22/2	Each	1
3	Asphalt oven	81-B160	Each	1
4	Vacuum pycnometer	75-D1122	Each	1
5	Extractor for slability mould	76-B57/B5	Each	1
6	Stability mould with collar	76-B57	Each	6
7	Compaction pedestal	76-B59	Each	1
8	Hammer Guide	76-B59/1	Each	1
9	Pavement core drill with 4" diameter core	83-D202	Each	1
10	Core bit, 4" diameter	83-D322/1	Each	4
11	Expendor Set	83-D312/1	Drum	*
12	Thermometer, metallic 350°C		Each	4
13	Hubbard-Carmick specific gravity bottle	86-D1115	Each	1
<b>M.</b>	<b>CONCRETE AND CEMENT</b>			
1	Compressive strength machine, heavy duty, 2000 KN	50-C52/B	Each	1
2	Steel scale	-	Each	2
3	Curing tank with temperature control	-	Each	1
4	Cement mould brush	-	Each	2
5	Laboratory concrete mixer	55-C196/1	Each	1
6	Concrete vibrator	55-C162/A	Each	1
7	Concrete tray	86-D1305/1	Each	*
8	Air meter complete	54-C170/D	Set	1
9	Cylinder mould, heavy duty, 6" diameter	54-C118/D	Each	9
10	Cylinder capping apparatus	54-C121/21	Each	1
11	Concrete capping compound	54-C121/1	Kg	*
12	Laboratory warming pot	54-C121/4	Each	1

<b>SR. No.</b>	<b>EQUIPMENT DESCRIPTION</b>	<b>MODEL No. / Make</b>	<b>UNIT</b>	<b>QTY</b>
13	Slump test cone	54-C149/A	Set	2
14	Tamper	55-C140	Each	1
15	Vibrating table	55-C161	Each	1
16	Concrete micrometer		Each	1
17	Vicat apparatus Complete set	63-L28/1	Set	1
18	Steel straight edge		Each	2
19	Hand gloves, rubber		Pair	*
20	Trowel triangular blade		Each	2
21	Cement cube mould	65-L80/A	Each	2

\* *As per requirement*

## **5.7 FIELD LABORATORY**

### **A GENERAL**

The Contractor shall provide and maintain field laboratory for the entire contract duration for the exclusive use of the Engineer's field staff for testing. The field laboratory shall be housed in a rented room of size as required for keeping the field testing equipment and performing the required testing at site. The field laboratory shall be located adjacent to the field accommodation. and fully equipped with all utilities, furniture, apparatus and fittings appropriate to such use.

Outside the laboratory water tanks shall be constructed for curing concrete samples.

The field laboratory shall have a regular and dependable supply of water, gas and electricity available throughout 24 hours of each day. Payment of utility bills such as for electricity, gas, water supply and drainage will be the responsibility of the Contractor.

The Contractor shall provide qualified materials technicians and qualified laboratory helpers as deemed necessary by the Engineer to assist in operating the laboratory.

The Contractor shall maintain the field laboratory including the repair and / or replacement of any item. The Contractor shall maintain the laboratory and testing equipment in a satisfactory working condition at all times to enables the Engineer's staff to test the materials and workmanship of the works during construction. whenever required, damaged testing equipment shall be replaced by the Contractor and consumable goods shall be supplied in sufficient quantities when ordered by the Engineer for the sole use of testing the construction works. The Contractor shall meet all operating expenses.

The Contractor shall provide for the Engineer's Field Laboratory necessary furnishings like chairs, working tables, cabinets etc.

The Field Laboratory fittings, equipments including testing equipment and furnishings shall remain the property of the Contractor on completion of the works. The rental building shall be handed over back to its owner.

### **B Sampling**

It shall be the responsibility of the Contractor to take samples as required by the Engineer's staff and to provide all necessary transport, labour, tools, containers, wrappings and so forth for uplifting and dispatching samples to the Engineer's Field or Base Laboratory.

### **C Tests**

The Engineer's Field Laboratory shall be equipped to perform the following in-house tests:

TEST	AASHTO DESIGNATION
Moisture content test by oven drying Atterberg limits	T-89 & T-90
Moisture density relationship of soils (modified method)	T-180, Method B and D
Sieve analysis of soils and aggregate and mineral filler	T-88, T-27 and T-37
In-place density by sand cone method (with 15.25 cms and 30.5 cms cone)	T-191
Concrete slump & Concrete	T-119

If any additional testing is required other than mentioned above, the Contractor shall provide all assistance to conduct the test. The cost of all such tests shall be borne by the Contractor.

## D Equipment

The Contractor shall provide new laboratory equipment as noted in the list Equipment for the Engineer's Field Laboratory included herein. The equipment shall be purchased from Messrs Controls, or from equivalent international suppliers, all to the approval of the Engineer.

The Contractor shall submit a complete list of the equipment, apparatus and supplies he proposes to furnish for the Engineer's Field Laboratory. The list shall include the manufacturer's name and descriptive literature.

Additional equipment and materials shall be supplied by the Contractor at no additional cost as and when required by the Engineer to perform any test relevant to the Works.

### EQUIPMENT FOR THE ENGINEER'S FIELD LABORATORY

SR. No.	EQUIPMENT DESCRIPTION	CONTROL S MODEL No.	UNIT	QTY
A.	GENERAL EQUIPMENT			
1	Laboratory oven, capacity 100 litre	10-D1390	Each	1
2	Gas burner, two flames	999-G/S	Each	1
3	Heavy duty balance, 20 kg.	11-D610	Each	1
4	Triple beam balance, 2,610 grams	11-D605	Each	1
5	Cent-O-Gram balance, 311 grams	11-D600	Each	2

SR. No.	EQUIPMENT DESCRIPTION	CONTROL S MODEL No.	UNIT	QTY
6	Platform balance 150 kg	11-D690/A	Each	1
7	Electronic precision balance	11-D629/Z	Each	1
8	Digital top pan balance 30 kg x 1 gram capacity with cradle	11-D612/A, D627/C	Each	1
9	Graduated cylinder, 100 ml	86-D1004	Each	2
10	Aluminium cans with cover, 2" diameter	86-D1333	L.S	*
11	Scoop	86-D1602	Each	2
12	Brush, fine	86-D1671	Each	1
13	Wire brush, coarse	86-D1670	Each	1
14	Shovel, large	15-D407	Each	1
15	Sieve shaker for 8" diameter sieve, motorised		Each	1
16	Tin pan/tray, 12" x 12" x 2"		Each	4
17	Tin pan/tray, 16" x 16" x 3"		Each	4
18	Tin pan/tray, 24" x 16" x 3"		Each	4
19	Tin pan/tray, 20" x 16" x 4"	15-D1180	Each	4
20	Mortar porcelain, 200 mm diameter with rubber covered pestle		Each	1
<b>B.</b>	<b>COARSE AND FINE AGGREGATES SIEVE ANALYSIS</b>			
	<b>Sieve set 8" diameter:</b>			
1	1 inch	15-D110/2	Each	3
2	3/4 inch	15-D112/2	Each	2
3	1/2 inch	15-D115/2	Each	2
4	3/8 inch	15-D117/2	Each	2
5	No. 4 (4.74 mm)	15-D122/2	Each	2
6	No. 8 (2.36 mm)	15-D126/2	Each	2
7	No. 10 (2.00 mm)	15-D127/2	Each	3
8	No. 16 (1.18 mm)	15-D130/2	Each	2
9	No. 30 (0.60 mm)	15-D134/2	Each	2
10	No. 40 (0.425 mm)	15-D136/2	Each	3
11	No. 50 (0.300 mm)	15-D138/2	Each	2
12	No. 80 (0.180 mm)	15-D141/2	Each	1
13	No. 100 (0.150 mm)	15-D142/2	Each	2
14	No. 200 (0.075 mm)	15-D146/2	Each	3
15	Wet washing No. 200	15-D160/2	Each	3
	<b>Sieve set 12" diameter:</b>			
16	3 inch (75 mm)	15-D102/3	Each	2



<b>SR. No.</b>	<b>EQUIPMENT DESCRIPTION</b>	<b>CONTROL S MODEL No.</b>	<b>UNIT</b>	<b>QTY</b>
17	2 1/2 inch (63 mm)	15-D103/3	Each	2
18	2 inch (50 mm)	15-D105/3	Each	2
19	1 1/2 inch (38 mm)	15-D107/3	Each	2
20	1 inch (25 mm)	15-D110/3	Each	2
21	3/4 inch (19 mm)	15-D112/3	Each	2
22	1/2 inch (12.5 mm)	15-D115/3	Each	2
23	3/8 inch (9.5 mm)	15-D117/3	Each	2
24	No. 4 (4.74 mm)	15-D122/3	Each	2
<b>C.</b>	<b>ATTERBERG LIMITS</b>			
1	Liquid limit test set with all accessories	22-T32/AP	Each	1
2	Mixing Dish	86-D1172	Each	2
3	Moisture Tin	86-D1330	Each	10
4	Spatula	86-D1630	Each	2
5	Plastic limit test set with all accessories	22-T41	Each	1
<b>D.</b>	<b>MODIFIED COMPACTION</b>			
1	Straight edge	34-T99	Each	1
2	Scoop	86-D1601	Each	1
3	Scoop	86-D1602	Each	1
4	Mixing spoons	35-T143	Each	1
5	Sample ejector	16-T80	Each	1
6	Modified compaction hammer, 10 lbs	33-T76	Each	2
7	Modified compaction mould, 6" diameter	33-T71	Each	2
8	Modified compaction mould, 4" diameter	33-T70	Each	2
9	Preparation knife	Local	Each	1
10	Wooden hammer	Local	Each	1
11	Spatula	Local	Each	1
12	Mixing tray, 24" x 24" x 3"	Local	Each	*
<b>E.</b>	<b>FIELD DENSITY</b>			
1	6 inches sand density cone apparatus (Complete Set)	35-T130	Each	3
2	Spoon	Local	Each	2
3	Plastic bags	Local	L.S	*
4	Chisel, 12"	Local	Each	2
5	Hammaer, 2.5 lbs	Local	Each	2
6	Field balance	11-D608	Each	2
7	Speedy moisture tester	19-T24	Each	2
8	Nuclear density guage, Troxler XFL		Each	1

SR. No.	EQUIPMENT DESCRIPTION	CONTROL S MODEL No.	UNIT	QTY
9	Sieve No. 30 (0.60 mm)	15-D136/6	Each	2
<b>F.</b>	<b>CONCRETE AND CEMENT</b>			
1	Compressive strength machine, heavy duty, 2000 KN	50-C52/B	Each	1
2	Steel scale	-	Each	2
3	Curing tank with temperature control	-	Each	1
4	Cement mould brush	-	Each	2
5	Laboratory concrete mixer	55-C196/1	Each	1
6	Concrete vibrator	55-C162/A	Each	1
7	Concrete tray	86-D1305/1	Each	*
8	Air meter complete	54-C170/D	Set	1
9	Cylinder mould, heavy duty, 6" diameter	54-C118/D	Each	9
10	Cylinder capping apparatus	54-C121/21	Each	1
11	Concrete capping compound	54-C121/1	Kg	*
12	Laboratory warming pot	54-C121/4	Each	1
13	Slump test cone	54-C149/A	Set	2

## E Measurement and Payment

Providing, furnishing, equipped and maintaining the field laboratory shall not be paid separately and shall deemed to be included in other pay items.

Item No	Description	Unit of Measurement
5.7	Provide Furnish and Equipped Field Laboratory	Not Payable Separately, Inclusive in other BoQ items
	Maintain Engineer's Field Laboratory	Not Payable Separately, Inclusive in other BoQ items

## 5.8 ENGINEER'S SURVEY EQUIPMENT

### A GENERAL

The Contractor shall provide and maintain, for the whole contract duration, survey equipment for the use of the Engineer and his Staff. All the survey equipment shall be new and shall be maintained throughout the Contract duration and replaced by the Contractor free of charge in case of damage or loss howsoever caused. The Contractor shall also arrange calibration of all surveying instruments after every three months.

After the completion of the Works the survey equipment shall remain the property of the Contractor and shall be handed over back to him.

## B Equipment

The Contractor shall provide and maintain the following survey equipment (minimum but not limited to):

No.	DESCRIPTION	
1	Total Station survey units complete	Sokkia Latest Model or Equivalent
	0.5" Reading 2" Accuracy, Range with Prism 3.5 km complete with:	
	<ul style="list-style-type: none"> <li>- Built in Data lodger</li> <li>- Main Unit with WA-type Tribrach</li> <li>- BDC 35 Rechargeable Battery X2</li> <li>- CDC 40 Quick charger</li> <li>- 5000 points Built in memory + SDC Memory card (128k byte)</li> <li>- CPT Tubular Compass</li> <li>- Sunshade, Lens Cap, Plumbbob,</li> <li>- Vinyl Cover, Tool Kit, Cable, Belt,</li> <li>- Basic Operation Manual, Carrying Case</li> <li>- Precision Wooden Tripod</li> </ul>	
2	Automatic Level complete with tripod	AL 32 A or equivalent
2	Aluminum Telescopic Tripod	Sokkia PFA1 or equivalent
4	Levelling Staff (local manufacture)	
2	Range Pole Level	Sokkia AP61L or equivalent
3	Steel measuring tape, 50 m long	
4	Steel measuring tape, 20 m long	
10	Steel measuring tape, 3 m long	

## D Measurement and Payment

Providing and maintaining the Survey equipment shall not be measured and paid separately and shall be deemed to be included in other items.

Item No	Description	Unit of Measurement
5.8	Provide Survey Equipment	Not Payable Separately, Inclusive in other BoQ items
	Maintain Survey Equipment	Not Payable Separately, Inclusive in other BoQ items

## **Environmental, Health and Safety Management Requirement**

## Drawings Volume- II

*Drawings can be downloaded from the below link*

**[www.spripwsd.gos.pk](http://www.spripwsd.gos.pk)**

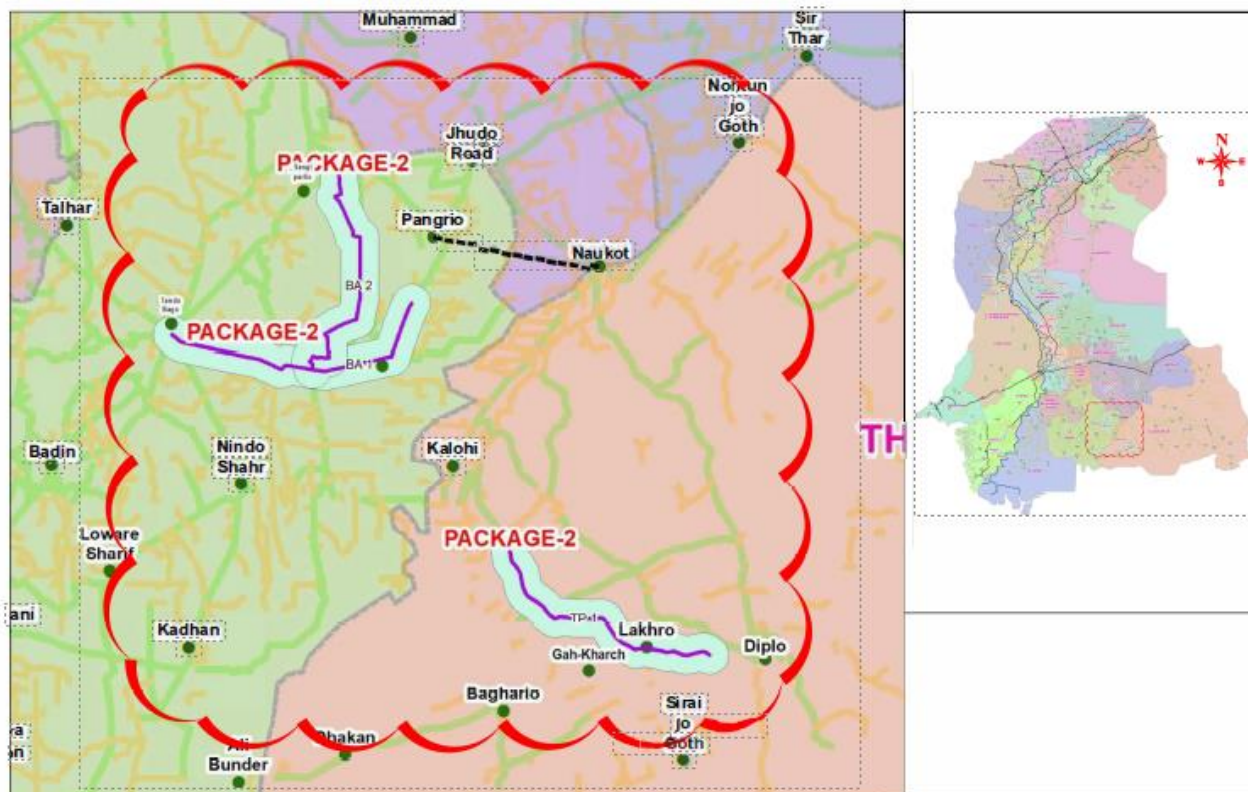
## Supplementary Information Regarding Works to Be Procured

Asian Development Bank (ADB) in collaboration with the Federal and Provincial Governments is funding the Rehabilitation and construction program of Emergency Flood Assistance Project.

This loan will be used for package wise upgradation and construction of roads (including bridges, culverts and other structures) in the Province of Sindh, under program of Emergency Flood Assistance Project, which are presently not in so good condition.

Being situated in the subtropical region, Sindh Province is hot in summer and cold in winter. Temperatures in summer frequently rise above 46 °C between May and August. Annual rainfall averages 150-180 mm falling mainly during July and August. The monsoon winds begin to blow from south-west in February and continue till September, whereas the colder northern winds blow during the months from October to January.

The project road partly lies in the District Badin of Sindh Province. The location of roads is included in Drawing Folder.

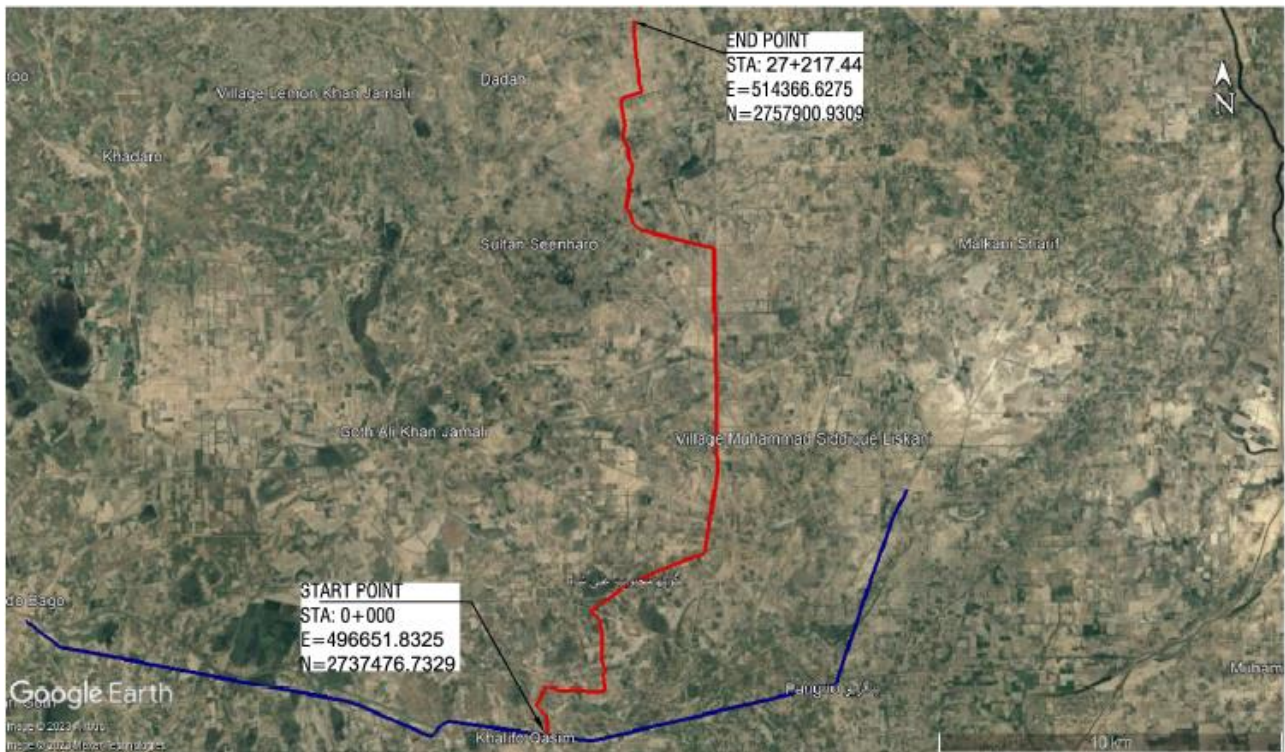


Key Plan





BA-1: Improvement of Road from Tando Bago to Dragah Saman Sarkar via Pangrio – (30.284 kms)



BA-2 Road from Khalifo Qasim to Jhudo via Mehboob Shah – (27.217 kms)

Standard Operation Procedures (SOPs) issued by Government of Pakistan from time to time, local regulations and guidance specific to COVID-19 prevention and controls, and worksite safety measures requirements that are deemed applicable to the contract, as well as the applicable international good practices on Health and Safety for the contract.

#### **Site Specific Health and Safety Management Plan (SSHSMP)**

**Standard Operating Procedures (SOPs):** *All Standard Operating Procedures (SOPs) issued by the Government of Pakistan from time to time on COVID-19 prevention and controls, as well as workplace safety requirements, with international good practice guidelines [World Health Organization, Considerations for public health and social measures in the workplace in the context of COVID-19. Geneva. Available here: <https://www.who.int/publications-detail/considerations-for-public-health-and-social-measures-in-the-workplace-in-the-context-of-covid-19>] and SOPs (<http://covid.gov.pk/>) will be applicable.*



## Personnel Requirements

Using Form PER - 1 and PER - 2 in Section 4 (Bidding Forms), the Bidder must demonstrate that it has personnel who meet the following requirements:

No.	Position	Minimum Qualification	Total Work Experience (years)	Experience in Similar Work (years)
1	Project Manager	B.Sc. (Civil Engg.) or equivalent Professional qualification.	20	10
2	Construction Engineer (Roads & Highways)	B. Sc. (Civil Engg.) or equivalent Professional qualification.	10	05
3	Structural Engineer Construction (Bridges)	B. Sc. (Civil Engg.) or equivalent Professional qualification.	10	05
4	Material Engineer	M. Sc. (Geology) / B. Sc. (Civil Engg.) or equivalent Professional qualification.	10	05
5	Contracts Engineer	B. Sc. (Civil Engg.) or equivalent Professional qualification.	10	05
6	HSE Specialist	Bachelor's degree in the relevant field	10	05
7	Site Superintendent (Asphalt Works)	Diploma Associate Engineering (Civil) or equivalent Professional qualification	12	10
8	Site Superintendent (Bridge Structures)	Diploma Associate Engineering (Civil) or equivalent Professional qualification	12	10
9	Quantity Surveyor	Diploma Associate Engineering (Civil) or equivalent Professional qualification	10	8

Note- All Engineers whether foreign or local must be registered with Pakistan Engineering Council (PEC). Copy of Registration Certificate shall be required to be submitted to employer prior to starting any activity at site.

