



Tender calling for: Detailed Technical Inspection of ROBs and Railway Flyovers including NDT testing as per requirement and relevant guidelines and submitting detailed report including suggesting suitable corrective measures wherever required under the jurisdiction of CGM/DFCCIL/DDU from DDUN to SEBN & CPBN of EDFC.

Tender No. DFC-DDU-BRI-INS-2024

Sep.2024

(Participation through e-Tender only)

Visit: www.ireps.gov.in/ its link at www.dfccil.com
(Help desk of IREPS: 011-23761525)

Client:

DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)
Under
Ministry of Railway

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NOTICE INVITING TENDER

DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LIMITED**Notice Inviting Tender****Tender No.** DFC-DDU-BRI-INS-2024**Date:**..... **Sep'24**

Name of Consultancy Work: Detailed Technical Inspection of ROBs and Railway Flyovers including NDT testing as per requirement and relevant guidelines and submitting detailed report including suggesting suitable corrective measures wherever required under the jurisdiction of CGM/DFCCIL/DDU from DDUN to SEBN & CPBN of EDFC.

The Chief General Manager/DDU on behalf of Managing Director/DFCCIL invites **E-Tenders on Single Stage Single Packet System** on prescribed forms from firms/Companies. Brief particulars of the Project are as follows:

Table-1				
SN	Name of Work	Estimated Cost of Work (Rs.)	Earnest Money (Rs.)	Completion Period
1.	Detailed Technical Inspection of ROBs and Railway Flyovers including NDT testing as per requirement and relevant guidelines and submitting detailed report including suggesting suitable corrective measures wherever required under the jurisdiction of CGM/DFCCIL/DDU from DDUN to SEBN & CPBN of EDFC.	₹49,62,049/-	₹ 99,300/-	12Months

The complete Bid document can be viewed/downloaded from official portal of the website www.ireps.gov.in from 09.09.2024 to 09.10.2024(upto 15:00 Hrs. IST). Bidder must submit its Bid at www.ireps.gov.in on or before upto 09.10.2024 at 15:00 hours IST. Bids received online shall be opened on 09.10.2024 at 15:30 hours IST. Bid through any other mode shall not be entertained. Please note that the DFCCIL reserves the right to accept or reject all or any of the Bids without assigning any reason whatsoever.

Janak Kumar Singh
DyCPM/Engg-I
For CGM/DFCCIL/DDU

PART - I**Chapter - I****GENERAL INFORMATION****Tender No.** DFC-DDU-BRI-INS-2024**Name of Consultancy Work:** Detailed Technical Inspection of ROBs and Railway Flyovers including NDT testing as per requirement and relevant guidelines and submitting detailed report including suggesting suitable corrective measures wherever required under the jurisdiction of CGM/DFCCIL/DDU from DDUN to SEBN & CPBN of EDFC.**1.1.1** The Chief General Manager/DDU on behalf of Managing Director/DFCCIL invites **E-Tenders on Single Stage Single Packet System** on prescribed forms from firms/Companies on Consultancy Mode. Brief particulars of the Project are as follows:

Table-1				
SN	Name of Work	Estimated Cost of Work (Rs.)	Earnest Money (Rs.)	Completion Period
1.	Detailed Technical Inspection of ROBs and Railway Flyovers including NDT testing as per requirement and relevant guidelines and submitting detailed report including suggesting suitable corrective measures wherever required under the jurisdiction of CGM/DFCCIL/DDU from DDUN to SEBN & CPBN of EDFC.	₹49,62,049/-	₹99,300/-	12Months

- 1.1.2 Eligibility shall be assessed on applicants, fulfilling the technical & Financial eligibility criteria and organizational resources as specified in clause no. 1.3.17.1 (A) & (B) and test of responsiveness as per clause No. 1.3.10.14 of Preamble and General Instruction to tenders (Part-I, Chapter III).
- 1.1.3 Tender document can be downloaded from www.ireps.gov.in w.e.f. from 19.01.2024. The Cost of the tender document is ₹3,540/- (inclusive of taxes) which is non-refundable and to be paid online through payment gateway provided at www.ireps.gov.in in the Account of DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LIMITED, New Delhi towards the cost of one set of tender documents. The tender documents shall have to be purchased in the name of Firms/Company/Joint Ventures and can be downloaded from web site www.ireps.gov.in. In case tenderer(s) do/does not deposit the cost of tender document (non- refundable) along with the submission of the tender their tender shall not be opened. Tenderer are advised not to make any correction /addition/alteration in the downloaded tender documents. If any such correction/addition /alteration in downloaded tender documents are made such tenders shall not be considered.
- 1.1.4 DFCCIL may issue addendum(s)/corrigendum(s) to the tender documents. In such cases the addendum(s)/corrigendum(s) shall be issued and placed on website www.ireps.gov.in at least three days in advance of date of opening of tender. The tenderer who has downloaded the tender documents from the website before issue of addendum(s)/ corrigendum(s) must visit the website and ensure that such addendum(s)/corrigendum(s) (if any) is also downloaded by them. Such addendum(s)/corrigendum(s) (if any) shall also be submitted duly stamped and signed along with the submission of tenders. Any tender submitted without addendum(s)/corrigendum(s) (if any) shall be summarily rejected.
- 1.1.5 The tender documents containing TECHNICAL BID and FINANACIAL BID. Detailed credential for technical and financial eligibility as per the requirement given in clause No. **1.3.17.1 (A) & (B)** of Part-I, Chapter-III and all tender papers except bill of quantity are to be submitted in "Technical Bid". Price Schedule (**Form No. 22**) with % age above or below or at par on the Estimated cost