Using Form EXP-6 in Section 4 (Bidding Forms), the Bidder must demonstrate that it has EHS personnel who meet the following requirements:

### Key Personnel as determined by the EMP and other safeguard management plans<sup>1</sup>

Item No.	Position/specialization	Relevant academic qualifications	Minimum years of relevant work experience	Minimum time on-site (%FTE)
1	Environmental Specialist	M.Sc. (Environment.) or equivalent Professional qualification	12	
2	Occupational Health and Safety Specialist	M.Sc. (Public Health Engg.) or equivalent Professional qualification	12	

<sup>1</sup> For projects categorized as Category C for environment for which no EMP has been prepared, the below table should not be taken into consideration.

## Equipment Requirements

Using Form EQU in Section 4 (Bidding Forms), the Bidder must demonstrate that it has the key equipment listed below:

No.	Equipment Type and Characteristics	Minimum Number Required
1	Dozer	4
2	Motor Grader	10
3	Front End Loader	8
4	12 Tons Tandem Roller/ Sheep Foot Roller	8
5	Pneumatic Tire Roller	4
6	Asphalt Plant (100-ton Capacity)	1
7	Asphalt Paver	2
8	Pressure Distributor for Prime Coat	2
9	Concrete Batch Plant	1
10	Tipper Dumpers	24
11	Concrete Transit Mixers- Min 6 CM	6
12	Excavator	4

Note: The bidder shall furnish on judicial stamp paper an undertaking after the signing of the contract stating that it shall bring the equipment mentioned here-in-above or more to successfully execute and complete the project within the completion period.

# Section 7: General Conditions of Contract

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## A. General

### 1. Definitions

1.1 Boldface type is used to identify defined terms.

- (a) The **Accepted Contract Amount** means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.
- (b) The **Activity Schedule** is a schedule of the activities comprising the construction, installation, testing, and commissioning of the Works in a lump sum contract. It includes a lump sum price for each activity, which is used for valuations and for assessing the effects of Variations and Compensation Events.
- (c) The **Adjudicator** is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in GCC 29.1 [Appointment of Adjudicator] hereunder.
- (d) **Bank** means the financing institutions named in the **Particular Conditions of Contract (PCC)**.
- (e) **Bill of Quantities** means the priced and completed Bill of Quantities forming part of the Bid.
- (f) **Compensation Events** are those defined in GCC 51.1 [Compensation Events] hereunder.
- (g) The **Completion Date** is the date of completion of the Works as certified by the Project Manager, in accordance with GCC 69.1 [Completion].
- (h) The **Contract** is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in GCC 2.3 below.
- (i) The **Contractor** is the party whose Bid to carry out the Works has been accepted by the Employer.
- (j) The **Contractor's Bid** is the completed bidding document submitted by the Contractor to the Employer.
- (k) The **Contract Price** is the Accepted Contract Amount stated in the Letter of Acceptance and thereafter as adjusted in accordance with the Contract.
- (l) **Days** are calendar days; months are calendar months.
- (m) **Dayworks** are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.
- (n) A **Defect** is any part of the Works not completed in accordance with the Contract.
- (o) The **Defects Liability Certificate** is the certificate issued by the Project Manager upon correction of defects by the Contractor.
- (p) The **Defects Liability Period** is the period calculated from the Completion Date where the Contractor remains responsible for

remedying defects.

- (q) **Drawings** include calculations and other information provided or approved by the Project Manager for the execution of the Contract.
- (r) The **Employer** is the party who employs the Contractor to carry out the Works, as specified in the **PCC**.
- (s) **Equipment** is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.
- (t) **Force Majeure** means an exceptional event or circumstance: which is beyond a Party's control; which such Party could not reasonably have provided against before entering into the Contract; which, having arisen, such Party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other Party.
- (u) **In writing** or **written** means hand-written, type-written, printed, or electronically made, and resulting in a permanent record.
- (v) The **Initial Contract Price** is the Contract Price listed in the Employer's Letter of Acceptance.
- (w) The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the **PCC**. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order.
- (x) **Letter of Acceptance** means the formal acceptance by the Employer of the Bid and denotes the formation of the Contract at the date of acceptance.
- (y) **Materials** are all supplies, including consumables, used by the Contractor for incorporation in the Works.
- (z) **Party** means the Employer or the Contractor, as the context requires.
- (aa) **PCC** means Particular Conditions of Contract.
- (bb) **Plant** is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function.
- (cc) The **Project Manager** is the person named in the **PCC** (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract.
- (dd) **Retention Money** means the aggregate of all monies retained by the Employer pursuant to GCC 55.1 [Retention].
- (ee) **Schedules** means the document(s) entitled schedules, completed by the Contractor and submitted with the Letter of Bid, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.
- (ff) The **Site** is the area defined as such in the **PCC**.

- (gg) **Site Investigation Reports** are those that were included in the bidding documents and are factual and interpretative reports about the surface and subsurface conditions at the Site.
- (hh) **Specification** means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager.
- (ii) The **Start Date** is given in the **PCC**. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.
- (jj) A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.
- (kk) **Temporary Works** are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works.
- (ll) A **Variation** is an instruction given by the Project Manager which varies the Works.
- (mm) The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the **PCC**.

## 2. Interpretation

- 2.1 In interpreting these GCC, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Project Manager shall provide instructions clarifying queries about these GCC.
- 2.2 If sectional completion is specified in the **PCC**, references in the GCC to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).
- 2.3 The documents forming the Contract shall be interpreted in the following order of priority:
  - (a) Contract Agreement,
  - (b) Letter of Acceptance,
  - (c) Letter of Bid,
  - (d) Particular Conditions of Contract,
  - (e) the List of Eligible Countries that was specified in Section 5 of the bidding document,
  - (f) General Conditions of Contract,
  - (g) Specifications,
  - (h) Drawings,
  - (i) Completed Activity Schedules or Bill of Quantities, and
  - (j) any other document listed in the **PCC** as forming part of the Contract.



- 3. Language and Law**
- 3.1 The language of the Contract and the law governing the Contract are stated in the **PCC**.
- 3.2 Throughout the execution of the Contract, the Contractor shall comply with the import of goods and services prohibitions in the Employer's country when
- (a) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's Country prohibits any import of goods from, or any payments to, a particular country, person, or entity. Where the Borrower's country prohibits payments to a particular firm or for particular goods by such an act of compliance, that firm may be excluded.
- 4. Contract Agreement**
- 4.1 The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless the Particular Conditions establish otherwise. The Contract Agreement shall be based upon the attached Contract forms in Section 8. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.
- 5. Assignment**
- 5.1 Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party
- (a) may assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party; and
- (b) may, as security in favor of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.
- 6. Care and Supply of Documents**
- 6.1 The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.
- 6.2 Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the Engineer six copies of each of the Contractor's Documents.
- 6.3 The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.
- 6.4 If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.
- 7. Confidential Details**
- 7.1 The Contractor's and the Employer's Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify the Contractor's compliance with the Contract and allow its proper implementation.

- 7.2 Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.
- 7.3 Notwithstanding the above, the Contractor may furnish to its Subcontractor(s) such documents, data and other information it receives from the Employer to the extent required for the Subcontractor(s) to perform its work under the Contract, in which event the Contractor shall obtain from such Subcontractor(s) an undertaking of confidentiality similar to that imposed on the Contractor under this Clause.

## **8. Compliance with Laws**

- 8.1 The Contractor shall, in performing the Contract, comply with applicable Laws.
- 8.2 Unless otherwise stated in the Particular Conditions,
- (a) the Employer shall acquire and pay for all permits, approvals, and/or licenses from all local, state, or national government authorities or public service undertakings in the [Employer's Country or country where the Site is located] which (i) such authorities or undertakings require the Employer to obtain in the Employer's name, and (ii) are necessary for the execution of the Contract, including those required for the performance by both the Contractor and the Employer of their respective obligations under the Contract;
  - (b) the Contractor shall acquire and pay for all permits, approvals, and/or licenses from all local, state, or national government authorities or public service undertakings in the [Employer's Country or country where the Site is located] which such authorities or undertakings require the Contractor to obtain in its name and which are necessary for the performance of the Contract, including, without limitation, visas for the Contractor's and Subcontractor's personnel and entry permits for all imported Contractor's Equipment. The Contractor shall acquire all other permits, approvals, and/or licenses that are not the responsibility of the Employer under Subclause 8.2(a) hereof and that are necessary for the performance of the Contract. The Contractor shall indemnify and hold harmless the Employer from and against any and all liabilities, damages, claims, fines, penalties, and expenses of whatever nature arising or resulting from the violation of such laws by the Contractor or its personnel, including the Subcontractors and their personnel, but without prejudice to Subclause 8.1 hereof.

## **9. Joint and Several Liability**

- 9.1 If the Contractor is a Joint Venture of two or more persons, all such persons shall be jointly and severally liable to the Employer for the fulfillment of the provisions of the Contract, and shall designate one of such persons to act as a leader with authority to bind the Joint Venture. The composition or the constitution of the Joint Venture shall not be

altered without the prior consent of the Employer.

- |  |  |
|--|--|
| <b>10. Project Manager's Decisions</b>       | 10.1 Except where otherwise specifically stated, the Project Manager shall decide contractual matters between the Employer and the Contractor in the role representing the Employer.   |
| <b>11. Delegation</b>                        | 11.1 The Project Manager may delegate any of his duties and responsibilities to other people, except to the Adjudicator, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.   |
| <b>12. Communications</b>                    | 12.1 Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered.   |
| <b>13. Subcontracting</b>                    | 13.1 The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations.  |
| <b>14. Other Contractors</b>                 | 14.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors, as referred to in the <b>PCC</b> . The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.  |
| <b>15. Personnel and Equipment</b>           | <p>15.1 The Contractor shall employ the key personnel and use the equipment identified in its Bid to carry out the functions stated in the Schedule or other personnel and equipment approved by the Project Manager. The Project Manager shall approve any proposed replacement of key personnel and equipment only if their relevant qualifications or characteristics are substantially equal to or better than those proposed in the Bid.</p> <p>15.2 If the Project Manager asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within 7 days and has no further connection with the work in the Contract.</p> <p>15.3 Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations during the execution of the Works, then that employee shall be removed in accordance with Clause 15.2 above.</p> |
| <b>16. Employer's and Contractor's Risks</b> | 16.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.   |
| <b>17. Employer's Risks</b>                  | <p>17.1 From the Start Date until the Defects Liability Certificate has been issued, the following are Employer's risks:</p> <ul style="list-style-type: none"> <li>(a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to             <ul style="list-style-type: none"> <li>(i) use or occupation of the Site by the Works or for the</li> </ul> </li> </ul>  |

purpose of the Works, which is the unavoidable result of the Works, or

- (ii) negligence, breach of statutory duty, or interference with any legal right by the Employer or by any person employed by or contracted to him except the Contractor.

- (b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Employer or in the Employer's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.

17.2 From the Completion Date until the Defects Liability Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is an Employer's risk except loss or damage due to

- (a) a Defect which existed on the Completion Date,
- (b) an event occurring before the Completion Date, which was not itself an Employer's risk, or
- (c) the activities of the Contractor on the Site after the Completion Date.

## 18. Contractor's Risks

18.1 From the Starting Date until the Defects Liability Certificate has been issued, the risks of personal injury, death, and loss of or damage to property (including, without limitation, the Works, Plant, Materials, and Equipment) which are not Employer's risks, are Contractor's risks.

## 19. Insurance

19.1 The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the **PCC** for the following events, which are due to the Contractor's risks:

- (a) loss of or damage to the Works, Plant, and Materials;
- (b) loss of or damage to Equipment;
- (c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and
- (d) personal injury or death.

19.2 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

19.3 If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance, which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

19.4 Alterations to the terms of an insurance shall not be made without the approval of the Project Manager.

- 19.5 Both parties shall comply with any conditions of the insurance policies.
- 20. Site Investigation Reports** 20.1 The Contractor, in preparing the Bid, shall rely on any Site Investigation Reports referred to in the **PCC**, supplemented by any information available to the Contractor.
- 21. Contractor to Construct the Works** 21.1 The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.
- 22. The Works to Be Completed by the Intended Completion Date** 22.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager, and complete them by the Intended Completion Date.
- 23. Designs by Contractor and Approval by the Project Manager** 23.1 The Contractor shall carry out design to the extent specified in the **PCC**. The Contractor shall promptly submit to the Employer all designs prepared by him. Within 14 days of receipt, the Employer shall notify any comments. The Contractor shall not construct any element of the permanent work designed by him within 14 days after the design has been submitted to the Employer or where the design for that element has been rejected. Design that has been rejected shall be promptly amended and resubmitted. The Contractor shall resubmit all designs commented on, taking these comments into account as necessary.
- 23.2 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, who is to approve them if they comply with the Specifications and Drawings..
- 23.3 The Contractor shall be responsible for design of Temporary Works.
- 23.4 The Project Manager's approval shall not alter the Contractor's responsibility for design of the Temporary Works.
- 23.5 The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.
- 23.6 All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Project Manager before this use.
- 24. Safety** 24.1 The Contractor shall be responsible for the safety of all activities on the Site.
- 25. Discoveries** 25.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.
- 26. Possession of the Site** 26.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the **PCC**, the Employer shall be deemed to have delayed the start of the relevant activities, and this shall be a Compensation Event.

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| <b>27. Access to the Site</b>                    | 27.1 The Contractor shall allow the Project Manager and any person authorized by the Project Manager access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.   |
| <b>28. Instructions, Inspections, and Audits</b> | <p>28.1 The Contractor shall carry out all instructions of the Project Manager, which comply with the applicable laws where the Site is located.</p> <p>28.2 The Contractor shall keep, and shall make all reasonable efforts to cause its Subcontractors and subconsultants to keep accurate and systematic accounts and records in respect of the Works in such form and details as will clearly identify relevant time changes and costs.</p> <p>28.3 The Contractor shall permit ADB or its representative to inspect the Contractor's site, assets, accounts, records, and other documents relating to the submission of bids and contract performance and to have them audited by auditors appointed by ADB. The Contractor shall maintain all documents and records related to the bid submission and execution of the Contract for at least 5 years after completing the works contemplated in the relevant contracts or the period prescribed in applicable law, whichever is longer. The Contractor shall provide any documents necessary for the investigation of allegations of corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations and require its employees or agents with knowledge of the Contract to respond to questions from ADB.</p> <p>28.4 ADB's right to inspect the Site and/or the Contractor's accounts and records relating to the performance of the Contract stated in Sub-Clause 28.3 and 74.2 (e) shall survive termination and/ or expiration of this Contract.</p> |
| <b>29. Appointment of the Adjudicator</b>        | <p>29.1 The Adjudicator shall be appointed jointly by the Employer and the Contractor, at the time of the Employer's issuance of the Letter of Acceptance. If, in the Letter of Acceptance, the Employer does not agree on the appointment of the Adjudicator, the Employer will request the Appointing Authority designated in the <b>PCC</b>, to appoint the Adjudicator within 14 days of receipt of such request.</p> <p>29.2 Should the Adjudicator resign or die, or should the Employer and the Contractor agree that the Adjudicator is not functioning in accordance with the provisions of the Contract, a new Adjudicator shall be jointly appointed by the Employer and the Contractor. In case of disagreement between the Employer and the Contractor, within 30 days, the Adjudicator shall be designated by the Appointing Authority at the request of either party, within 14 days of receipt of such request.</p>  |
| <b>30. Procedure for Disputes</b>                | <p>30.1 If the Contractor believes that a decision taken by the Project Manager was either outside the authority given to the Project Manager by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within 14 days of the notification of the Project Manager's decision.</p> <p>30.2 The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.</p> <p>30.3 The Adjudicator shall be paid by the hour at the rate specified in the</p>  |



**PCC**, together with reimbursable expenses of the types specified in the **PCC**, and the cost shall be divided equally between the Employer and the Contractor, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator's written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator's decision shall be final and binding.

- 30.4 The arbitration shall be conducted in accordance with the arbitration procedures published by the institution named and in the place specified in the **PCC**.

## **B. Staff and Labor**

### **31. Forced Labor**

- 31.1 The Contractor shall not employ forced labor, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty. This covers any kind of involuntary or compulsory labor, such as indentured labor, bonded labor, or similar labor–contracting arrangements.

### **32. Child Labor**

- 32.1 The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where national laws have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.

### **33. Workers' Organizations**

- 33.1 In countries where national law recognizes workers' rights to form and to join workers' organizations of their choosing without interference and to bargain collectively, the Contractor shall comply with national law. Where national law substantially restricts workers' organizations, the Contractor shall enable alternative means for the Contractor's Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. In either case described above, and where national law is silent, the Contractor shall not discourage the Contractor's Personnel from forming or joining workers' organizations of their choosing or from bargaining collectively, and shall not discriminate or retaliate against the Contractor's Personnel who participate, or seek to participate, in such organizations and bargain collectively. The Contractor shall engage with such workers representatives. Worker organizations are expected to fairly represent the workers in the workforce.

### **34. Nondiscrimination and Equal Opportunity**

- 34.1 The Contractor shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment relationship on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline. In countries where national law provides for non-discrimination in employment, the Contractor shall comply with national law. When national laws are silent on nondiscrimination in employment, the Contractor shall meet this Subclause's requirements. Special measures of protection or assistance to remedy past discrimination or

selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination.

## C. Time Control

### 35. Program

- 35.1 Within the time stated in the **PCC**, after the date of the Letter of Acceptance, the Contractor shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works. In the case of a lump sum contract, the activities in the Program shall be consistent with those in the Activity Schedule.
- 35.2 An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.
- 35.3 The Contractor shall submit to the Project Manager for approval an updated Program at intervals no longer than the period stated in the **PCC**. If the Contractor does not submit an updated Program within this period, the Project Manager may withhold the amount stated in the **PCC** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted. In the case of a lump sum contract, the Contractor shall provide an updated Activity Schedule within 14 days of being instructed to by the Project Manager.
- 35.4 The Project Manager's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Project Manager again at any time. A revised Program shall show the effect of Variations and Compensation Events.

### 36. Extension of the Intended Completion Date

- 36.1 The Project Manager shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost.
- 36.2 The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Project Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

### 37. Acceleration

- 37.1 When the Employer wants the Contractor to finish before the Intended Completion Date, the Project Manager shall obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Employer accepts these proposals, the Intended Completion Date shall be adjusted accordingly and confirmed by both the Employer and the Contractor.
- 37.2 If the Contractor's priced proposals for an acceleration are accepted by the Employer, they are incorporated in the Contract Price and treated



as a Variation.

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| <b>38. Delays Ordered by the Project Manager</b> | 38.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.  |
| <b>39. Management Meetings</b>                   | <p>39.1 Either the Project Manager or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.</p> <p>39.2 The Project Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.</p>  |
| <b>40. Early Warning</b>                         | <p>40.1 The Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price, or delay the execution of the Works. The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.</p> <p>40.2 The Contractor shall cooperate with the Project Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Project Manager.</p> |

#### **D. Quality Control**

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| <b>41. Identifying Defects</b>   | 41.1 The Project Manager shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Project Manager may instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect.  |
| <b>42. Tests</b>                 | 42.1 If the Project Manager instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event.  |
| <b>43. Correction of Defects</b> | <p>43.1 The Project Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the <b>PCC</b>. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.</p> <p>43.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager's notice.</p> |

**44. Uncorrected Defects**

- 44.1 If the Contractor has not corrected a Defect within the time specified in the Project Manager's notice, the Project Manager shall assess the cost of having the Defect corrected, and the Contractor shall pay this amount.

**E. Cost Control****45. Contract Price**

- 45.1 In the case of an admeasurement contract, the Bill of Quantities shall contain priced items for the Works to be performed by the Contractor. The Bill of Quantities is used to calculate the Contract Price. The Contractor will be paid for the quantity of the work accomplished at the rate in the Bill of Quantities for each item.
- 45.2 In the case of a lump sum contract, the Activity Schedule shall contain the priced activities for the Works to be performed by the Contractor. The Activity Schedule is used to monitor and control the performance of activities on which basis the Contractor will be paid. If payment for Materials on Site shall be made separately, the Contractor shall show delivery of Materials to the Site separately on the Activity Schedule.

**46. Changes in the Contract Price**

- 46.1 In the case of an admeasurement contract:
- (a) If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25%, provided the change exceeds 1% of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change.
  - (b) The Project Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15%, except with the prior approval of the Employer.
  - (c) If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities.
- 46.2 In the case of a lump sum contract, the Activity Schedule shall be amended by the Contractor to accommodate changes of Program or method of working made at the Contractor's own discretion. Prices in the Activity Schedule shall not be altered when the Contractor makes such changes to the Activity Schedule.

**47. Variations**

- 47.1 All Variations shall be included in updated Programs, and, in the case of a lump sum contract, also in the Activity Schedule, produced by the Contractor.
- 47.2 The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven (7) days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.
- 47.3 If the Contractor's quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of

the Variation on the Contractor's costs.

- 47.4 If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.
- 47.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.
- 47.6 In the case of an admeasurement contract, if the work in the Variation corresponds to an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in GCC 46.1 [Changes in the Contract Price] or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work.

**48. Cash Flow  
Forecasts**

- 48.1 When the Program, or, in the case of a lump sum contract, the Activity Schedule, is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.

**49. Payment  
Certificates**

- 49.1 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.
- 49.2 The Project Manager shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.
- 49.3 The value of work executed shall be determined by the Project Manager.
- 49.4 The value of work executed shall comprise,
- (a) in the case of an admeasurement contract, the value of the quantities of work in the Bill of Quantities that have been completed; or
  - (b) in the case of a lump sum contract, the value of work executed shall comprise the value of completed activities in the Activity Schedule.
- 49.5 The value of work executed shall include the valuation of Variations and Compensation Events.
- 49.6 The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

**50. Payments**

- 50.1 Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor the amounts certified by the Project Manager within 28 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made.
- 50.2 If an amount certified is increased in a later certificate or as a result of an award by the Adjudicator or an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.
- 50.3 Unless otherwise stated, all payments and deductions shall be paid or charged in the proportions of currencies comprising the Contract Price.
- 50.4 Items of the Works for which no rate or price has been entered in shall not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

**51. Compensation Events**

- 51.1 The following shall be Compensation Events:
- (a) The Employer does not give access to a part of the Site by the Site Possession Date pursuant to GCC 26.1 [Possession of the Site].
  - (b) The Employer modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract.
  - (c) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time.
  - (d) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects.
  - (e) The Project Manager unreasonably does not approve a subcontract to be let.
  - (f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to Bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.
  - (g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.
  - (h) Other contractors, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.

- (i) The advance payment is delayed.
- (j) The effects on the Contractor of any of the Employer's Risks.
- (k) The Project Manager unreasonably delays issuing a Certificate of Completion.

51.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

51.3 As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager shall assume that the Contractor shall react competently and promptly to the event.

51.4 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor's not having given early warning or not having cooperated with the Project Manager.

## 52. Tax

52.1 The Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 28 days before the submission of bids for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected in the Contract Price or are a result of GCC 54.1 [Price Adjustment].

## 53. Currencies

53.1 Where payments are made in currencies other than the currency of the Employer's country specified in the **PCC**, the exchange rates used for calculating the amounts to be paid shall be the exchange rates stated in the Contractor's Bid.

## 54. Price Adjustment

54.1 Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the **PCC**. If so provided, the amounts certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due in each currency. A separate formula of the type indicated below applies to each Contract currency:

$$P_c = A_c + B_c \text{ Imc/loc}$$

where:

$P_c$  is the adjustment factor for the portion of the Contract Price payable in a specific currency "c."

$A_c$  and  $B_c$  are coefficients<sup>1</sup> specified in the **PCC**, representing the nonadjustable and adjustable portions, respectively, of the Contract Price payable in that specific currency “c;” and

$I_{mc}$  is a consolidated index prevailing at the end of the month being invoiced and  $I_{oc}$  is the same consolidated index prevailing 28 days before Bid opening for inputs payable; both in the specific currency “c.”

54.2 If the value of the index is changed after it has been used in a calculation, the calculation shall be corrected and an adjustment made in the next payment certificate. The index value shall be deemed to take account of all changes in cost due to fluctuations in costs.

## 55. Retention

55.1 The Employer shall retain from each payment due to the Contractor the proportion stated in the **PCC** until Completion of the whole of the Works.

55.2 Upon the issue of a Certificate of Completion of the Works by the Project Manager, in accordance with GCC 69.1 [Completion], half the total amount retained shall be repaid to the Contractor and half when the Defects Liability Period has passed and the Project Manager has certified that all Defects notified by the Project Manager to the Contractor before the end of this period have been corrected. The Contractor may substitute retention money with an “on demand” bank guarantee.

## 56. Liquidated Damages

56.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the **PCC** for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the **PCC**. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor’s liabilities.

56.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in GCC 50.1 [Payments].

## 57. Bonus

57.1 The Contractor shall be paid a Bonus calculated at the rate per calendar day stated in the **PCC** for each day (less any days for which the Contractor is paid for acceleration) that the Completion is earlier than the Intended Completion Date. The Project Manager shall certify that the Works are complete, although they may not be due to be complete.

## 58. Advance

58.1 The Employer shall make advance payment to the Contractor of the amounts stated in the **PCC** by the date stated in the **PCC**, against

<sup>1</sup> The sum of the two coefficients  $A_c$  and  $B_c$  should be 1 (one) in the formula for each currency. Normally, both coefficients shall be the same in the formulas for all currencies, since coefficient  $A_c$ , for the nonadjustable portion of the payments, is a very approximate figure (usually 0.10 ~ 0.20) to take account of fixed cost elements or other nonadjustable components. The sum of the adjustments for each currency is added to the Contract Price.

**Payment**

provision by the Contractor of an unconditional bank guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to the advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest shall not be charged on the advance payment.

58.2 The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager.

58.3 The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.

**59. Securities**

59.1 The Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount specified in the **PCC**, by a bank acceptable to the Employer, and denominated in the types and proportions of the currencies in which the Contract Price is payable. The Performance Security shall be valid until a date 28 days from the date of issue of the Certificate of Completion in the case of a bank guarantee.

**60. Dayworks**

60.1 If applicable, the Dayworks rates in the Contractor's Bid shall be used for small additional amounts of work only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.

60.2 All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within 2 days of the work being done.

60.3 The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

**61. Cost of Repairs**

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

**F. Force Majeure****62. Definition of Force Majeure**

62.1 In this Clause, "Force Majeure" means an exceptional event or circumstance,

(a) which is beyond a Party's control;



- (b) which such Party could not reasonably have provided against before entering into the Contract;
- (c) which, having arisen, such Party could not reasonably have avoided or overcome; and
- (d) which is not substantially attributable to the other Party.

62.2 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

- (a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies;
- (b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war;
- (c) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel;
- (d) munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity; and
- (e) natural catastrophes such as earthquake, hurricane, typhoon, or volcanic activity.

**63. Notice of Force Majeure**

63.1 If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.

63.2 The Party shall, having given notice, be excused from performance of its obligations for so long as such Force Majeure prevents it from performing them.

63.3 Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

**64. Duty to Minimize Delay**

64.1 Each Party shall at all times use all reasonable endeavours to minimize any delay in the performance of the Contract as a result of Force Majeure.

64.2 A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

**65. Consequences of Force Majeure**

65.1 If the Contractor is prevented from performing its substantial obligations under the Contract by Force Majeure of which notice has been given under GCC Subclause 63 [Notice of Force Majeure], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to GCC Subclause 30.1 [Procedure for



Disputes] to

- (a) an extension of time for any such delay, if completion is or will be delayed, under GCC Subclause 36 [Extension of the Intended Completion Date]; and
- (b) if the event or circumstance is of the kind described in subparagraphs (a) to (d) of GCC Subclause 62.2 [Definition of Force Majeure] and, in the case of subparagraphs (b) to (d), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destructed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in GCC Subclause 19 [Insurance].

65.2 After receiving this notice, the Project Manager shall proceed in accordance with GCC Subclause 10 [Project Manager's Decisions] to agree or determine these matters.

**66. Force Majeure  
Affecting  
Subcontractor**

66.1 If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader Force Majeure events or circumstances shall not excuse the Contractor's nonperformance or entitle him to relief under this Clause.

**67. Optional  
Termination,  
Payment and  
Release**

67.1 If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under GCC Subclause 63 [Notice of Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with GCC Subclause 73.5 [Termination].

67.2 Upon such termination, the Project Manager shall determine the value of the work done and issue a Payment Certificate, which shall include

- (a) the amounts payable for any work carried out for which a price is stated in the Contract;
- (b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal;
- (c) other Costs or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;
- (d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and
- (e) the Cost of repatriation of the Contractor's staff and labor employed wholly in connection with the Works at the date of

termination.

#### **68. Release from Performance**

68.1 Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises, which makes it impossible or unlawful for either or both Parties to fulfill its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance,

- (a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract; and
- (b) the sum payable by the Employer to the Contractor shall be the same as would have been payable under GCC Subclause 67 [Optional Termination, Payment and Release] if the Contract had been terminated under GCC Subclause 67.

### **G. Finishing the Contract**

#### **69. Completion**

69.1 The Contractor shall request the Project Manager to issue a certificate of Completion of the Works, and the Project Manager shall do so upon deciding that the work is completed.

#### **70. Taking Over**

70.1 The Employer shall take over the Site and the Works within 7 days of the Project Manager's issuing a certificate of Completion.

#### **71. Final Account**

71.1 The Contractor shall supply the Project Manager with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Project Manager shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate.

#### **72. Operating and Maintenance Manuals**

72.1 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the **PCC**.

72.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the **PCC** pursuant to GCC 72.1, or they do not receive the Project Manager's approval, the Project Manager shall withhold the amount stated in the **PCC** from payments due to the Contractor.

#### **73. Termination**

73.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

73.2 Fundamental breaches of Contract shall include, but shall not be

limited to, the following:

- (a) the Contractor stops work for 28 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager;
- (b) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 28 days;
- (c) the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
- (d) a payment certified by the Project Manager is not paid by the Employer to the Contractor within 84 days of the date of the Project Manager's certificate;
- (e) the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager;
- (f) the Project Manager gives two consecutive Notices to update the Program and accelerate the works to ensure compliance with GCC Subclause 22.1 [The Works to Be Completed by the Intended Completion Date] and the Contractor fails to update the Program and demonstrate acceleration of the works within a reasonable period of time determined by the Project Manager;
- (g) the Contractor does not maintain a Security, which is required;
- (h) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the **PCC**; and
- (i) if the Contractor, in the judgment of the Employer has engaged in integrity violations in competing for or in executing the Contract, pursuant to GCC 74.1 [Fraud and Corruption].

73.3 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under GCC 73.2 above, the Project Manager shall decide whether the breach is fundamental or not.

73.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

73.5 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.

#### **74. Fraud and Corruption**

74.1 If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, or other integrity violations, including the failure to disclose any required information which constitutes a fraudulent practice, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 73 [Termination] shall apply as if such termination had been made under

## Sub-Clause 73.2 (i).

74.2 ADB requires Borrowers (including beneficiaries of ADB-financed activity) and their personnel, as well as firms and individuals participating in an ADB-financed activity, including but not limited to, Bidders, Suppliers, Contractors, agents, subcontractors, subconsultants, service providers, subsuppliers, manufacturers (including their respective officers, directors, employees and personnel) under ADB-financed contracts to observe the highest standard of ethics during the procurement and execution of such contracts in accordance with ADB's Anticorruption Policy (1998, as amended from time to time). In pursuance of this policy, the ADB

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
  - (i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;
  - (ii) "fraudulent practice" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
  - (iii) "coercive practice" means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
  - (iv) "collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party;
  - (v) "abuse" means theft, waste, or improper use of assets related to ADB-related activity, either committed intentionally or through reckless disregard;
  - (vi) "conflict of interest" means any situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations; and
  - (vii) "integrity violation" is any act, as defined under ADB's Integrity Principles and Guidelines (2015, as amended from time to time), which violates ADB's Anticorruption Policy, including (i) to (vi) above and the following: obstructive practice, violations of ADB sanctions, retaliation against whistleblowers or witnesses, and other violations of ADB's Anticorruption Policy, including failure to adhere to the highest ethical standard.
- (b) will reject a proposal for award if it determines that the Bidder recommended for award or any of its officers, directors, employees, personnel, subconsultants, subcontractors, service

providers, suppliers or manufacturers has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the Contract;

- (c) will cancel the portion of the financing allocated to a contract if it determines at any time that representatives of the Borrower or of a beneficiary of ADB-financing engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations during the procurement or the execution of that contract, without the Borrower having taken timely and appropriate action satisfactory to ADB to remedy the situation, including by failing to inform ADB in a timely manner at the time they knew of the integrity violations;
- (d) will impose remedial actions on a firm or an individual, at any time, in accordance with ADB's Anticorruption Policy and Integrity Principles and Guidelines, including declaring ineligible, either indefinitely or for a stated period of time, to participate<sup>2</sup> in ADB-financed, -administered, or -supported activities or to benefit from an ADB-financed, -administered, or -supported contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations; and
- (e) will have the right to require that a provision be included in bidding documents and in contracts financed, administered, or supported by ADB, requiring Bidders, suppliers and contractors, consultants, manufacturers, service providers and other third parties engaged or involved in ADB-related activities, and their respective officers, directors, employees and personnel, to permit ADB or its representative to inspect the site and their assets, accounts and records and other documents relating to the bid submission and contract performance and to have them audited by auditors appointed by ADB.

74.3 All Bidders, consultants, contractors, suppliers, manufacturers, service providers, and other third parties engaged or involved in ADB-related activities and their respective officers, directors, employees and personnel are obliged to cooperate fully in any investigation when requested by ADB to do so. As determined on a case by case basis by ADB, such cooperation includes, but is not limited to, the following:

- (a) being available to be interviewed and replying fully and truthfully to all questions asked;
- (b) providing ADB with any items requested that are within the party's control including, but not limited to, documents and other physical objects;
- (c) upon written request by ADB, authorizing other related entities to release directly to ADB such information that is specifically

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<sup>2</sup> Whether as a Contractor, Subcontractor, Consultant, Manufacturer or Supplier, or Service Provider; or in any other capacity (different names are used depending on the particular Bidding Document).

and materially related, directly or indirectly, to the said entities or issues which are the subject of the investigation;

- (d) cooperating with all reasonable requests to search or physically inspect their person and/or work areas, including files, electronic databases, and personal property used on ADB activities, or that utilizes ADB's Information and Communications Technology (ICT) resources or systems (including mobile phones, personal electronic devices, and electronic storage devices such as external disk drives);
- (e) cooperating in any testing requested by ADB, including but not limited to, fingerprint identification, handwriting analysis, and physical examination and analysis; and
- (f) preserving and protecting confidentiality of all information discussed with, and as required by, ADB.

74.4 All Bidders, consultants, contractors and suppliers shall require their officers, directors, employees, personnel, agents to ensure that, in its contracts with its subconsultants, Subcontractors and other third parties engaged or involved in ADB-related activities, such subconsultants, Subcontractors and other third parties similarly are obliged to cooperate fully in any investigation when requested by ADB to do so.

74.5 The Contractor undertakes that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the bid, have been given or received in connection with the procurement process or in the contract execution.<sup>3</sup>

## 75. Payment upon Termination

75.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the **PCC**. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.

75.2 If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.

## 76. Property

76.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer if the

<sup>3</sup> The undertaking also applies during the period of performance of the contract

Contract is terminated because of the Contractor's default.

**77. Release from Performance**

- 77.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterward to which a commitment was made.

**78. Suspension of ADB Loan or Credit**

- 78.1 In the event that ADB suspends the Loan or Credit to the Employer, from which part of the payments to the Contractor are being made,
- (a) the Employer is obligated to notify the Contractor, with copy to the Project Manager, of such suspension within 7 days of having received ADB's suspension notice.
  - (b) if the Contractor has not received sums due it within the 28 days for payment provided for in GCC 50.1 [Payments], the Contractor may immediately issue a 14-day termination notice.

**79. Eligibility**

- 79.1 The Contractor shall have the nationality of an eligible country as specified in Section 5 (Eligible Countries) of the bidding document. The Contractor shall be deemed to have the nationality of a country if the Contractor is a citizen or is constituted, incorporated, or registered, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed subcontractors or suppliers for any part of the Contract including related services.
- 79.2 The materials, equipment, and services to be supplied under the Contract shall have their origin in eligible source countries as specified in Section 5 (Eligible Countries) of the bidding document and all expenditures under the Contract will be limited to such materials, equipment, and services. At the Employer's request, the Contractor may be required to provide evidence of the origin of materials, equipment, and services.
- 79.3 For purposes of GCC 79.2, "origin" means the place where the materials and equipment are mined, grown, produced, or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.



## Section 8: Particular Conditions of Contract

The following Particular Conditions of Contract shall supplement the GCC. Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

<b>A. General</b>	
<b>GCC 1.1 (d)</b>	The financing institutions is <b>Asian Development Bank (ADB)</b>
<b>GCC 1.1 (r)</b>	<p>The Employer is <b>Works &amp; Services Department, Government of Sindh</b></p> <p><b>Employer's Representative</b> means Project Director, Project Management Unit, Emergency Flood Assistance Project, Works &amp; Services Department, Government of Sindh or any other person appointed by the Employer and notified to the Project Manager and Contractor from time to time.</p>
<b>GCC 1.1 (w)</b>	The Intended Completion Date for the whole of the Works shall be <b>455 days</b> .
<b>GCC 1.1 (cc)</b>	The Project Manager is: <b>To be determined later, Employer will notify before commencement of work.</b>
<b>GCC 1.1 (ff)</b>	The Site is located at District Badin, Sindh and is defined in drawings no. <b>provided in Drawing Folder / Link</b>
<b>GCC 1.1 (ii)</b>	The Start Date shall be <b>fourteen (14) days from signing of the Contract.</b>
<b>GCC 1.1 (mm)</b>	The Works consist of <b>rehabilitation of road works, rehabilitation/construction of structure works, and rehabilitation / construction of protection works.</b>
<b>GCC 2.2</b>	Sectional Completions are: <b>Not Applicable</b>
<b>GCC 2.3 (j)</b>	<p>The following documents also form part of the Contract:</p> <ul style="list-style-type: none"> <li><b>a. Site Specific Environmental Management Plan (SSEMP)</b></li> <li><b>b. Site Specific Health &amp; Safety Management Plan (SSHSMP)</b></li> <li><b>c. Details of Personnel</b></li> <li><b>d. Details of Equipment</b></li> <li><b>e. Method statement and Implementation Schedule</b></li> </ul>
<b>GCC 3.1</b>	<p>The language of the contract is <b>English</b>.</p> <p>The law that applies to the Contract is the law of <b>Islamic Republic of Pakistan</b></p>
<b>GCC 10</b>	<p>Add a second paragraph:</p> <p><i>"The Project Manager shall provide within 3 working days the following information, as prepared by the Project Manager and/or received from the Contractor to the Employer's Authorized Representative:</i></p> <ul style="list-style-type: none"> <li><i>i. Proposal for Extension of the Intended Completion Date prepared under</i></li> </ul>



	<p><i>Clause 36;</i></p> <p><i>ii. Early Warning received from Contractor under Clause 40;</i></p> <p><i>iii. Changes in the Contract Price determined by the Project Manager under Clause 46;</i></p> <p><i>iv. Variations Requested by the Project Manager, quotations received from the Contractor and determined by the Project Manager under Clause 47;</i></p> <p><i>v. Compensation Event determined by the Project Manager under Clause 51;</i></p> <p><i>vi. Request for issuing the Completion certificate requested by the Contractor under Clause 69"</i></p>
<b>GCC 11.1</b>	The Project Manager <b>may</b> delegate any of his duties and responsibilities <b>subject to prior approval of the Employer.</b>
<b>GCC 14.1</b>	Schedule of other contractors: <b>Not Applicable</b>
<b>GCC 19.1</b>	<p>The minimum insurance amounts and deductibles shall be:</p> <p>(a) for loss or damage to the Works, Plant and Materials: <b>110% of the contract price</b></p> <p>(b) for loss or damage to Equipment: <b>Full Replacement Value</b></p> <p>(c) for loss or damage to property (except the Works, Plant, Materials, and Equipment) in connection with Contract: <b>100% of the loss occurred.</b></p> <p>(d) for personal injury or death:</p> <p>(i) of the Contractor's employees: <b>PKR 500,000/- in case of the injury for each occurrence and PKR 1,500,000/- in case of loss of limb, permanent deafness, sight and disability and PKR 5,000,000/- in case of death for each occurrence. (Occurrences unlimited)</b></p> <p>(ii) of other people: <b>same as above</b></p> <p>(iii) The maximum deductible amount shall be <b>"PKR Five (5) Million" against event under Para (a) herein above whereas "Nil" against events under Para (b), (c) and (d). The insurance will be from the companies rated "A" or higher by Pakistan Credit Rating Agency Limited.</b></p>
<b>GCC 20.1</b>	Site Investigation Reports are: <b>Nil</b>
<b>GCC 22.1</b>	<p>Please add the following at the end Sub-Clause 22.1</p> <p><i>"The Contractor shall adequately record the condition of roads, agricultural land and other infrastructure prior to the start of transporting materials, goods and equipment, and construction."</i></p>
<b>GCC 23.1</b>	The following shall be designed by the Contractor: <b>Temporary Diversion Works</b>
<b>GCC 24.1</b>	<p><i>Please add the following as Sub-Clause 24.1:</i></p> <p><i>"The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel and to provide a safe work environment.</i></p> <p><i>The Contractor shall: (a) comply with applicable core labor standards and labor laws, and incorporate applicable workforce occupational safety norms; (b) comply with the applicable provisions of the Gender Action Plan, including equal pay to men</i></p>

	<p><i>and women for the same type of work and enabling working conditions for female workers; (g) to the extent possible, maximize employment of local poor and disadvantaged persons for project construction purposes, provided that the requirement for job and efficiency are adequately met; and (h) provide safe working conditions.</i></p> <p><i>The Contractor is responsible for establishment of preventive and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize, adverse impacts and risks of the construction site work to the health and safety of local communities.</i></p> <p><i>Within 14 days of the Start Date the Contractor shall submit a detailed Site-Specific Health and Safety Management Plan (SSHSMP) for the Project Manager's no objection showing how he/she intends to comply with the local Health and Safety laws and regulations and other specific requirements prescribed in the Contract, taking into account the Supplementary Information in Section 6- Employer's Requirements.</i></p> <p><i>Where unanticipated health and safety hazards or risks become apparent during the Contract, the Contractor is required to update the SSHSMP to outline the potential impacts to site works and associated mitigation measures for the Project Manager's no objection.</i></p> <p><i>The Contractor shall comply with the approved SSHSMP and any corrective or preventative actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor the implementation of the project EMP through the SSHSMP.</i></p> <p><i>The Contractor shall bear the costs to ensure that such measures, requirements and actions are carried out. The Contractor shall submit monthly reports on the compliance of such measures to the Employer.</i></p> <p><i>In the event of a significant injury involving medical treatment or hospitalization and fatal accident the Contractor shall notify the Project Manager immediately by verbal communication and submit a formal report as soon as practicable after it occurrence.</i></p> <p><i>For all accidents, whether fatal or not, the Contractor shall also notify the appropriate local authorities in accordance with the Laws of the Country.</i></p> <p><i>The Contractor shall disseminate information (in local languages) on the risks of sexually transmitted diseases, including HIV/AIDs, in health and safety program for all construction works at campsites. Compliance to the foregoing will be strictly monitored by the Employer</i></p>
<b>GCC 26.1</b>	<p>The Site Possession Date(s) shall be: within <b>Seven (7)</b> days from signing of the Contract <i>the Employer shall inform the Contractor in writing that the Site is ready to be taken over.</i> The Contractor shall sign and handover the site possession certificate to the Employer within <b>Three (3)</b> days of receipt of such information.</p>
<b>GCC 27.2</b>	<p>Please add the following as Sub-Clause 27.2:</p> <p><i>"The Contractor shall comply with (i) the measures instructed by the Project Manager to the extent it concerns impacts on affected people during construction; and (ii) any corrective or preventive actions related to Contractor and instructed by the Project</i></p>

	<i>Manager from the Employer safeguards monitoring reports"</i>
<b>GCC 29.1</b>	Appointing Authority for the Adjudicator: <b>Chartered Institute of Arbitrators, Pakistan</b>
<b>GCC 30.3</b>	The Adjudicator shall be paid by the hour at the rate of: <b>PKR 10,000 (ten thousand)</b> The reimbursable expenses are: <b>Actual transportation expenses incurred. Transportation expenses should be by economy class travel whether by air or land. Adjudicator shall be entitled to a per diem of PKR 10,000 (ten thousand) per day.</b>
<b>GCC 30.4</b>	Institution whose arbitration procedures shall be used: <b>(a) Contracts with foreign contractors:</b> International arbitration shall be conducted in accordance with the rules of <b>Singapore International Arbitration Center (SIAC)</b> . Arbitration shall be administered by SIAC. The Place of arbitration shall be <b>Singapore</b> .  <b>(b) Contracts with Domestic contractors:</b> Arbitration shall be conducted in accordance with the laws of the Islamic Republic of Pakistan. The place of arbitration shall be <b>"Karachi, Pakistan"</b> .
<b>GCC 32.1</b>	Please add the following at the end of Sub-Clause 32.1: <i>"Child" means a child below the statutory minimum age of 14 under applicable national, provincial or law of Pakistan."</i>
<b>GCC 34.2</b>	The following sentence shall apply:  <b>Respectful Work Environment</b>  The Contractor shall ensure that its employees and Subcontractors observe the highest ethical standards and refrain from any form of bullying, discrimination, misconduct and harassment, including sexual harassment and shall, at all times, behave in a manner that creates an environment free of unethical behavior, bullying, misconduct and harassment, including sexual harassment. The Contractor shall take appropriate action against any employees or Subcontractors, including suspension or termination of employment or sub-contract, if any form of unethical or inappropriate behavior is identified.  The Contractor shall conduct training programs for its employees and Subcontractors to raise awareness on and prevent any form of bullying, discrimination, misconduct and harassment including sexual harassment, and to promote a respectful work environment. The Contractor shall keep an up to date record of its employees and Subcontractors who have attended and completed such training programs and provide such records to the Employer or the Engineer at their first written request.

<b>C. Time Control</b>	
<b>GCC 35.1</b>	The Contractor shall submit for approval a Program for the Works within <b>21 days</b> from the date of the Letter of Acceptance. The program shall be submitted in the form of MS Project or other similar software (3 Nos. hard and soft copies) by allocating the equipment and other resources, moreover, the critical activities shall be identified. The program shall include information on equipment for the Contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail as advised and approved by the Project Manager. The Contractor shall include as part of its program submitted; a detail forecasted cash flow in a format acceptable to the Project Manager.
<b>GCC 35.3</b>	The period between Program updates is <b>fourteen (14) days</b> . The amount to be deducted for late submission of an updated Program is <b>PKR 50,000 (Fifty Thousand Pakistan Rupees) per week (non-refundable)</b> .
<b>D. Quality Control</b>	
<b>GCC 40.1</b>	Please add the following at the end of Sub-Clause 40.1: <i>"In addition to the foregoing, the Contractor shall provide the Project Manager with a written notice of any unanticipated environmental or resettlement impacts that arise during construction, implementation or operation"</i>
<b>GCC 43.1</b>	The Defects Liability Period is: <b>Three Hundred and Sixty-Five (365) days from the Completion Date</b> .
<b>E. Cost Control</b>	
<b>GCC 53.1</b>	The currency of the Employer's country is: <b>Pakistani Rupees (PKR)</b> .
<b>GCC 54.1</b>	<p>Clause 54.1 of GCC is deleted entirely and replaced with the following: The amounts payable to the Contractor shall be adjusted in respect of the rise or fall in the cost of labor, materials, and other inputs to the Works, by applying the following formula:</p> <p>Adjustment Formula</p> <p>The adjustment to the monthly statements in respect of changes in cost shall be determined from the following formula:</p> $P_n = A + M1 \frac{Asphalt_{Current}}{Asphalt_{Base}} + M2 \frac{Steel_{Current}}{Steel_{Base}} + M3 \frac{Cement_{Current}}{Cement_{Base}} + P \frac{Diesel_{Current}}{Diesel_{Base}} + L \frac{Labour_{Current}}{Labour_{Base}}$ <p>Where: Pn is a price adjustment factor to be applied to the amount for the payment of the work carried out in the subject month, A is a constant, specified in Section-4, Table-A to Bid, representing the nonadjustable portion in contractual payments; M1, M2, M3, P and L are weightages representing the estimated proportion of each cost element (Asphalt, Reinforcement, Cement, POL, Labour) in the Works or Sections thereof, above cost elements at the date specified.</p> <p>Sources of Indices and Weightages:</p>

	<p>The sources of indices/ weightages shall be those listed in Section-2 Table-A to Bid, as approved by the Engineer. As the proposed basis for price adjustment, the Contractor shall have submitted with his bid the tabulation of Weightages.</p> <p>Base, Current, and Provisional Indices The base cost indices or prices shall be those prevailing on the day 28 days prior to the latest date for submission of bids. Current indices or prices shall be those prevailing on the day 28 days prior to the last day of the period to which a particular monthly statement is related. If at any time the current indices are not available, provisional indices as determined by the Engineer will be used, subject to subsequent correction of the amounts paid to the Contractor when the current indices become available.</p> <p>Adjustment after Completion If the Contractor fails to complete the Works within the Time for Completion prescribed under Clause PCC 1.1(w) , adjustment of prices thereafter until the date of completion of the Works shall be made using either the indices or prices relating to the prescribed time for completion, or the current indices or prices, whichever is more favorable to the Employer, provided that if an extension of time is granted pursuant to Clause PCC 1.1(w), the above provision shall apply only to adjustments made after the expiry of such extension of time.</p> <p>The weightages for each of the factors of cost given in Section-4 Table-A shall not be adjusted during currency of the contract.</p>
<b>GCC 54.2</b>	Clause 54.2 of GCC is deleted entirety.
<b>GCC 55.1</b>	The proportion of payments retained is: <b>Five Percent (5%)</b> .
<b>GCC 56.1</b>	<p>The liquidated damages for the whole of the Works are <b>0.1%</b> per day.</p> <p>The maximum amount of liquidated damages for the whole of the Works is <b>10%</b> of the final Contract Price.</p>
<b>GCC 57.1</b>	Bonus is not applicable.
<b>GCC 58.1</b>	The Advance Payments shall be <b>up to 10%</b> and shall be paid to the Contractor no later than 21 days from the date the corresponding bank guarantee delivered by the Contractor and has been verified by the Employer from the issuing bank.
<b>GCC 58.3</b>	Repayment of the Advance Payments shall be: <b>Fifteen Percent (15%)</b> from each and subsequent payment certificate
<b>GCC 59.1</b>	The Performance Security amount is 10% of the accepted contract amount. In case of Joint Venture, the performance security must be in the name of Joint Venture. The Performance Security shall be issued either (a) By a reputable bank, which may include scheduled banks, located in the Country, or (b) by a reputable foreign bank, selected by the Contractor and acceptable to the Employer. If the bank issuing the Performance Security furnished by the Contractor is outside the Country, the issuer shall have a correspondent bank in the Country to make it enforceable in the Country. The Performance Security shall be in the form annexed to the Bidding Document.

<b>G. Finishing the Contract</b>	
<b>GCC 69.2</b>	<p>Please add the following as Sub-Clause 69.2:</p> <p><i>“Upon the completion of construction, the Contractor shall fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition as recorded by the Contractor in consonance with its obligation in Clause 22.”</i></p>
<b>GCC 71.1</b>	<p>Add the following at the end of this sub-clause:</p> <p><i>On expiry of the Defects Liability Period, the Employer / Employer’s representative shall constitute a committee comprising of Project Manager / Project Manager’s representative, Employer / Employer’s representative and the Contractor / Contractor’s representative. The committee shall conduct a detailed inspection of the Works to ascertain the completion of any outstanding Work stated in Completion Certificate and remedying of defects to ascertain to the Project Manager for issuance of Defects Liability Certificate or otherwise.</i></p>
<b>GCC 72.1</b>	<p>The date by which operating, and maintenance manuals are required is <b>30 days</b> after issuance of the Completion Certificate.</p> <p>The date by which “as built” drawings are required is <b>before issuance of the Taking Over Certificate.</b></p>
<b>GCC 72.2</b>	<p>The amount to be withheld for failing to produce “as built” drawings and/or operating and maintenance manuals by the date required in GCC 72.1 is <b>PKR 1,000,000. (PKR One Million)</b></p>
<b>GCC 73.2 (h)</b>	<p>The maximum number of days is: <b>100 days</b></p>
<b>GCC 75.1</b>	<p>The percentage to apply to the value of the work not completed, representing the Employer’s additional cost for completing the Works, is <b>ten percent (10%).</b></p>
<b>GCC 80</b>	<p>Please add the following as new sub-paragraph 80:</p> <p><i>“The Contractor shall provide the Employer with Monthly reports of its activities, including each of its obligations in Sub-Clauses 22, 24.2, 27, 34, 69 and 81.”</i></p>
<b>GCC 81</b>	<p>Please add the following as new Sub-Clause 81:</p> <p><i>“The Contractor shall comply with all applicable national, provincial, and local environmental laws and regulations.</i></p> <p><i>The Contractor shall (a) establish an operational system for managing environmental impacts, (b) carry out all the monitoring and mitigation measures set forth in the Environmental Management Plan (“EMP”), (c) allocate the budget required to ensure that such measures are carried out, and (d) comply with any corrective or preventative actions instructed by the Project Manager.”</i></p>

# Section 9: Contract Forms

## Table of Forms

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# Notice of Intention for Award of Contract

[on letterhead paper of the Employer]

[date of notification]

To: [name of the Bidder]  
 Attention: [insert name of the Bidder's authorized representative]  
 Address: [insert address of the Bidder's authorized representative]  
 Telephone/Fax numbers: [insert telephone/fax numbers of the Bidder's authorized representative]  
 E-mail Address: [insert e-mail address of the Bidder's authorized representative]

This is to notify you of our intention to award the contract [insert name of the contract and identification number, as given in the Bid Data Sheet]. You have [insert number of days as specified in ITB 40.1 of the BDS] days from the date of this notification to (i) request for a debriefing in relation to the evaluation of your Bid; and/or (ii) submit a bidding-related complaint in relation to the intention for award of contract, in accordance with the procedures specified in ITB 45.1.

The summary of the evaluation are as follows:

## 1. List of Bidders

Name of Bidder	Bid Price as Read Out at Opening	Evaluated Bid Price

## 2. Reason/s Why Your Bid Was Unsuccessful

.....  
 .....  
 .....

## 3. The Successful Bidder

Name of Bidder:	
Address:	
Accepted Contract Amount:	
Duration of Contract:	
Scope of the Contract Awarded:	
Amount Performance Security Required:	

Authorized Signature: .....

Name and Title of Signatory: .....

Name of Agency: .....



# Letter of Acceptance

*[on letterhead paper of the Employer]*

*[date]*

To: *[Name and address of the contractor]*

Subject: Contract No. *[please specify]*

This is to notify you that your Bid dated *[date]* for execution of the *[name of the contract and identification number, as given in the Bid Data Sheet]* for the Accepted Contract Amount of the equivalent of *[amount in words and figures and name of currency]*, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 28 days in accordance with the Conditions of Contract and any additional security required as a result of the evaluation of your bid, using for that purpose the Performance Security Form included in Section 9 (Contract Forms) of the Bidding Document.

*[Choose one of the following statements:]*

We accept that *[insert the name of adjudicator proposed by the Bidder]* be appointed as the Adjudicator.

*[or]*

We do not accept that *[insert the name of the adjudicator proposed by the Bidder]* be appointed as the Adjudicator, and by sending a copy of this Letter of Acceptance to *[insert name of the appointing authority]*, the Appointing Authority, we are hereby requesting such Authority to appoint the Adjudicator in accordance with GCC 29.1.

Authorized Signature: .....

Name and Title of Signatory: .....

Name of Agency: .....

Attachment: Contract Agreement

## Contract Agreement

THIS AGREEMENT made the [date] day of [month], [year], between [name of the Employer] (hereinafter “the Employer”), of the one part, and [name of the contractor] (hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as [name of the contract] should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
  - (a) the Contract Agreement,
  - (b) Letter of Acceptance,
  - (c) Letter of Bid,
  - (d) Addenda Nos. [insert addenda number if any]<sup>1</sup>
  - (e) Particular Conditions of Contract,
  - (f) List of Eligible Countries that was specified in Section 5 of the bidding document,
  - (g) General Conditions of Contract,
  - (h) Specifications,
  - (i) Drawings,
  - (j) Completed Activity Schedules or Bill of Quantities,
  - (k) Environment, Health and Safety Management Plan (EHSMP)
  - (l) the duly executed Joint Venture Agreement (If Contract is a Joint Venture), and
  - (m) any other documents shall be added here.<sup>2</sup>
3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

<sup>1</sup> Information contained in the addenda and or addendum should preferably be included in the contract documents to avoid potential ambiguities during contract implementation. If however, unavoidable priority should be decided depending on the nature of information provided in the addenda/addendum.

<sup>2</sup> Tables of Adjustment Data may be added if the contract provides for price adjustment (see GCC 54.1).

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of *[name of the borrowing country]* on the day, month and year indicated above.

Signed by .....  
for and on behalf of the Employer

Signed by .....  
for and on behalf the Contractor

in the presence of:

in the presence of:

Witness, Name, Signature, Address, Date

Witness, Name, Signature, Address, Date

## Performance Security

[Bank's name, and address of issuing branch or office]

**Beneficiary:** ..... [Name and address of the Employer] .....

**Date:** .....

**Performance Guarantee No.:** .....

We have been informed that [name of the contractor] (hereinafter called "the Contractor") has entered into Contract No. [reference number of the contract] dated [date] with you, for the execution of [name of contract and brief description of works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we [name of the bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [name of the currency and amount in words]<sup>1</sup> [amount in figures] such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the [date] day of [month], [year]<sup>2</sup>, and any demand for payment under it must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revisions, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.<sup>3</sup>

.....  
[Signature(s) and seal of bank (where appropriate)]

### -- Note to Bidder --

If the bank issuing performance security is located outside the Employer's country, it shall be counter-guaranteed or encashable by a bank in the Employer's country.

- <sup>1</sup> The guarantor shall insert an amount representing the percentage of the contract price specified in the contract and denominated either in the currency(ies) of the contract or in any freely convertible currency acceptable to the Employer. If the bank issuing the performance security is located outside the country of the employer, it shall have a correspondent financial institution located in the country of the Employer.
- <sup>2</sup> Insert the date 28 days after the defect liability period. The Employer should note that in the event of an extension of the time for completion of the contract, the employer would need to request an extension of this guarantee from the guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [6 months][1 year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."
- <sup>3</sup> Or the employer may use "Uniform Rules for Demand Guarantees (URDG), ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(a) is hereby excluded" as appropriate.

## Advance Payment Security

[Bank's name, and address of issuing branch or office]

**Beneficiary:** ..... [Name and address of the Employer] .....

**Date:** .....

**Advance Payment Guarantee No.:** .....

We have been informed that [name of the contractor] (hereinafter called "the Contractor") has entered into Contract No. [reference number of the contract] dated [date] with you, for the execution of [name of contract and brief description of works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum [name of the currency and amount in words]<sup>1</sup> [amount in figures] is to be made against an advance payment guarantee.

At the request of the Contractor, we [name of the bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [name of the currency and amount in words]<sup>2</sup> [amount in figures] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor:

- (a) used the advance payment for purposes other than the costs of mobilization and cash flow support in respect of the Works; or
- (b) has failed to repay the advance payment when it has become due and payable in accordance with the conditions of the Contract, specifying the amount payable by the Contractor.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number [contractor's account number] at [name and address of the bank].

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty percent (80%) of the Contract Price has been certified for payment, or on the [date] day of [month], [year]<sup>3</sup>, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revisions, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.<sup>4</sup>

.....  
[Signature(s) and seal of bank (where appropriate)]

<sup>1</sup> The guarantor shall insert an amount representing the amount of the advance payment denominated either in the currency(ies) of the advance payment as specified in the Contract, or in any freely convertible currency acceptable to the Employer.

<sup>2</sup> Footnote 1.

<sup>3</sup> Insert the expected expiration date of the time for completion. The Employer should note that in the event of an extension of the time for completion of the contract, the Employer would need to request an extension of this guarantee from the guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [6 months] [1 year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

<sup>4</sup> Or the employer may use "Uniform Rules for Demand Guarantees (URDG), ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(a) is hereby excluded" as appropriate.

**-- Note to Bidder --**

*If the bank issuing advance payment security is located outside the Employer's country, it shall be counter-guaranteed or encashable by a bank in the Employer's country.*

# **ATTACHMENT**

## **BILL OF QUANTITIES (BOQs)**

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**  
**EMERGENCY FLOOD ASSISTANCE PROJECT**  
**PACKAGE-2: DISTRICT BADIN**  
**BILL OF QUANTITIES (BOQ)**  
**GRAND SUMMARY**

BILL No.	DESCRIPTION	BA-01	BA-02	GRAND TOTAL
		AMOUNT (PKR)		
1	Earthworks			
2	Sub base and Base Courses			
3	Surface Courses			
4	Structures			
4A	Sub Structure			
4B	Super Structure			
4C	Side Drains			
4D	Culverts and Drainage Works			
4E	Repair works for Existing Bridges			
5	Drainage and Erosion Control works			
6	Ancillary Works			
<b>A</b>	<b>Sub Total of Bills (Bills 1 to 6)</b>			
<b>i</b>	Contingencies (2% of A)			
<b>B</b>	<b>Project Cost</b>			
	<b>Cost per km (million)</b>			
	General Items			<b>11,204,640</b>
	<b>Project cost</b>			



# **ATTACHMENT**

## **BILL OF QUANTITIES (BOQs)**

**BA-1: IMPROVEMENT OF ROAD FROM TANDO BAGO TO  
DARGAH SAMAN SARKAR VIA PANGRIO  
(LENGTH: 30.3 KMS, WIDTH: 5.5 – 7.3 M)**

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**  
**EMERGENCY FLOOD ASSISTANCE PROJECT**  
**BA-01: IMPROVEMENT OF ROAD FROM TANDO BAGO TO DRAGAH SAMAN SARKAR**  
**VIA PANGRIO**  
**(Length: 30.28 kms, Width: 7.3 m)**  
**BILL OF QUANTITIES (BOQ)**  
**SUMMARY**

<b>BILL No.</b>	<b>DESCRIPTION</b>	<b>AMOUNT (PKR)</b>
1	Earthworks	
2	Sub base and Base Courses	
3	Surface Courses	
4	Structures	
4A	Sub Structure	
4B	Super Structure	
4C	Side Drains	
4D	Culverts and Drainage Works	
4E	Repair works for Existing Bridges	
5	Drainage and Erosion Control works	
6	Ancillary Works	
<b>A</b>	<b>Sub Total of Bills (Bills 1 to 6)</b>	
<b>i</b>	<b>Contingencies (2% of A)</b>	
<b>B</b>	<b>Project Cost</b>	
	<b>Cost per km (million)</b>	

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-01: IMPROVEMENT OF ROAD FROM TANDO BAGO TO DRAGAH SAMAN SARKAR VIA  
PANGRIO (Length: 30.28 kms, Width: 7.3 m)**

Bill No. 1 - EARTHWORKS						
PAY ITEM	SPEC. REF.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (PKR)	AMOUNT (PKR)
101	101	Clearing and grubbing including jungle cutting / Thorny Bushes)	SM	327,337		
104	104	Compaction of Natural Ground	SM	334,064		
106a & 106c	106	Excavate unsuitable/surplus Common Material	CM	68,144		
108a	108	Formation Of Embankment From Road Way Excavation in Common Material	CM	5,857		
108c	108	Formation of Embankment From Borrow Excavation in Common Material	CM	315,154		
TOTAL FOR BILL 1 CARRIED FORWARD TO SUMMARY:						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-01: IMPROVEMENT OF ROAD FROM TANDO BAGO TO DRAGAH SAMAN SARKAR VIA  
PANGRIO (Length: 30.28 kms, Width: 7.3 m)**

Bill No. 2 - SUBBASE AND BASE COURSES						
PAY ITEM	SPEC. REF.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (PKR)	AMOUNT (PKR)
201	201	Granular Subbase (Grading A)	CM	692		
206b	206b	Water Bound Macadam base with Coarse Agg: Class B	CM	49,223		
217b	217	Installation of paving blocks 80mm thick including Sand Cushion and Sand Filling in joints	SM	6,923		
401b	401	Concrete Class B	CM	1019		
209b	209	Scarification of Existing Road Pavement	SM	227,669		
TOTAL FOR BILL 2 CARRIED FORWARD TO SUMMARY:						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-01: IMPROVEMENT OF ROAD FROM TANDO BAGO TO DRAGAH SAMAN SARKAR VIA  
PANGRIO (Length: 30.28 kms, Width: 7.3 m)**

Bill 3 - SURFACE COURSES						
PAY ITEM	SPEC. REF.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (PKR)	AMOUNT (PKR)
303b	303	Emulsified Asphalt for Bituminous Tack Coat	SM	221,255		
305a	305	Asphaltic Concrete for Wearing Course Class-A	CM	11,170		
304ai	304	Single Surface Treatement	SM	221,255		
304ci	304	Triple Surface Treatement	SM	91,805		
TOTAL FOR BILL 3 CARRIED FORWARD TO SUMMARY:						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-01: IMPROVEMENT OF ROAD FROM TANDO BAGO TO DRAGAH SAMAN SARKAR VIA  
PANGRIO (Length: 30.28 kms, Width: 7.3 m)**

<b>BILL NO. 4A - SUBSTRUCTURE</b>						
<b>PAY ITEM</b>	<b>SPEC. REF.</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE (PKR)</b>	<b>AMOUNT (PKR)</b>
407g	407	Test piles of 1200 mm. dia. Including Boring and concrete class A3 including reinforcement.	M	60.00		
407m	407	confirmatory boring including test reports	M	60.00		
407d	407	Cast-in-place concrete piles (1200 mm diameter) including concrete class A3 but excluding reinforcement.				
		407dv. Boring only (in Normal soil)	M	230.00		
		407dvi. Boring only (in Gravelly soil)	M	230.00		
		407dvi2*. Boring only (in Rock)	M	89.00		
		401a3i. Concrete class A3 in piles	CM	618.00		
407s	407	Pile Load Test to 550 tons	Each	1.00		
407t	407	Pile Load Test to 600 tons	Each	1.00		
107a	107	Structural excavation in common material.	CM			
107e	107	Common back fill in structures	CM			
401f	401	Lean concrete	CM	20.00		
401a1ii	401	Concrete class A1 in				
		a) Approach Slab (on ground)	CM	50.00		
401a	401	Concrete class A3 in				
		401a3i) Abutment (on ground)	CM	218.00		
		401a3ii) Transoms (elevated)	CM	86.00		
		401a3ii) Piers (Elevated)	CM	121.00		
404	404	Reinforcement in substructure including piles as per AASHTO M31.				
		404b. Grade 60	Ton	255.00		
406e	406	Elastomeric bearing pads (According to Size and thickness) local (pakistan make) ,PSQCA Certified as shown in the drawings	C.Cm	312,543		
<b>TOTAL FOR BILL 4A CARRIED FORWARD TO SUMMARY</b>						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-01: IMPROVEMENT OF ROAD FROM TANDO BAGO TO DRAGAH SAMAN SARKAR VIA  
PANGRIO (Length: 30.28 kms, Width: 7.3 m)**

<b>BILL NO. 4B - SUPERSTRUCTURE</b>						
<b>PAY ITEM</b>	<b>SPEC. REF.</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE (PKR)</b>	<b>AMOUNT (PKR)</b>
401d	401	Concrete Class D2 in precast prestressed concrete girders.	CM	232.00		
405b	405	Launching of P.C. Girders	TON	578.00		
401a	401	Concrete Class A3 in deck slabs and diaphragms etc	CM	278.00		
401a1ii	401	Concrete Class A1 in barrier	CM	79.00		
406cii	406	50mm Expansion joint-Noising Type with Two Aluminum Alloy Sections and Elastomeric Profile Imported (European / American Make) or Approved Equivalent as shown in the Drawings as Specified as directed by The Engineer.	M	60.00		
404	404	Reinforcement in superstructure as per AASHTO M31.				
		404b. Grade 60	Ton	171.00		
S-2	SP	PVC service pipes. (150 mm diameter, 2mm thick).	M	264.00		
S-3	SP	G.I. drain pipes for drainage including all fixtures, bends and grates (100 mm diameter)	M	72.00		
405a	405	Prestressing strand 1/2" dia including all sheaths Pipes, trumpets, block, stressing anchorage, etc. and grouting, all complete (only strand wire weight measure and paid)	Ton	14.00		
510	510	Dismantling of structure and obstructions	CM	1,084.00		
<b>TOTAL FOR BILL 4B CARRIED FORWARD TO SUMMARY</b>						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-01: IMPROVEMENT OF ROAD FROM TANDO BAGO TO DRAGAH SAMAN SARKAR VIA  
PANGRIO (Length: 30.28 kms, Width: 7.3 m)**

BILL NO. 4C - SIDE DRAINS						
PAY ITEM	SPEC. REF.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (PKR)	AMOUNT (PKR)
107a	107	Structural excavation in common material	CM	2,174.00		
107b	107	Structural excavation in common material below water level	CM	2,174.00		
401f	401	Lean concrete	CM	292.00		
401a3i	401	Concrete Class A3 (Under ground)	CM	1,693.00		
401gii	401	Precast concrete Class A3	CM	17.00		
404b	404	Reinforcement steel as per AASHTO M31 grade 60	TON	207.00		
107d	107	Granular back filling	CM	870.00		
406dII	406	Water stops 8"	M	4,788.00		
S-4	SP	Providing and Fixing M.S.Grating as per specification ,shown in the drawings as directed by The Engineer complete all respects	KG	3,875.00		
TOTAL FOR BILL 4C CARRIED FORWARD TO SUMMARY						



**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-01: IMPROVEMENT OF ROAD FROM TANDO BAGO TO DRAGAH SAMAN SARKAR VIA  
PANGRIO (Length: 30.28 kms, Width: 7.3 m)**

<b>BILL NO. 4D - CULVERTS</b>						
<b>PAY ITEM</b>	<b>SPEC. REF.</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE (PKR)</b>	<b>AMOUNT (PKR)</b>
107a	107	Structural excavation in common material	CM	4,864.00		
107ci	107	Structural excavation in hard rock material	CM	1,460.00		
107b	107	Structural excavation in common material below water level	CM	3,405.00		
401f	401	Lean concrete	CM	1,095.00		
401a3ii	401	Concrete Class A3 (culverts i/c wing wall, aprons & etc)	CM	3,929.00		
404b	404	Reinforcement steel as per AASHTO M31 grade 60	TON	437.00		
107d	107	Granular back filling	CM	4,554.00		
406a	406	Premoulded joint filler with bitumastic joint filler	SM	160.00		
406dii	406	Water stops 8"	M	1,381.00		
509b	509	Rip rap class B	CM	700.00		
510	510	Dismantling of structure and obstructions	CM	8,410.00		
S-5	SP	Repair of reinforced concrete surface or masonry	SM	535.00		
S-6	SP	Repair of cracked or unsound concrete (repair of RCC slabs by plaster)				
		a. 20mm thickness	SM	535.00		
		b. More than 20mm thickness upto 40mm thickness using mesh reinforcement and nailing	SM	535.00		
410	410	Brick work	CM	2,261.00		
411D	411	Stone Masonry dressed course with mortar	CM	622.00		
SP	SP	Plaster work 20 mm thick	SM	2,219.00		
SP	SP	Connecting old concrete / Masonary Using Dowel Bars	Ton	0.60		
<b>TOTAL FOR BILL 4D CARRIED FORWARD TO SUMMARY</b>						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-01: IMPROVEMENT OF ROAD FROM TANDO BAGO TO DRAGAH SAMAN SARKAR VIA  
PANGRIO (Length: 30.28 kms, Width: 7.3 m)**

<b>BILL NO. 4E - REPAIR WORKS FOR EXISTING BRIDGES</b>						
<b>PAY ITEM</b>	<b>SPEC. REF.</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE (PKR)</b>	<b>AMOUNT (PKR)</b>
401f	401	Lean concrete	CM	16.00		
401a	401	Concrete Class A3 in deck slabs and diaphragms etc	CM	248.00		
401a1iii	401	Concrete Class A1 in barrier and Approach slab etc	CM	117.00		
406cii	406	50mm Expansion joint-Noising Type with Two Aluminum Alloy Sections and Elastomeric Profile Imported (European / American Make) or Approved Equivalent as shown in the Drawings as Specified as directed by The Engineer.	M	36.00		
404	404	Reinforcement in superstructure as per AASHTO M31.				
		404b. Grade 60	Ton	66.00		
S-2	SP	PVC service pipes. (150 mm diameter, 2mm thick).	M	154.00		
S-3	SP	G.I. drain pipes for drainage including all fixtures, bends and grates (100 mm diameter)	M	8.00		
S-5	SP	Repair of reinforced concrete surface or masonry	SM	142.00		
S-6	SP	Repair of cracked or unsound concrete(repair of RCC slabs by plaster)				
		a. 20mm thickness	SM	142.00		
		b. More than 20mm thickness upto 40mm thickness using mesh reinforcement and nailing	SM	142.00		
S-7	SP	Removal of steel existing expansion joints	M	36.00		
510	510	Dismantling of structure and obstructions	CM	460.00		
<b>TOTAL FOR BILL 4E CARRIED FORWARD TO SUMMARY</b>						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-01: IMPROVEMENT OF ROAD FROM TANDO BAGO TO DRAGAH SAMAN SARKAR VIA  
PANGRIO (Length: 30.28 kms, Width: 7.3 m)**

Bill 5 - DRAINAGE AND PROTECTION WORKS						
PAY ITEM	SPEC. REF.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (PKR)	AMOUNT (PKR)
		<b>ONLY CULVERTS &amp; BRIDGES PROTECTION</b>				
107a	107	Structural excavation in common material	CM	15,606		
509b	509	Riprap Class B	CM	44,556		
509h	509	Filter Layer of Granular Material	CM	10,882		
<b>TOTAL FOR BILL 5 CARRIED FORWARD TO SUMMARY :</b>						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-01: IMPROVEMENT OF ROAD FROM TANDO BAGO TO DRAGAH SAMAN SARKAR VIA  
PANGRIO (Length: 30.28 kms, Width: 7.3 m)**

<b>Bill 6 - ANCILLARY WORKS</b>						
<b>PAY ITEM</b>	<b>SPEC. REF.</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE (PKR)</b>	<b>AMOUNT (PKR)</b>
607ai	607	Traffic Sign Cat 1i - 90 cm Sign Board in High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet with G.I Pipe Dia 3" and Thickness 8 Guage	Each	62		
607bi	607	Traffic Sign Cat 2i - 90 cm Sign Board in High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet with G.I Pipe Dia 3" and Thickness 8 Guage	Each	32		
607ci	607	Traffic Sign Cat 3A Sign Board in High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet with G.I Pipe Dia 3" and Thickness 8 Guage	Each	32		
607di	607	Traffic Sign Cat 3B Sign Board in High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet with G.I Pipe Dia 4" and Thickness 8 Guage	Each	32		
607ei	607	Traffic Sign Cat 3C (Up To 3 Sq.m) Sign Board in High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet with G.I Pipe Dia 4" and Thickness 8 Guage	SM	32		
608h2	608	Pavement marking in reflective TP paint for Line of 15 cm width	M	32,000		
608i2	608	Pavement marking in reflective TP paint for Line of 20 cm width	M	64,000		
608j2	608	Pavement marking in reflective TP paint for 4.0 m arrows	Each	64		
609d	609	Reflectorised Aluminium Pavement Studs (raised profile type double)	Each	6,730		
R-3	SP	Rumble Strip in reflective TP paint	SM	438		
612	612a	Furnishing and Planting of trees (local inhabitant) including maintenance for 2 years)	Each	6,057		
<b>TOTAL FOR BILL 6 CARRIED FORWARD TO SUMMARY :</b>						

**ATTACHMENT**  
**BILL OF QUANTITIES (BOQs)**  
**BA-2: ROAD FROM KHALIFO QASIM TO JHUDO VIA**  
**MEHBOOB SHAH**  
**(LENGTH: 27.2 KMS, WIDTH: 3.65 M)**

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**  
**EMERGENCY FLOOD ASSISTANCE PROJECT**  
**BA-02: IMPROVEMENT OF ROAD FROM KHALIFO QASIM TO JHUDO VIA MEHBOOB**  
**SHAH**  
**(Length: 27.22 kms, Width: 3.65 m)**  
**BILL OF QUANTITIES (BOQ)**  
**SUMMARY**

<b>BILL No.</b>	<b>DESCRIPTION</b>	<b>AMOUNT (PKR)</b>
1	Earthworks	
2	Sub base and Base Courses	
3	Surface Courses	
4	Structures	
4D	Culverts and Drainage Works	
4E	Repair works for Existing Bridges	
5	Drainage and Erosion Control works	
6	Ancillary Works	
<b>A</b>	<b>Sub Total of Bills (Bills 1 to 6)</b>	
<b>i</b>	<b>Contingencies (2% of A)</b>	
<b>B</b>	<b>Project Cost</b>	
	<b>Cost per km (million)</b>	

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-02: IMPROVEMENT OF ROAD FROM KHALIFO QASIM TO JHUDO VIA MEHBOOB  
SHAH (Length: 27.22 kms, Width: 3.65 m)**

<b>Bill 1 - EARTHWORKS</b>						
<b>PAY ITEM</b>	<b>SPEC. REF.</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE (PKR)</b>	<b>AMOUNT (PKR)</b>
101	101	Clearing and grubbing including jungle cutting / Thorny Bushes)	SM	263,515		
104	104	Compaction of Natural Ground	SM	263,515		
106a & 106c	106	Excavate unsuitable/surplus Common Material	CM	63687.78		
108a	108	Formation Of Embankment From Road Way Excavation in Common Material	CM	5,443		
108c	108	Formation Of Embankment From Borrow Excavation in Common Material	CM	189,487		
<b>TOTAL FOR BILL 1 CARRIED FORWARD TO SUMMARY :</b>						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-02: IMPROVEMENT OF ROAD FROM KHALIFO QASIM TO JHUDO VIA MEHBOOB  
SHAH (Length: 27.22 kms, Width: 3.65 m)**

Bill 2 - SUBBASE AND BASE COURSES						
PAY ITEM	SPEC. REF.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (PKR)	AMOUNT (PKR)
206b	206b	Water Bound Macadam base with Coarse Agg: Class B	CM	51,016		
209b	209	Scarification of Existing Road Pavement	SM	102,324		
TOTAL FOR BILL 2 CARRIED FORWARD TO SUMMARY :						



**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-02: IMPROVEMENT OF ROAD FROM KHALIFO QASIM TO JHUDO VIA MEHBOOB  
SHAH (Length: 27.22 kms, Width: 3.65 m)**

Bill 3 - SURFACE COURSES						
PAY ITEM	SPEC. REF.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (PKR)	AMOUNT (PKR)
303b	303	Emulsified Asphalt for Bituminous Tack Coat	SM	102,324		
305a	305	Asphaltic Concrete for Wearing Course Class-A	CM	5,141		
304ai	304	Single Surface Treatement	SM	102,821		
304ci	304	Triple Surface Treatement	SM	56,340		
TOTAL FOR BILL 3 CARRIED FORWARD TO SUMMARY :						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-02: IMPROVEMENT OF ROAD FROM KHALIFO QASIM TO JHUDO VIA MEHBOOB  
SHAH (Length: 27.22 kms, Width: 3.65 m)**

<b>BILL NO. 4D - CULVERTS</b>						
<b>PAY ITEM</b>	<b>SPEC. REF.</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE (PKR)</b>	<b>AMOUNT (PKR)</b>
107a	107	Structural excavation in common material	CM	5,250.00		
107ci	107	Structural excavation in hard rock material	CM	1,575.00		
107b	107	Structural excavation in common material below water level	CM	3,675.00		
401f	401	Lean concrete	CM	1,100.00		
401a3ii	401	Concrete Class A3 (culverts i/c wing wall, aprons & etc)	CM	4,820.00		
404b	404	Reinforcement steel as per AASHTO M31 grade 60	TON	552.00		
107d	107	Granular back filling	CM	2,862.00		
406a	406	Premoulded joint filler with bitumastic joint filler	SM	233.00		
406dii	406	Water stops 8"	M	1,352.00		
509b	509	Rip rap class B	CM	1,031.00		
510	510	Dismantling of structure and obstructions	CM	8,435.00		
501m	501	R.C.C. pipe culverts AASHTO M170 Class IV Dia 610mm	M	170.00		
S-5	SP	Repair of reinforced concrete surface or masonry	SM	1,355.00		
S-6	SP	Repair of cracked or unsound concrete (repair of RCC slabs by plaster)				
		a. 20mm thickness	SM	1,355.00		
		b. More than 20mm thickness upto 40mm thickness using mesh reinforcement and nailing	SM	1,355.00		
<b>TOTAL FOR BILL 4D CARRIED FORWARD TO SUMMARY</b>						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-02: IMPROVEMENT OF ROAD FROM KHALIFO QASIM TO JHUDO VIA MEHBOOB  
SHAH (Length: 27.22 kms, Width: 3.65 m)**

<b>BILL NO. 4E - REPAIR WORKS FOR EXISTING BRIDGES</b>						
<b>PAY ITEM</b>	<b>SPEC. REF.</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE (PKR)</b>	<b>AMOUNT (PKR)</b>
401f	401	Lean concrete	CM	8.00		
401a	401	Concrete Class A3 in deck slabs and diaphragms etc	CM			
401a1iii	401	Concrete Class A1 in barrier and Approach slab etc	CM	70.00		
406cii	406	50mm Expansion joint-Noising Type with Two Aluminum Alloy Sections and Elastomeric Profile Imported (European / American Make) or Approved Equivalent as shown in the Drawings as Specified as directed by The Engineer.	M	36.00		
404	404	Reinforcement in superstructure as per AASHTO M31.				
		404b. Grade 60	Ton	8.00		
S-2	SP	PVC service pipes. (150 mm diameter, 2mm thick).	M	55.00		
S-3	SP	G.I. drain pipes for drainage including all fixtures, bends and grates (100 mm diameter)	M	10.00		
S-5	SP	Repair of reinforced concrete surface or masonry	SM	50.00		
S-6	SP	Repair of cracked or unsound concrete(repair of RCC slabs by plaster)				
		a. 20mm thickness	SM	50.00		
		b. More than 20mm thickness upto 40mm thickness using mesh reinforcement and nailing	SM	50.00		
S-7	SP	Removal of steel existing expansion joints	M	36.00		
510	510	Dismantling of structure and obstructions	CM	95.00		
<b>TOTAL FOR BILL 4E CARRIED FORWARD TO SUMMARY</b>						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-02: IMPROVEMENT OF ROAD FROM KHALIFO QASIM TO JHUDO VIA MEHBOOB  
SHAH (Length: 27.22 kms, Width: 3.65 m)**

Bill 5 - DRAINAGE AND PROTECTION WORKS						
PAY ITEM	SPEC. REF.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (PKR)	AMOUNT (PKR)
107a	107	Structural excavation in common material	CM	8,802		
509b	509	Riprap Class B	CM	24,456		
509h	509	Filter Layer of Granular Material	CM	5,834		
TOTAL FOR BILL 5 CARRIED FORWARD TO SUMMARY :						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**

**BILL OF QUANTITIES (BOQ)**

**EMERGENCY FLOOD ASSISTANCE PROJECT**

**BA-02: IMPROVEMENT OF ROAD FROM KHALIFO QASIM TO JHUDO VIA MEHBOOB  
SHAH (Length: 27.22 kms, Width: 3.65 m)**

<b>Bill 6 - ANCILLARY WORKS</b>						
<b>PAY ITEM</b>	<b>SPEC. REF.</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE (PKR)</b>	<b>AMOUNT (PKR)</b>
607ai	607	Traffic Sign Cat 1i - 90 cm Sign Board in High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet with G.I Pipe Dia 3" and Thickness 8 Guage	Each	60		
607bi	607	Traffic Sign Cat 2i - 90 cm Sign Board in High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet with G.I Pipe Dia 3" and Thickness 8 Guage	Each	27		
607ci	607	Traffic Sign Cat 3A Sign Board in High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet with G.I Pipe Dia 3" and Thickness 8 Guage	Each	27		
607di	607	Traffic Sign Cat 3B Sign Board in High Intensity Reflective Sheet Laminated on 1.8 mm Thick G.I Sheet with G.I Pipe Dia 4" and Thickness 8 Guage	Each	27		
608h2	608	Pavement marking in reflective TP paint for Line of 15 cm width	M	1,000		
608i2	608	Pavement marking in reflective TP paint for Line of 20 cm width	M	54,000		
608j2	608	Pavement marking in reflective TP paint for 4.0 m arrows	Each	60		
609d	609	Reflectorised Aluminium Pavement Studs (raised profile type double)	Each	3,024		
R-3	SP	Rumble Strip in reflective TP paint	SM	146		
612	612a	Furnishing and Planting of trees (local inhabitant) including maintenance for 2 years)	Each	5,444		
<b>TOTAL FOR BILL 6 CARRIED FORWARD TO SUMMARY :</b>						

**WORKS AND SERVICES DEPARTMENT GOVERNMENT OF SINDH**  
**BILLS OF QUANTITIES**  
**EMERGENCY FLOOD ASISTANCE PROJECT**  
**PACKAGE-2: District Badin**

<b>Bill 7 - GENERAL ITEMS</b>					
<b>PAY ITEM</b>	<b>ITEM DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE (PKR)</b>	<b>AMOUNT (PKR)</b>
<b>A</b>	<b>The Engineer / Project Facilities</b>				
<b>1</b>	Provision of facilities / transport for Project Supervision	Provisional Sum	PS	-----	9,284,640.00
	<b>SUB-TOTAL</b>				<b>9,284,640.00</b>
	Remuneration for 02 Trainee Engineers to be employed by the employeer	Per Month	24	40,000.00	1,920,000.00
<b>5.7</b>	Provide Furnish and Equipped Field Laboratory	-----	Not Payable separately, Inclusive in other BoQ items		
<b>5.8</b>	Provide and Maitain Survey Equipment	-----	Not Payable separately, Inclusive in other BoQ items		
	<b>GRAND TOTAL</b>				<b>11,204,640.00</b>

# **Environmental Management Plan (EMP)**

## **PACKAGE-2: EFAP/WSD/CW-02: REHABILITATION AND IMPROVEMENT OF ROADS IN DISTRICT BADIN**



**Emergency Flood Assistance Project  
Project No. 56312-001**

**Environmental Management Plan (EMP)  
Package 2: Badin Roads**

August – 2023

Prepared for:  
Asian Development Bank (ADB)



Engineering Consultants International (Pvt.) Ltd.



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### **Annexures**

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## **Acronyms**

CC	Construction Contractor
DSC	Design and Supervision Consultant
EMP	Environmental Social Management Plan
ES	Environmental Specialist
ESU	Environmental and Social Unit
GOS	Government of Sindh
IA	Implementing Agency
ILO	International Labour Organization
IPs	Indigenous People
IR	Involuntary Resettlement
LAR	Land Acquisition and Resettlement
PMU	Project Management Unit
REA	Rapid Environmental Assessment
RoW	Right of Way
SS	Social Specialist
TST	Triple surface treatment
W&SD	Works and Services Department

## **I. Introduction**

### **A. Overview**

1. Pakistan is a flood prone country and one of the ten countries most affected by climate change in the world.<sup>1</sup> In April-June 2022, it suffered an unprecedented intense heatwave followed by a long monsoon that lasted until September and dumped a record amount of rain across the country. Pakistan is experiencing its worst floods in a century, with glacial lakes bursting, rivers breaking their banks, flash flooding and landslides.<sup>2</sup> In the wake of rising prices at the global level, Pakistan was facing significant economic challenges even before the recent floods. The devastating floods have caused further economic hardship for the country. More than half of all districts in the country have been officially declared as calamity hit. As a result of these floods, 1,731 people have died, 12,867 injured, and over 2 million houses were destroyed or damaged, affecting the lives of 33 million people across the country.<sup>3</sup> The provinces of Balochistan and Sindh, which are the most affected with over 80% of their total area impacted by floods, have received 500% more monsoon rains compared to average monsoon rainfall of last 30 years, causing substantial damage to lives, infrastructure, and livelihoods of the affected populations.
2. A post-disaster needs assessment (PDNA)<sup>4</sup> - an effort led by the Government of Pakistan and supported by a core team comprising ADB, the European Union, United Nations (UN) agencies, and the Japan International Cooperation Agency with facilitation from the United Nations Development Programme and the World Bank was concluded on 28 October 2022, which provides the bases for the development of a disaster recovery framework and arrangements for effective, efficient and coordinated post-flood recovery and reconstruction plan.
3. The proposed Emergency Flood Assistance Project (EFAP) was prepared in response to the Government of Pakistan's request to the Asian Development Bank (ADB) on 6 October 2022 for assistance in country floods response. The project will have three outputs. These investments will help re-establish intra and interregional connectivity and accessibility to boost economic activities, and increase resilience of inputs (supply chains connectivity, water availability, flood protection and farm inputs) and outputs (connectivity to market) necessary to restore livelihoods.
4. GoP and ADB agreed on financing of the total EFAP at \$531 million of which Sindh Works and Services Department component is \$220 million. For the detailed engineering design and construction supervision of flood damaged roads and bridges component, an estimated \$6.50 million has been allocated. Sindh Works and Services Department (W&SD) is the Executing Agency while Project Management Unit is the Implementing Agency. The W&SD will be responsible for all the preparatory works related to roads and bridges infrastructures.
5. The W&SD output is strengthened, rehabilitate, and reconstruct priority roads and bridges in the Sindh. The roads infrastructure will be upgraded incorporating multi-hazard-resilient design.
6. All works will be confined within existing right of way (ROW) to be rehabilitated. Few environmental impacts are anticipated which will be short-term and localized limited to the construction phase and will primarily relate to solid waste generation and disposal, elevated noise and air emissions (dust), potential traffic delays, and occupational and community health and safety.

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<sup>1</sup> D. Eckstein, V. Kunzel, and L. Schafer. 2021. Global Climate Risk Index 2021: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2019 and 2000–2019

<sup>2</sup> Mallapaty. 2022. Why are Pakistan's floods so extreme this year? Nature. 16 September.

<sup>3</sup> Government of Pakistan, National Disaster Management Authority. 2022. NDMA Floods (2022) Daily Situation Report No. 136. 27 October.

<sup>4</sup> Government of Pakistan, Ministry of Planning, Development & Special Initiatives. 2022. Pakistan Floods 2022: Post-Disaster Needs Assessment. Islamabad.

7. This document will provide the necessary guidance to Project Management Unit (Works & Services Department), Environmental and Social Unit and Construction Contractor (CC) to implement good environmental and social practices to reduce environmental damage while rehabilitating, restoring or reconstructing subproject roads. This document will further provide an overall approach for managing and monitoring environmental-issues and describes the institutional framework to implement the environmental management plan (EMP) for subproject.

## **B. Objectives of Environmental Management Plan**

8. The EMP will help Works & Services department to address the potential negative environmental impacts of the project, enhance project benefits, and introduce standards of good environmental practice. The primary objectives of the EMP are to:
- Define the responsibilities of Works & Services Department, CC and other role players, and effectively communicate environmental issues among them.
  - Facilitate the implementation of the mitigation measures listed in EMP by providing the technical details of each project impact, and providing an implementation schedule.
  - Define a monitoring mechanism and identify monitoring parameters to ensure that all mitigation measures are completely and effectively implemented.

## **C. Project's Brief**

9. The project is divided in packages covering 19 districts of Sindh Province.
10. Package 2 includes the following subprojects which are located in Thatta District:
- Improvement of Road from Tando Bago to Dragah Saman Sarkar via Pangrio (30.23 km) (7.3 m wide)
  - Road from Khalifo Qasim to Jhudo via Mehboob Shah (27.36 km) (3.65 m wide)

## **D. Details of Civil Works and Design Brief**

11. The Project is to rehabilitate the Package 2 roads with different lengths. The rehabilitation works proposed are – a) removal and replacement of existing deteriorated surfaces, b) laying of new water bound macadam over the exposed existing water bound macadam (base course) as per design requirements and wherever the existing pavement surfacing and thickness is sound, milling is done in 2-3 cm and then overlaid with new asphalt concrete and c) the shoulders will also be repaired / reconstructed having consideration of 1.5 m wide TST shoulder and 1.5 m earthen shoulder in rural areas (3.0 m shoulder width). For, road having 3.65 m wide carriageway, a 1.0 m wide TST shoulder with a 2.0 m wide earthen shoulders will be provided. Shoulder width will be variable and adjusted as per site conditions.
12. In towns and cities, the design of road cross-section is usually reduced to avoid disturbance to community structures / property. Despite using asphalt concrete, paver blocks are applied in congested areas to avoid disturbance to commuters and nearby shops. These blocks are quickly and manually applied with minimum disturbance. Depending on the land availability, a 1.0 m concrete stormwater drain will also be provided either on one side or both sides.
13. For subprojects passing along a water channel, the shoulder width of the road will be reduced from that side of the channel and a concrete guardrail will be provided wherever the conditions exist. This will also be applied for small drains.
14. For subprojects passing along orchards / agriculture areas, if it is not possible for providing 3.0 m shoulders, shoulder width will be reduced to avoid land acquisition or economic displacement.

15. Shrubs located along the road shoulders will need to be cut down. Mature trees on the existing shoulders will be avoided of being cut down. A series of tree plantation is proposed along each subproject road.
16. In deep ponding areas, considering the cost constraints and use of rockfill, shoulder width will also be reduced.
17. Community structures, especially mosques and graveyards located at the existing shoulders will be avoided to disturb during rehabilitation and the shoulder width will be reduced. For road protection in front of these structures, safety barrier using guardrails will be provided in addition to safety signs.

## **E. Project Objective and Outcome**

18. The overall EFAP is aligned with the following impact: an inclusive and resilient recovery from the 2022 floods. The project is for the purpose to respond to flood related emergency which come under natural disaster. The project will have the following outcome: flood-affected infrastructure and livelihoods improved.

## **F. Details of Construction Activities**

19. Details of construction activities involved in rehabilitation of roads are summarized in Table 1.

Table I-1: Construction activities involved in rehabilitation of roads

<b>Construction Activity</b>	<b>Scope</b>	<b>Environmental Impact</b>
Construction material procurement	<ul style="list-style-type: none"><li>• Subgrade, asphalt, cement, paver blocks, steel bars, sand &amp; gravel</li><li>• Procured from approved plants nearby</li></ul>	Low
Clearing and removal of existing surface	<ul style="list-style-type: none"><li>• Clearing of shrubs along the shoulders</li><li>• Removal of existing surface</li></ul>	Low
Overlaying	<ul style="list-style-type: none"><li>• Laying of concrete asphalt</li></ul>	Low
Reconstruction of road in Rural areas	<ul style="list-style-type: none"><li>• Laying of new water bound macadam over the exposed existing water bound macadam (base course)</li><li>• Or 2-3 cm milling</li><li>• Overlaying with new asphalt concrete</li><li>• Provide diversions to accommodate local traffic</li></ul>	Low
Reconstruction of road in Urban areas	<ul style="list-style-type: none"><li>• Removal of existing surface</li><li>• Laying of paver blocks</li><li>• Construction of 1 m wide stormwater drain</li></ul>	Low
Reconstruction of shoulders	<ul style="list-style-type: none"><li>• 1.5 m TST shoulder and 1.5 m earthen shoulder (may be varied as per site conditions)</li></ul>	Low
Tree plantation	<ul style="list-style-type: none"><li>• Tree plantation along the embankments</li></ul>	Medium (Positive)
Campsite development and operations	<ul style="list-style-type: none"><li>• Small campsite for each subproject catering 25-30 labor.</li><li>• Parking and maintenance of Asphalt Paver, drum rollers, motor grader, wheel loader etc.</li><li>• Local labor will be preferred.</li></ul>	Low

## G. Overview of Project Area

20. The project location Map is presented below covering all packages:

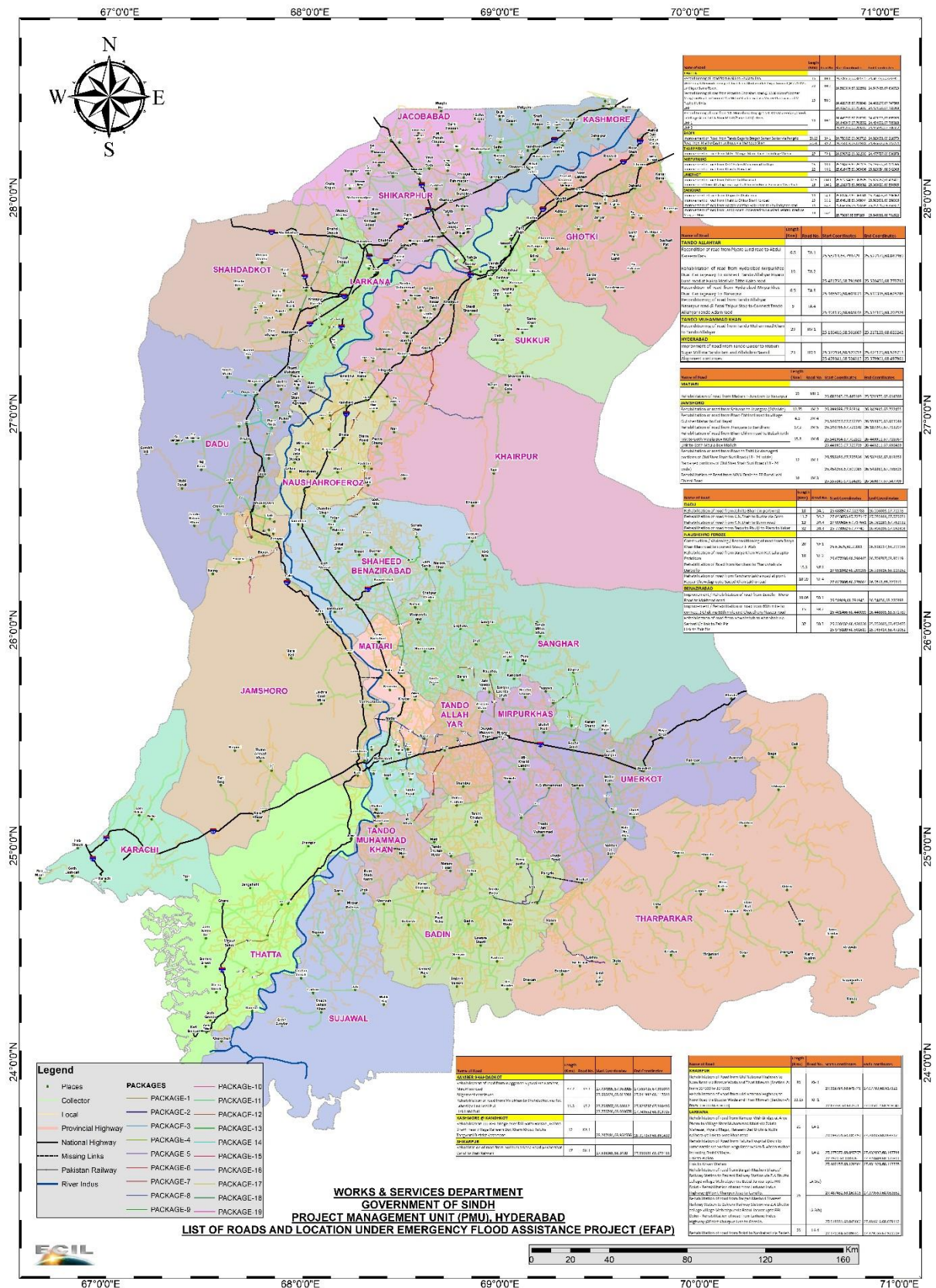


Figure I-1: Project Location Map



21. Subprojects' location maps are presented in below figures.

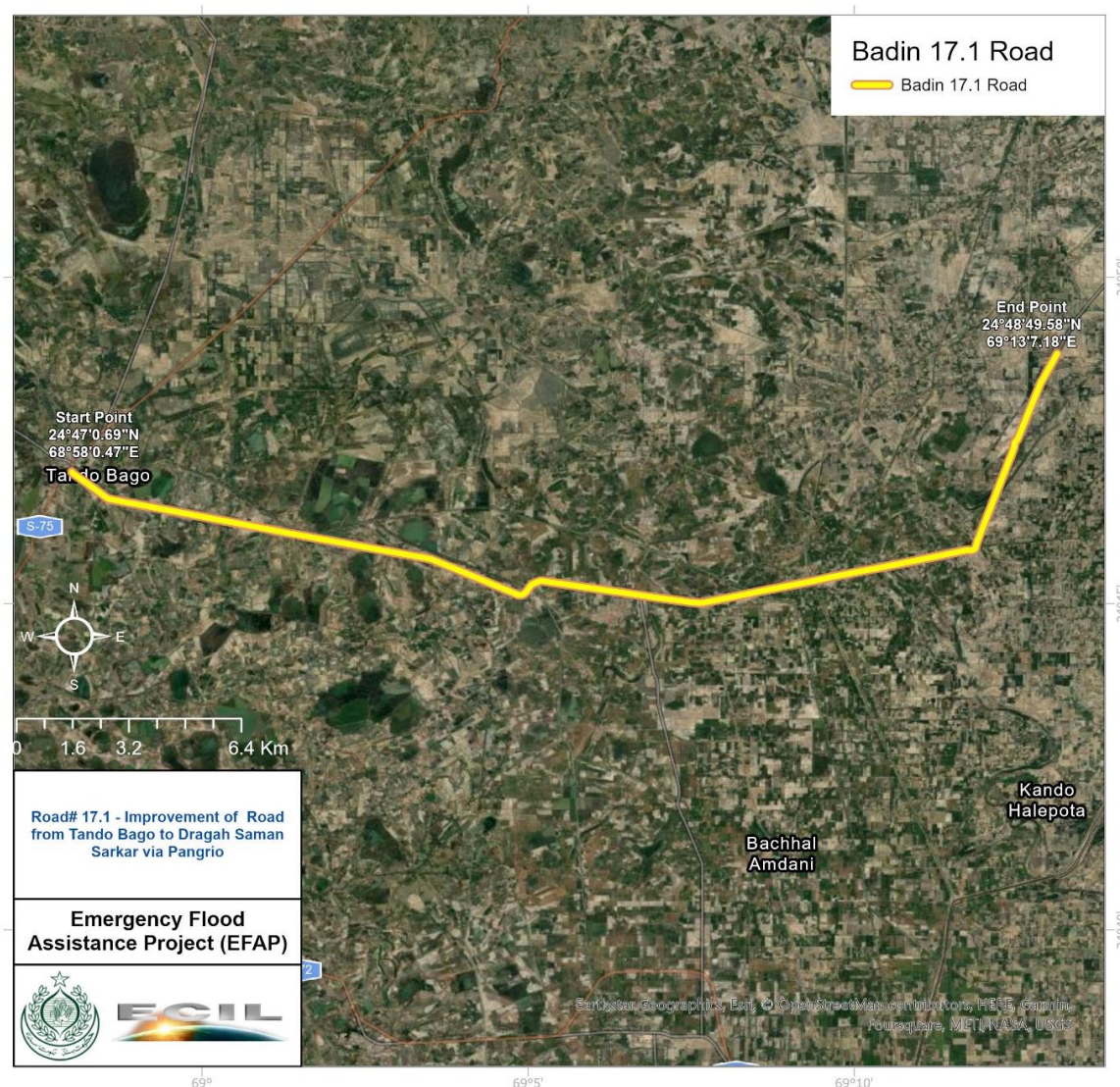


Figure I-2: Location map of Road “Improvement of Road from Tando Bago to Dragah Saman Sarkar via Pangrio”



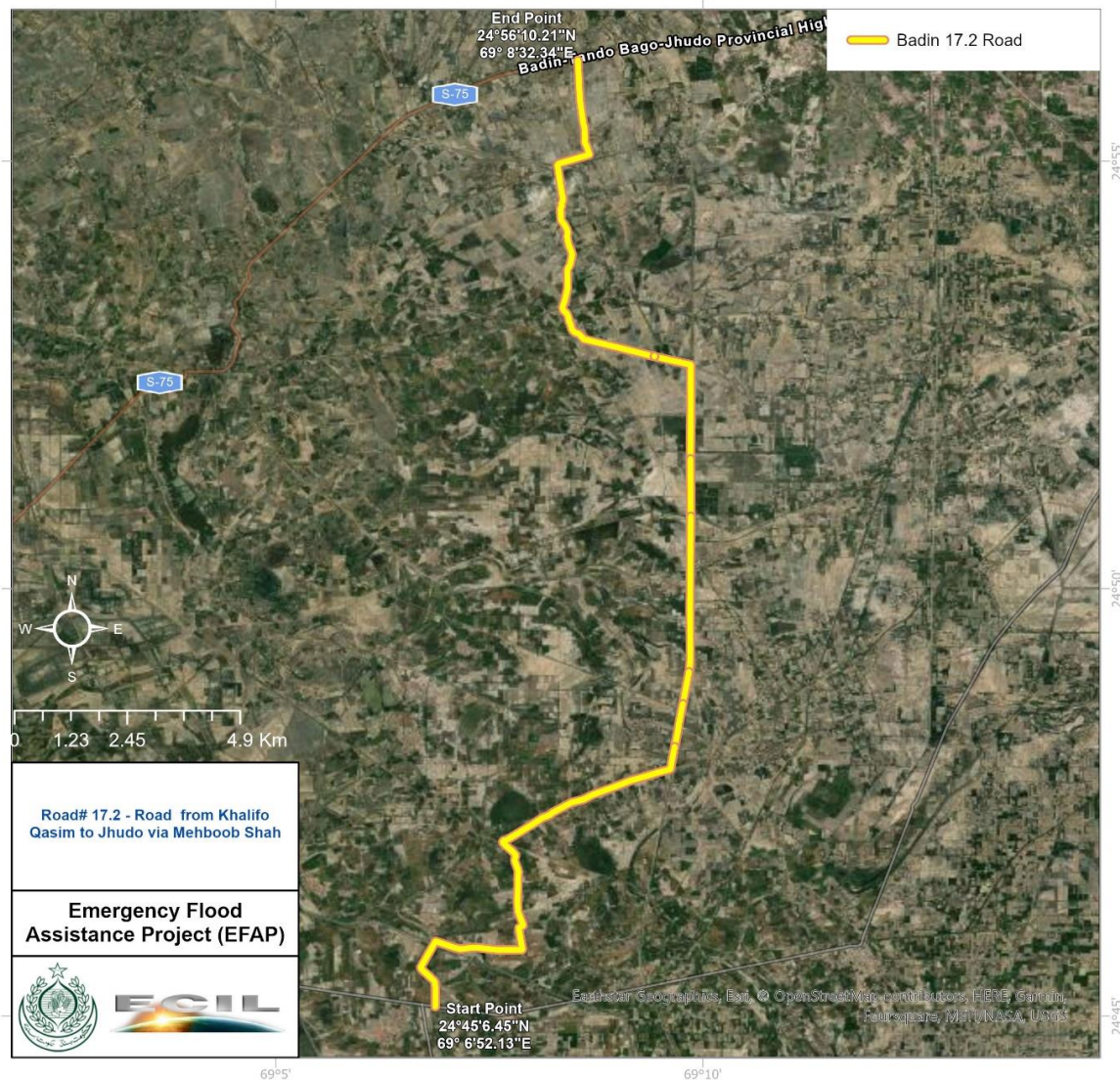


Figure I-3: Location map of Road “Road from Khalifo Qasim to Jhudo via Mehboob Shah”

## H. Sensitive Receptors

22. The nearest sensitive receptors located from the edge of the roads are: Bahadur Wah village – 10 m, Bukho Chandio – 15 m, Bachal Khaskheli village – 15 m and number of and houses (while road enters Tando Bago, Pangrio Towns).



## **II. Anticipated Environmental Impacts**

23. The proposed project was assessed for anticipated environmental impacts during construction phase. In operation phase, the road will be functioned as its pre-flood state. No increase in traffic after rehabilitation is envisaged. Few anticipated adverse impacts are listed in Table II-1.

### **A. Positive Socio-economic and Environmental Impacts of Subproject**

24. Most of the subproject's environmental and social impacts will be beneficial in operation phase, including ease of mobility for pedestrian and vehicles, addition of safety features in the subproject road etc. The beneficial impacts are described briefly hereunder:
- Roads will provide easy access and egress during flooding and provide access to services during any calamity.
  - Shorter travel time on the target road will contribute to the economic development in subproject area.
  - The farmers, businessmen and workforce may commute with ease between farm market and neighboring towns to sell/purchase farm goods.
  - By adding road safety features in the design, vulnerable road users and children will benefit and feel more secure.
  - The side drains in urban area / towns will reduce traffic congestion during monsoon season. As a result, precious time will be saved and could be utilized in the productive activities, which would otherwise be lost because of jams and other barriers because of underdeveloped infrastructure.
  - The subproject itself is expected to directly generate several jobs, particularly during the construction phase.

### **B. Impacts due to Siting**

25. **Protected Areas:** There is no any notified protected area directly falling along the alignment of the roads or near vicinity. Also, there is no notified buffer zone of the protected area or notified special area for protecting biodiversity falls inside or near vicinity of subproject alignments.
26. **Loss of Forests:** No areas of primary forest are found within or adjacent to RoW of the sub-project road.
27. **Incursion into Wetlands:** There is no notified wetland or Ramsar sites near the roads RoW or vicinity.
28. **Encroachment on Historical/Cultural/Archeological Sites:** No designated cultural heritage site has been noted or reported within the subproject roads alignment or vicinity.

### **C. Anticipated Adverse Environmental Impacts in Construction Phase**

Table II-1: Anticipated Adverse Environmental Impacts during subprojects construction

<b>Sr. No</b>	<b>Road Rehabilitation</b>	<b>Major Issues and Concerns During the Construction Phase</b>
1.	Loss of Vegetation/Plantation	<ul style="list-style-type: none"><li>- Due to extensive farming activities, there are number of trees observed in agriculture lands along the corridor. Highly dispersed &amp; disorganized roadside plantation was observed, acacia being the predominant variety.</li><li>- There are 13 number of mature Kikar (<i>Acacia nilotica</i>) and 01 number of Khabbar (<i>Salvadora oleoides</i>) trees, located on the shoulders. Trees</li></ul>

		<p>located along the existing shoulders will be avoided to be cut down by reducing the proposed shoulders.</p> <ul style="list-style-type: none"> <li>- Along the newly rehabilitated road, series of local trees will be planted along the embankment to compensate the vegetation cover loss and to mitigate erosion.</li> </ul>
2.	Impact on local fauna	<ul style="list-style-type: none"> <li>- Roads are already exist, therefore, there will not be a habitat loss or habitat fragmentation occur due to rehabilitation activities.</li> <li>- Since all the subprojects are traversing along agriculture areas with few pockets of populated areas, wildlife species and their habitat are mostly absent. Few domesticated animals and scavengers, resident birds and reptiles residing in the agriculture areas are reported.</li> <li>- During surveys of subprojects, no such species of wildlife or species of high conservation value (conservation importance) were identified.</li> <li>- Birds usually found near water courses and over large canopy trees. They are mostly resident birds.</li> <li>- People are commuting the subprojects, therefore, the human induced disturbance to local fauna is already prevalent along road corridors. However, during road rehabilitation works, care must be taken by CC to avoid any adverse impacts to fauna.</li> <li>- During road rehabilitation works, negligible impact is anticipated on the domesticated animals as they usually guided by shepherd and avoid the construction site.</li> <li>- Negligible impact is anticipated on birds as they fly away to move towards undisturbed areas. Since, tree cutting is not involved and all trees will be protected, however, if any tree need to be cut down, CC will ensure that nests of birds, if found, will be relocated to nearby safe tree shelter.</li> <li>- Night time activities will be avoided to eliminate disturbance to nocturnal fauna.</li> <li>- Water birds reside over water bodies and channels and may be impacted by water quality deterioration, therefore, measures to avoid water quality deterioration is discussed below.</li> <li>- Strict no hunting no trapping policy will be implemented by CC.</li> <li>- Minimal impact is anticipated on the mammals and reptiles as there will be disturbance along the construction corridor and they do not tend to come near disturbed areas or human caused activities.</li> <li>- Any mammal or reptile found crossing the road, will be protected and any construction / vehicle operation will be halted until that animal crosses or guided to cross the road.</li> </ul>
3.	Deterioration of surface water quality	<ul style="list-style-type: none"> <li>- Irrigation channels and natural water bodies can be polluted by fuel and lubricants, asphalt entering these systems. It is anticipated that due to uncontrolled spills of fuel, lubricants and asphalt can lead to pollution of water bodies.</li> <li>- Campsites will be located atleast 500m away from water courses and 1 km away from major settlement.</li> <li>- Fuel and oil storage areas will be proposed atleast 500m away from the surface water courses and be provided with a concrete platform and be bounded so that any fuel leakage is stored on site.</li> </ul>

		<ul style="list-style-type: none"> <li>- Additionally, these areas should be provided with interceptor traps so that accidental spills cannot escape and contaminate the agriculture fields and water bodies.</li> <li>- Refueling should wherever possible be carried out at the fuel storage area and not be permitted adjacent to watercourses.</li> <li>- No untreated human waste will be allowed to enter streams where it can affect downstream water quality and human health.</li> <li>- Adequate sanitary facilities and drainage in the workers camps will help to avoid this possibility.</li> <li>- When the facility/campsite is no longer required, CC will need to remove the structures and also excavate and remove any contaminated soil. New soil should be brought in as required so that the ground surface is re-established.</li> <li>- Debris generated by the dismantling of existing pavement structures will be recycled subject to the suitability of the material and the approval of ES, or otherwise safely disposed of in barren land approved by ES.</li> <li>- For subprojects passing along a water channel, concrete guardrails will be constructed prior the road rehabilitation works to avoid any contamination enters into the channel and deteriorates the quality of water.</li> <li>- Due to improved road specifications, some cross-drainage structures may be renovated or re-built. Owing to predominant sandy soil strata, surface run-off may cause erosion &amp; adding to siltation. However, it is likely to be temporary, only during construction activities, as the silt laden water is prevalent in the canals and drainage channels.</li> <li>- When the facility/campsite is no longer required, CC will need to remove the structures and also excavate and remove any contaminated soil. New soil should be brought in as required so that the ground surface is re-established.</li> </ul>
4.	Increased local air pollution	<ul style="list-style-type: none"> <li>- Dust from haulage vehicles as they bring road materials to site will be a problem for communities that live alongside the road during the dry season. Also, road filling material can generate dust if not watered properly.</li> <li>- Therefore, some degree of fugitive dust during construction is a matter of concerns. However, impacts will be site-specific and short duration, only occur during construction phase.</li> <li>- In consultation with ES/PMC, CC will be required to have a dust abatement program that includes spraying water on the road and work areas near settlements and commercial units.</li> <li>- Materials will need to be stored along the alignment or in construction campsite away from settlements and other sensitive receptors.</li> <li>- Labor will be provided with dust masks.</li> <li>- Periodic monitoring of dust will be required by the CC and SEQS / IFC guidelines for ambient air quality will be complied.</li> </ul>
5.	Occupational health and safety	<ul style="list-style-type: none"> <li>- Construction labor and construction staff hired during the construction period will be subject to occupational health and safety risks.</li> </ul>

		<ul style="list-style-type: none"> <li>- CC will ensure that Job Hazard Analysis (JHA) is performed prior to commencing jobs.</li> <li>- Labor Health and Safety Plan will be prepared by CC.</li> <li>- Campsites and construction areas will need to be provided with septic sanitation facilities and potable water.</li> <li>- Offset double pit toilets with pour flush are recommended over a high platform. In this type, toilet is connected with leaching pits (stone lined) which act as a partial trickling filter and hence the water that escapes is bacteriologically less/not harmful. Once a pit is filled, the second one comes in use and the first is emptied over time.</li> <li>- Sludge after emptying the tanks/pits should be landfilled at proper location, covered with soil and left for degradation.</li> <li>- Campsite will be fenced and trespassing will not be permitted.</li> <li>- CC will ensure good liaison with local communities and will facilitate their mobility.</li> <li>- Display the project activities clearly for the adjacent communities.</li> <li>- Use safety signage and written instructions for workers and communities to ensure their safety.</li> <li>- Labor Health and Safety Plan will be prepared by CC.</li> <li>- Monitoring will be required for the solid waste disposal at campsite and worker health and safety plan should be followed. CC and PMU staff are responsible for the monitoring.</li> <li>- Complying with safety precautions for construction workers as per the International Labor Organization (ILO) Convention No. 62 as far as applicable to this contract</li> <li>- Training workers, in construction safety procedures, equipping all construction workers with required PPE (hard boots, helmets, gloves, and dust masks etc.), and monitoring their proper and sustained usage.</li> <li>- Child and forced labor shall not be engaged in construction activities.</li> </ul>
6.	Noise and Vibration	<ul style="list-style-type: none"> <li>- Some degree of noise and vibration is envisaged due to pavement reconstruction / resurfacing and shoulders rehabilitation but the impact is site-specific and short duration only occur during construction phase.</li> <li>- Sources of noise include construction vehicles, improper silencing of vehicles and equipment used on the road construction site. These will impact on human communities and will be most pronounced close to or within urban areas.</li> <li>- CC will need to ensure that; (i) machinery is adequately silenced and (ii) machinery operations close to urban areas will be restricted to daylight hours a schedule agreed to between CC and the local communities.</li> <li>- Periodic monitoring of noise will be required by the CC and SEQS / IFC guidelines for noise levels will be complied.</li> </ul>
7.	Traffic Management	<ul style="list-style-type: none"> <li>- Road rehabilitation works will be undertaken in sections and the period of rehabilitation is considerably short.</li> <li>- A traffic diversion plan will be introduced to manage smooth flow of vehicular traffic and to avoid nuisance to commuters.</li> </ul>

		<ul style="list-style-type: none"><li>- Sign postings, warning signs, diversion signs and barriers will be installed to alert public of all potential hazards including limited access to construction sites.</li></ul>
8.	Damage to local services	<ul style="list-style-type: none"><li>- Services within the RoW include electrical poles which are located on the earthen shoulder and embankments of the road.</li><li>- 09 electric poles were observed to be located over the shoulders and need to be relocated before the reconstruction of the shoulders.</li><li>- The relocation of utilities shall be undertaken with the relevant utility agency.</li><li>- A joint workplan shall be developed before the relocation and followed in letter and spirit.</li><li>- Locals shall be informed prior to any disruption of utilities.</li></ul>

## **D. Anticipated Environmental Impacts in Operation Phase**

### **1. Decreased Dust**

29. Dust from unpaved road area, is a major nuisance for roadside residents, especially those in built up areas. The subproject roads will be rehabilitated to its original paved condition, which will have a major immediate beneficial impact on those people living alongside the road.

### **2. Reduced Transport Costs**

30. The improvement of the subproject road surfaces will reduce travel time and transport costs. This will be a positive impact on the socio-economics of the local community.

### **3. Improved Public Access and Transport of Goods for Rural Communities**

31. The roads will only provide a small incremental benefit in improving access to services for rural people as the road is already in existence. However, better roads will create easier access to government services while a flood free road will ensure that there is now unrestricted access to hospitals.

### **III. Institutional Framework for the Implementation of EMP**

32. This section describes the responsibilities required for the implementation of EMP in conjunction with the W&SD (PMU), ESU, Design and Supervision Consultant (DSC), Monitoring Consultant and CC. The Implementation Agency (IA) is Works and Services Department, Sindh/PMU.
33. DSC will be responsible for field surveys, engineering studies, design, and preparation of engineering drawings of flood-affected roads during design phase and assisted IA during execution of the project as supervision consultant.
34. Technical & Financial Support is being provided by Asian Development Bank (ADB).
35. Environmental Protection Agency (EPA) Sindh will act as the overall regulatory body. The specific roles of key officials are described henceforth.
36. The Organizational setup of the management plan is shown in Fig. III.1.

#### **A. Roles and Responsibilities under EMP**

##### **4. Project Director (PD)**

37. The Project Director (W&SD) being a part of the PMU will be responsible for the successful implementation of project. He will be assisted by two deputy directors; Procurement and Administration and Design and Quality Control respectively. PD as a part of PMU, will ensure that the project comply with ADB's Safeguard Policy Statement (2009) and Sindh Environmental Protection Act 2014. He will develop Environment and Social Unit (ESU) within PMU that oversees the environmental and social issues.

##### **5. Deputy Director (Design and Quality Control)**

38. The Deputy Director (Design and Quality Control) will assist PD (PMU) and will design the project components and control the quality of the work. An Environment and Social Unit (ESU) is developed under the command of DD and comprising Asst. Engineers.

##### **6. Design and Supervision Consultants (DSC)**

39. Monitoring responsibility will solely be shared by DSC. DSC includes design consultants and monitoring consultants. DSC will support all DDs and PMU for the project development.
  - The design consultants will ensure that all the mitigation measures proposed for the design phase are incorporated in the design and included in the contract documents.
  - Monitoring consultants will conduct environmental monitoring and prepare monitoring reports and submitted to ES. He will also ensure that day-to-day construction activities will be carried out in an environmentally sound and sustainable manner.

##### **7. Environment and Social Specialists (ES/SS)**

40. DSC will appoint an environment specialist (ES) and a Social Specialist (SS) to monitor the implementation of environmental management measures required for the project. He will commence monitoring of project and preparing environmental monitoring reports by the aid of DSC, every three months to be delivered to ADB.
41. The following are the responsibilities of ES/SS:
  - Support ESU

- He will prepare environmental screening checklists and classify the project by the aid of environmental specialist and DSC.
- He will ensure that the EMP, including all proposed mitigation measures and monitoring programs are properly implemented.
- He will share information and disclosure of environmental safeguard documents (including any Corrective Action Plans prepared in cases of change to original project design) as required.
- Carrying out visits to the construction sites to review the environmental performance of CC;
- Ensuring that the required environmental training is provided to the staff concerned;

#### **8. Contractor (CC)**

42. EMP will be made a part of the contract agreement and CC will ensure that all Project activities are in compliance with the EMP and SEQS.
43. CC will hire adequate numbers of HSE officers to be present at site for implementation of health and safety measures and environmental mitigation measures.

#### **9. Asian Development Bank**

44. Review EMP as a basis for the approval of subproject.
45. Monitor the implementation of the EMP as part of overall project review mission.
46. Provide assistance to the IA, if required, in carrying out its responsibilities and safeguard capacity building.

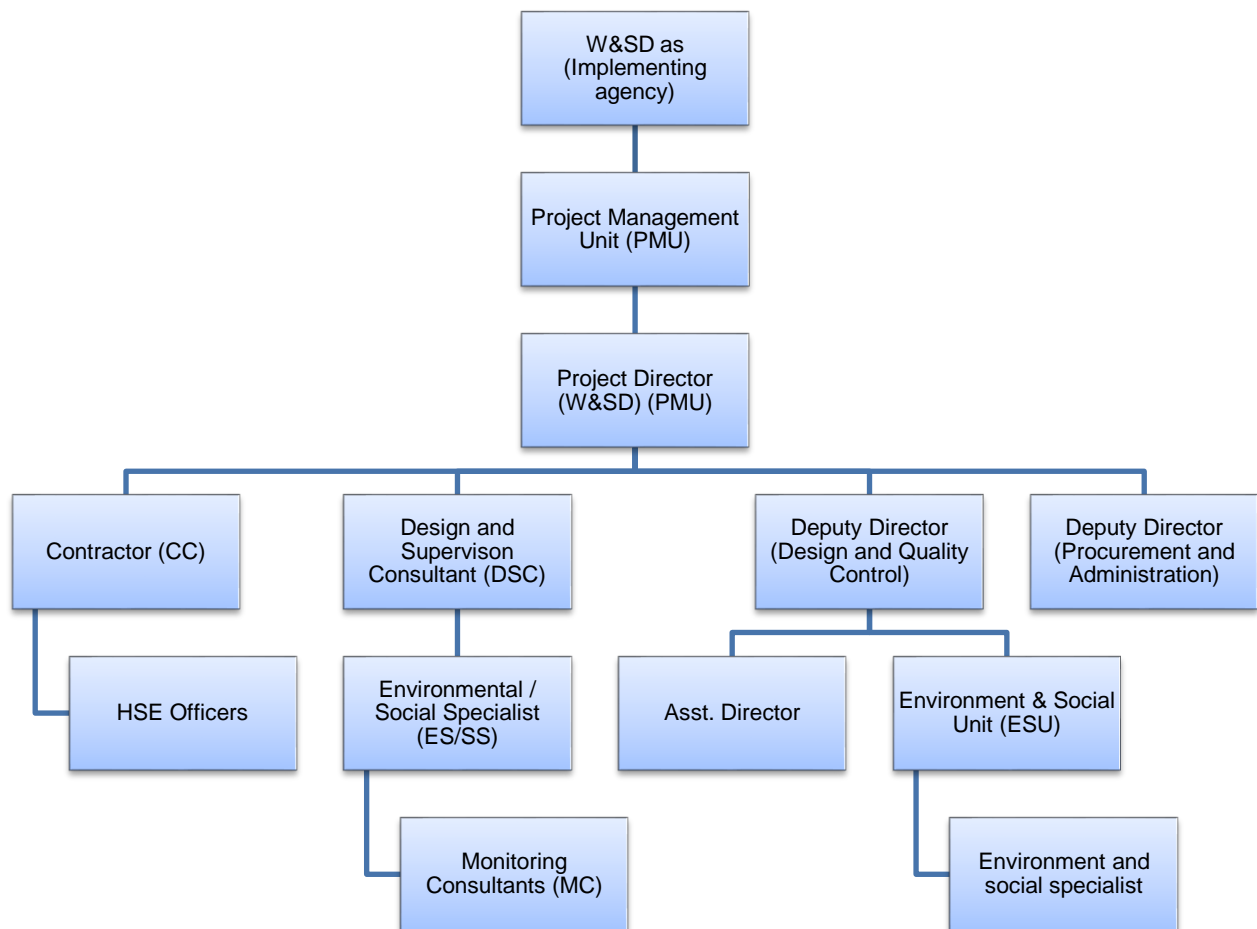


Figure III.1: Organizational setup for the implementation and monitoring of EMP

## **B. Environmental Monitoring**

47. This section provides a monitoring plan that identifies the roles and responsibilities of project staff involved in environmental monitoring, and lists the parameters that will be used in the monitoring process.
48. The main objectives of the construction phase monitoring plans will be to:
- Monitor the actual project impact on physical, biological and socio-economic receptors. This will indicate the adequacy of the EMP.
  - Recommend Corrective Action Plans for any unforeseen impact or where the impact level exceeds that anticipated in the EMP.
  - Ensure compliance with legal and community obligations including safety on construction corridors.
  - Monitor the rehabilitation of construction campsite as described in the EMP.
  - Ensure the safe disposal of excess construction materials.
49. The main objectives of monitoring during the operation phase will be to:
- Appraise the adequacy of the EMP with respect to the construction related adverse impacts on the site's physical, biological and socio-economic environment.



- Evaluate the effectiveness of the mitigation measures proposed in the EMP, and recommend improvements in the EMP, if necessary.
- Compile periodic accident data to support analyses that will help minimize future risks.
- Monitor the survival rate of tree plantations.

#### **10. Internal Monitoring Arrangements**

50. The ES/SS shall be the key person to ensure environmental monitoring with the assistance of community representatives.
51. The ES/SS will further be required to:
- Systematically observe the activities carried out by CC or any other person associated with the project.
  - Verify that the activities carried out comply with the EMP.
  - Maintain a record of all incidents of environmental significance as well as related actions and corrective measures.

#### **11. External Monitoring Arrangements through Monitoring Consultant (MC)**

52. MC will be responsible for carrying out monitoring as per the monitoring plan. Environmental monitoring methods and parameters will include:
- A weekly check of noise levels using a portable noise meter operated near major construction equipment and machinery.
  - Visual checks of exhaust emissions from equipment and vehicles on a daily basis.
  - Visual checks of airborne dust on temporary access roads, material stockpiles, disturbed soil, and haul tracks.
  - Monitoring through equipment as defined in below monitoring plan.

### **C. Environmental Training**

53. An environmental training program will be prepared to address the need of CC site staff as well as PMU field staff and build their capacity to effectively implement EMP.
54. Environment Specialist (ES) will assist PMU to organize training for their staff and to help them establish system /infrastructure for future sustainability.
55. In addition to the training arranged and imparted by the ES for complete project team, CC will also plan small training sessions for workers involved in specific jobs. Cost of trainings and mitigation measures will be deemed included in contract cost.

## IV. Environmental Management and Monitoring Plan

Table IV.1: Environmental management matrix – Construction Phase

Environmental Concern	Objectives	Recommended Mitigation Measures	Timing & Location to implement	Implementation Responsibility	Monitoring Responsibility
Loss of Vegetation/ Plantation	To minimize vegetation cover loss	<ul style="list-style-type: none"> <li>Trees located along the existing shoulders will be avoided to be cut down by reducing the proposed shoulders.</li> <li>CC will be responsible for the monitoring and protection of these trees.</li> <li>If a tree needs to be cut down, it will be compensated at a ratio of 5 trees planted for 1 tree cut.</li> <li>Along the newly rehabilitated road, series of trees will be planted along the embankment to compensate the vegetation cover loss and mitigate erosion.</li> <li>Tree plantation plan will be prepared by CC and will be approved from ES/DSC and PIU.</li> </ul>	<p>Protective system for the traffic will be incorporated in project during design phase.</p> <p>Implementation of tree plantation plan at project site.</p> <p>Compensatory Plantation after road construction</p>	CC	<p>Internal: ES(DSC)</p> <p>External: MC</p>
Impact on local fauna	To minimize impact on local fauna	<ul style="list-style-type: none"> <li>If any tree needs to be cut down, CC will ensure that nests of birds, if found, will be relocated to nearby safe tree shelter.</li> <li>Night time activities will be avoided to eliminate disturbance to nocturnal fauna.</li> <li>Strict no hunting no trapping policy will be implemented by CC.</li> <li>Any mammal or reptile found crossing the road, will be protected and any construction / vehicle operation will be halted until that animal crosses or guided to cross the road.</li> </ul>	During construction at construction site and camp site	CC	<p>Internal: ES(DSC)</p> <p>External: MC</p>
Increased erosion and sedimentation in streams	Avoid erosion of soil into water courses	<ul style="list-style-type: none"> <li>Unnecessary work should be avoided within perennial channels and excavated material must not be dumped into channels.</li> <li>In case of non-perennial water courses; much of the impact can be eliminated by planning work during the dry season, which would allow the area to be cleaned up prior to the arrival of flows.</li> </ul>	During construction at water courses	CC	<p>Internal: ES(DSC)</p> <p>External: MC</p>

Environmental Concern	Objectives	Recommended Mitigation Measures	Timing & Location to implement	Implementation Responsibility	Monitoring Responsibility
Deterioration of surface water quality	To avoid lubricants, solid waste, asphalt contamination to ground and water resources.	<ul style="list-style-type: none"> <li>Campsites will be located at least 500m away from water courses and 1 km away from major settlement.</li> <li>Fuel and oil storage areas will be proposed at least 500m away from the surface water courses and be provided with a concrete platform and be bounded so that any fuel leakage is stored on site.</li> <li>Additionally, these areas should be provided with interceptor traps so that accidental spills cannot escape and contaminate the agriculture fields and water bodies.</li> <li>Refueling should wherever possible be carried out at the fuel storage area and not be permitted adjacent to watercourses.</li> <li>No untreated human waste will be allowed to enter streams where it can affect downstream water quality and human health.</li> <li>Adequate sanitary facilities and drainage in the workers camps will help to avoid this possibility.</li> <li>For subprojects passing along a water channel, concrete guardrails will be constructed prior the road rehabilitation works to avoid any contamination enters into the channel and deteriorates the quality of water.</li> <li>When the facility/campsite is no longer required, CC will need to remove the structures and also excavate and remove any contaminated soil. New soil should be brought in as required so that the ground surface is re-established.</li> <li>Debris generated by the dismantling of existing pavement structures will be recycled subject to the suitability of the material and the approval of ES, or otherwise safely disposed of in barren land approved by ES.</li> </ul>	During construction at construction site and camp site	CC	<u>Internal:</u> ES(DSC) <u>External:</u> MC

Environmental Concern	Objectives	Recommended Mitigation Measures	Timing & Location to implement	Implementation Responsibility	Monitoring Responsibility
Generation of Dust	To minimize the impacts created due to dust formation.	<ul style="list-style-type: none"> <li>In consultation with ES/DSC, CC will be required to have a dust abatement program that includes spraying water on the road and work areas near settlements and commercial units.</li> <li>Materials will need to be stored along the alignment or in construction campsite.</li> <li>Bulk cement delivery rather than bags should be used wherever possible so as to reduce dust emissions and eventual problems with disposing of the large number of bags.</li> <li>Labor will be provided with dust masks.</li> <li>Periodic monitoring of dust will be required by the CC and SEQS / IFC guidelines for ambient air quality will be complied.</li> </ul>	During construction at construction site and camp site	CC	<u>Internal:</u> ES(DSC) <u>External:</u> MC
Noise and Vibration	<ul style="list-style-type: none"> <li>To reduced construction noise and vibration as far as practicable through the implementation of appropriate management procedures, including use of low noise equipment and management of construction hours.</li> </ul>	<ul style="list-style-type: none"> <li>CC will need to ensure that; (i) machinery is adequately silenced and (ii) machinery operations close to urban areas will be restricted to daylight hours a schedule agreed to between CC and the local communities.</li> <li>Additionally, employment of manual labor will reduce the need for many of the machinery operations.</li> <li>Periodic monitoring of noise will be required by the CC and SEQS / IFC guidelines for noise levels will be complied.</li> </ul>	During construction at construction site	CC	<u>Internal:</u> ES(DSC) <u>External:</u> MC
Occupational health and safety concerns	<ul style="list-style-type: none"> <li>To provide adequate management of camp site through training of workers and compliance with international safety practices.</li> <li>Minimization of safety &amp; health risks</li> </ul>	<ul style="list-style-type: none"> <li>CC will ensure that Job Hazard Analysis (JHA) is performed prior to commencing jobs.</li> <li>Labor Health and Safety Plan will be prepared by CC.</li> <li>Campsites and construction areas will need to be provided with septic sanitation facilities and potable water.</li> <li>Offset double pit toilets with pour flush are recommended over a high platform. In this type, toilet is connected with leaching pits (stone lined) which act as a partial trickling filter and hence the water that escapes is bacteriologically less/not harmful. Once a</li> </ul>	During construction at construction site and camp site	CC	<u>Internal:</u> ES(DSC) <u>External:</u> MC

Environmental Concern	Objectives	Recommended Mitigation Measures	Timing & Location to implement	Implementation Responsibility	Monitoring Responsibility
		<p>pit is filled, the second one comes in use and the first is emptied over time.</p> <ul style="list-style-type: none"> <li>• Sludge after emptying the tanks/pits should be landfilled at proper location, covered with soil and left for degradation.</li> <li>• The project site will be fenced and trespassing will not be permitted.</li> <li>• CC will ensure good liaison with local communities and will facilitate their mobility.</li> <li>• Display the project activities clearly for the adjacent communities.</li> <li>• Use safety signage and written instructions for workers and communities to ensure their safety.</li> <li>• Labor Health and Safety Plan will be prepared by CC.</li> <li>• Monitoring will be required for the solid waste disposal at camp site and worker health and safety plan should be followed. CC and PMU staff are responsible for the monitoring.</li> <li>• Complying with safety precautions for construction workers as per the International Labor Organization (ILO) Convention No. 62 as far as applicable to this contract</li> <li>• Training workers, in construction safety procedures, equipping all construction workers with required PPE (hard boots, helmets, gloves, and protective masks etc.), and monitoring their proper and sustained usage.</li> <li>• Child and forced labor shall not be engaged in construction activities.</li> </ul>			
Transportation of Construction materials	To avoid damage to existing roads and bridges.	<ul style="list-style-type: none"> <li>• All materials will be towed by trucks to the sub-project site. There will be a possibility for the damage to bridges and pavements of the roads if the vehicles are overloaded.</li> </ul>	During construction at camp site or any located weight	CC	<u>Internal:</u> ES(DSC) <u>External:</u>

**Environmental Management Plan (EMP)**  
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Environmental Concern	Objectives	Recommended Mitigation Measures	Timing & Location to implement	Implementation Responsibility	Monitoring Responsibility
		<ul style="list-style-type: none"> <li>Not only are the bridges affected but the pavement is also weakened and its life shortened by overloaded vehicles. CC will need to ensure that trucks do not exceed the bridge and pavement specifications and are checked by weight bridges. Monitoring will be required by CC.</li> </ul>	bridge in the project area.		MC
Traffic Management	To ensure that the least disruption to existing traffic and commuters will be caused due to the construction activities	<ul style="list-style-type: none"> <li>Vehicular traffic management will have to be undertaken seriously to restrain unnecessary traffic jams that may cause annoyance to the commuters as they subproject activities may encompass settlements and market areas.</li> <li>Designated parking areas will be provided for different type of construction vehicles within and around the subproject road.</li> <li>Ensure safe and continuous access to all shops and residences during construction.</li> <li>Movement of construction material to the project sites should be planned in that way it will not hamper major transport activity e.g., material may be transported at night time when the local trips are minimum. However, care must be taken at locations where residents are located and the transfer of material should not be happened during sleeping hours.</li> </ul>	During construction at construction site	CC / Traffic Police	<u>Internal:</u> ES/SS(DSC) <u>External:</u> MC
Adverse safety impacts on pre-existing road Traffic due to construction	To reduce safety hazards for traffic movement	<ul style="list-style-type: none"> <li>Road rehabilitation works will be undertaken in sections and the period of rehabilitation is considerably short.</li> <li>A traffic diversion plan will be introduced to manage smooth flow of vehicular traffic and to avoid nuisance to commuters.</li> <li>Sign postings, warning signs, diversion signs and barriers will be installed to alert public of all potential hazards including limited access to construction sites.</li> <li>Construction of segment intersecting existing roads should be carefully planned and scheduled and when the traffic movement is minimal e.g., early morning.</li> </ul>	During construction at construction site	CC	<u>Internal:</u> ES/SS(DSC) <u>External:</u> MC

**Environmental Management Plan (EMP)**  
**Package 2: Badin Roads**

Environmental Concern	Objectives	Recommended Mitigation Measures	Timing & Location to implement	Implementation Responsibility	Monitoring Responsibility
Damage to Cultural and Community Owned Assets	To minimize impact that arise during construction activities on local water resources and noise	<ul style="list-style-type: none"> <li>Construction activities situated close to densely populated areas will be limited to daylight hours, to minimize the impact of noise generated by construction machinery.</li> <li>CC will be required to maintain close liaison with local communities to minimize conflicts, if any, related to the utilization of local resources for project purpose.</li> </ul>	During construction at construction site	CC	<u>Internal:</u> SS(DSC) <u>External:</u> MC
Damage to Services  (Services within the RoW include electrical poles which are located on the earthen shoulder of the road)	To avoid disturbance to the local community due to temporary shortage of Services	<ul style="list-style-type: none"> <li>Electric poles need to be relocated before the reconstruction of the shoulders.</li> <li>The relocation of utilities shall be undertaken with the relevant utility agency.</li> <li>A joint workplan shall be developed before the relocation and followed in letter and spirit.</li> <li>Locals shall be informed prior to any disruption of utilities.</li> </ul>	During construction at construction site	CC / Utility Agencies / departments	<u>Internal:</u> SS(DSC) <u>External:</u> MC

Table IV-2: Environmental Monitoring Plan for Construction Phase

Monitoring Area	Parameters to monitor	Standard	Location	Frequency	Responsibility
Ambient Air Quality	CO, SO <sub>2</sub> , NO, NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> , SPM, Pb, O <sub>3</sub>	SEQS and IFC/ WHO standards	Near each construction segment (considering of work started for all 02 roads)	Quarterly	MC
Ambient Noise	L <sub>Aeq</sub>	SEQS and IFC/ WHO standards	Near each construction segment (considering of work started for all 02 roads)	Quarterly	MC
Generators & Construction Machinery Noise Monitoring	L <sub>Aeq</sub>	SEQS and IFC/ WHO standards	Two random samples from each campsite	Quarterly	MC
Generator Exhaust Emissions	CO, NO <sub>x</sub> , Smoke, Particulate Matter, SO <sub>2</sub>	SEQS and IFC/ WHO standards	One sample from each campsite	Quarterly	MC
Vehicle Exhaust Emissions	CO, Smoke	SEQS and IFC / WHO standards	Two random samples from each campsite	Quarterly	MC
Drinking Water Quality	Color, pH, Turbidity, Total Hardness, Sulfate, Chloride, TDS, Ammonia (as NH <sub>4</sub> ), Coliform, Nitrate (NO <sub>3</sub> <sup>-</sup> ), Nitrite (NO <sub>2</sub> <sup>-</sup> ), Cyanide, Mercury (Hg), Arsenic (As), Zinc (Zn), Antimony (Sb), Nickel (Ni), Selenium (Se), Cadmium (Cd), Total Chromium, Lead (Pb), Total Coliforms, Fecal Coli forms (E. Coli), Taste, Odor, Fluoride.	SEQS and IFC / WHO standards	One sample from each campsite	Quarterly	MC
Construction camp wastewater quality	Temperature, pH, BOD <sub>5</sub> , COD, TDS, TSS, Chloride, Sulfate, Fluoride, Phenols, Mercury (Hg), Ammonia (as NH <sub>3</sub> ), Coliform, Hardness, Nitrate (NO <sub>3</sub> <sup>-</sup> ), Sulfide, Total Toxic Metals, Oil and Grease and Cyanide	SEQS and IFC / WHO standards	One sample from septic tank of each campsite	Quarterly	MC
Solid Waste / Waste Disposal	Solid waste quality and quantity and disposal methods/locations - Visual checks to assess the situation		At campsite / construction corridors	Monitor the implementation on quarterly basis	MC
HSE	A complete code of Health, Safety and Environment (HSE) shall be developed		All Construction Areas	Monitor the implementation on quarterly	MC
	Ensure state of the Art and International Standards for Safety of terminal, storage facility and all other installation to prevent any safety related hazard.				



## **V. Grievance Redressal Mechanism:**

56. Field level grievances will be addressed through a local grievance redress committee (GRC) to be formally constituted by the IA. The GRC will consist of social safeguard specialist (SS) from DSC, a jirga member or notable person, locally present NGO representative, the ESU social or environment specialist (depending on nature of grievance) and 1 revenue staff. Women will be members of the GRC. The GRC will be formally notified and established at the project sites. The GRCs will function as open forums for hearing complaints and exploring quick resolutions to conflicts. The GRC will be required to develop an outreach program including links to the provincial ombudsman's office. Each GRC will record its deliberations and inform the concerned parties of a resolution within 2 weeks of its findings and recommendations. If the GRC cannot resolve the grievance, they will be facilitated to take their complaints to the provincial ombudsmen or relevant environmental tribunal.
57. To ensure women have access to the grievance mechanism, separate Focus Group Discussions (FGDs) will be held with them to design protocols that are suited to their needs including procedures and mechanisms to enable their access to the mechanism, including, access to the provincial ombudsman's office. Outreach programs will be tailored to women's needs to ensure information is communicated to them.
58. SS (DSC) will place a complaint register at an accessible location (Union Council office, mosque, or at camp site) for respective community so anyone can register their complaint in this register and on weekly basis, it will be checked by the GRC. In case of any complaints, the following mechanism will be adopted to resolve it:
- GRC will resolve the complaint in a week's time and inform in writing the action taken against that grievance.
  - If the complaint cannot be resolved at the GRC level, the issue will be brought to the notice in ESU.
  - If the complaint cannot be resolved at ESU level, the matter will be taken to the highest-level Project Director (PMU).

## **VI. Conclusion**

59. The reconstruction / rehabilitation of Package 2 roads is likely to have insignificant and limited impacts of temporary nature and of short duration, limited to the construction activities, which will be mitigated as per the mitigation plan laid down in the above section. Since the Project involves construction at the existing alignment, the environmental impacts will be limited to its construction limit. Land acquisition or relocation of population or assets is not involved.
60. Environmental Performance Monitoring will be an integral part of the Project to ensure that:
- The structures and materials conform to recommended standards and follow standard practice of civil works.
  - Environmentally sound materials and goods are selected, with priority being accorded to products meeting national and international standards.
  - Monitoring will be required for the assurance of no damage to community owned assets, houses, shops, crops, trees, mosques and graveyards.
  - Trees located on the shoulders and embankments will not be disturbed in case that they may not pose a traffic safety hazard.
  - Compensatory plantation will be provided if any tree cutting involves.
  - Locate construction camps at minimum distance of 500m from existing settlements, built-up areas.
  - Joint workplan will be made for the relocation of existing utility lines to ensure least disturbance to local users.
  - Dust abatement program needs to be implemented that includes spraying water on roads and work areas within villages, past houses and shops that may be located close to the road.
  - Construction work shall not hinder local people's access to nearby facilities. A traffic management and diversion plan will be made by CC in consultation with PMU and traffic police.
  - Emergency and safety plan will be built by contractor/PMU for bridges and roads near canals and waterways.
  - Grievance Redress Mechanism will be implemented by CC to ensure that community complains are recorded appropriately.
61. The environmental safeguards will have to be monitored by concerned agencies, including Environment Specialist ES (DSC) and PMU-W&S Department.
62. Careful implementation of the EMP will ensure that environmental impacts are managed adequately and CC and PMU will meet all local statutory requirements and ADB SPS 2009.

## **Annex 1: Provincial and International Quality Standards**

**Ambient Air Quality**

Comparison of International and Local Ambient Air Quality Standards						
Sr. No.	Pollutants	WHO/IFC		SEQS		Method of Measurement
		Avg. Time	Standard	Avg. Time	Standard	
1	SO <sub>2</sub>	24 hr 10 min	20 ug/m <sup>3</sup> 500 ug/m <sup>3</sup>	Annual Mean 24 hrs	80 ug/m <sup>3</sup> 120 ug/m <sup>3</sup>	Ultraviolet Fluorescent Method
2	CO	-	-	8 hrs 1 hr	5 mg/m <sup>3</sup> 10 mg/m <sup>3</sup>	Non-Dispersive Infrared (NDIR) method
3	NO	-	-	1 yr 24 hrs	40 ug/m <sup>3</sup> 40 ug/m <sup>3</sup>	Gas Phase Chemiluminescence
4	NO <sub>2</sub>	1 yr 1 hr	40 ug/m <sup>3</sup> 200 ug/m <sup>3</sup>	Annual Mean 24 hrs	40 ug/m <sup>3</sup> 80 ug/m <sup>3</sup>	Gas Phase Chemiluminescence
5	O <sub>3</sub>	8 hrs	100 ug/m <sup>3</sup>	1 hr	130 ug/m <sup>3</sup>	Non-dispersive UV absorption method
6	SPM	-	-	Annual Mean 24 hrs	360 ug/m <sup>3</sup> 500 ug/m <sup>3</sup>	High Volume Sampling (average flow rate not less than 1.1 m <sup>3</sup> /min)
7	PM <sub>10</sub>	1 yr 24 hr	20 ug/m <sup>3</sup> 50 ug/m <sup>3</sup>	Annual Mean 24 hrs	120 ug/m <sup>3</sup> 150 ug/m <sup>3</sup>	β-ray absorption method
8	PM <sub>2.5</sub>	1 yr 24 hr	10 ug/m <sup>3</sup> 25 ug/m <sup>3</sup>	Annual Mean 24 hrs	15 ug/m <sup>3</sup> 35 ug/m <sup>3</sup>	β-ray absorption method
9	Pb	-	-	1 yr 24 hrs	1 ug/m <sup>3</sup> 1.5 ug/m <sup>3</sup>	ASS Method after sampling using EPM 2000 or equivalent filter papers

**Ambient Noise**

Comparison of International and Local Noise Standards					
Sr. No.	Category of Area/Zone	Limit in dB(A) Leq			
		SEQS		WHO/IFC	
		Day Time 06:00 – 22:00	Night Time 22:00-06:00	Day Time 07:00 – 22:00	Night Time 22:00-07:00
1	Residential area (A)	55	45	55	45
2	Commercial area (B)	65	55	70	70
3	Industrial area (C)	75	65	70	70
4	Silence zone (D)	50	45	55	45

**Drinking Water Quality**

<b>Comparison of National and International Drinking Water Standards</b>				
<b>Sr. No.</b>	<b>Parameter</b>	<b>Units</b>	<b>SEQS</b>	<b>WHO Standards</b>
1	Temperature (During Sample Collection)	°C	NS	NS
2	Color	Pt-Co	≤15TCU	<15TCU
3	pH	pH unit	6.5-8.5	6.5-8.5
4	Turbidity	NTU	<5	<5
5	Total, Hardness	mg/L	<500.00	NS
6	Total Dissolved Solid (TDS)	mg/L	<1000.00	<1000.00
7	Total Suspended Solid (TSS)	mg/L	NS	NS
8	Ammonia	mg/L	NS	NS
9	Fluoride F <sup>-</sup>	mg/L	<1.50	1.50
10	Sulfate (SO <sub>4</sub> <sup>-2</sup> )	mg/L	NS	NS
11	Chloride (Cl <sup>-</sup> )	mg/L	<250.00	250
12	Nitrate (NO <sub>3</sub> ) <sup>-</sup>	mg/L	<50.00	50.00
13	Odor	-	Non-Objectionable / Acceptable	Non-Objectionable / Acceptable
14	Taste	-	Non-Objectionable / Acceptable	Non-Objectionable / Acceptable
15	Sodium	mg/L	NS	NS
16	Iodine	ppm	NS	NS
17	Arsenic (As)	mg/L	< 0.05	0.01
18	Iron (Fe <sup>3+</sup> )	mg/L	NS	NS
19	Zinc (Zn <sup>2+</sup> )	mg/L	5.0	3.0
20	Conductivity	μS/cm	NS	NS
21	Bicarbonate	mg/L	NS	NS
22	Nitrite	mg/L	<3	3
23	Magnesium	mg/L	NS	NS
24	Calcium as Ca	mg/L	NS	NS
25	Phosphate	mg/L	NS	NS
26	Potassium	mg/L	NS	NS
27	Boron	mg/L	<0.3	0.3
28	SAR Iodine (I)	mg/L	NS	NS
29	Aluminum	mg/L	< 0.2	0.2
30	Antimony	mg/L	<0.005	0.02
31	Cadmium	mg/L	0.01	0.003
32	Mercury	mg/L	<0.001	0.001
33	Nickel	mg/L	<0.02	0.02
34	Selenium	mg/L	0.01	0.01
35	Barium	mg/L	0.7	0.7

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36	Total Chromium	mg/L	<0.05	0.05
37	Copper	mg/L	2	2
38	Lead	mg/L	<0.05	0.01
39	Cyanide (CN)	mg/L	<0.05	0.07
40	Manganese	mg/L	<0.5	0.5
41	Total Coliforms	cfu/100ml	0/100 ml	0/100 ml
42	Fecal Coli forms (E.Coli)	cfu/ml	0/100 ml	0/100 ml

NS = Not Specified

\* The standards highlighted in grey for each respective pollutant are the most stringent based on a comparison between local and international regulations and thus shall be applicable for the proposed Project.

**Wastewater Quality**

S. No.	Parameters	Unit	SEQS Standards	IFC Standards
1.	Temperature	°C	≤3°	-
2.	pH	pH Unit	6-9	6-9
3.	Biochemical Oxygen Demand (BOD5) @ 20 °C	mg/L	80	140
4.	Chemical Oxygen Demand (COD)	mg/L	150	125
5.	Total Suspended Solids (TSS)	mg/L	200	88
6.	Total Dissolved Solids (TDS)	mg/L	3500	-
7.	Oil & grease	mg/L	10	10
8.	Phenolic Compounds (as phenol)	mg/L	0.1	0.026
9.	Chloride (as Cl <sup>-</sup> )	mg/L	1000	-
10.	Fluorides (as F <sup>-</sup> )	mg/L	10	-
11.	Cyanide (as CN <sup>-</sup> ) total	mg/L	1.0	-
12.	An-ionic Detergent (as MBAS)	mg/L	20	-
13.	Sulfate (SO <sub>4</sub> <sup>2-</sup> )	mg/L	600	-
14.	Sulfide (S <sup>2-</sup> )	mg/L	1.0	-
15.	Ammonia (as NH <sub>3</sub> )	mg/L	40	10
16.	Pesticides	ug/L	0.15	-
17.	Cadmium (Cd)	mg/L	0.1	-
18.	Chromium (trivalent and Hexavalent) (Cr)	mg/L	1.0	-
19.	Copper (Cu)	mg/L	1.0	-
20.	Lead (Pb)	mg/L	0.5	-
21.	Mercury (Hg)	mg/L	0.01	-
22.	Selenium (Se)	mg/L	0.5	-
23.	Nickel (Ni)	mg/L	1.0	-
24.	Silver (Ag)	mg/L	1.0	-
25.	Total Toxic Metals	mg/L	2.0	-
26.	Zinc (Zn)	mg/L	5.0	0.2
27.	Arsenic (As)	mg/L	1.0	-

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28.	Barium (Ba)	mg/L	1.5	-
29.	Iron (Fe)	mg/L	8.0	-
30.	Manganese (Mn)	mg/L	1.5	-
31.	Boron (B)	mg/L	6.0	-
32.	Chlorine	mg/L	1.0	-
<sup>a</sup> MPN = Most Probable Number				

**Motor Vehicle Noise**

The Motor Vehicle Noise (SEQS)		
Parameter	Standards (maximum permissible limit)	Measuring method
Noise	85dB(A)	Sound-meter at 7.5 meter from the source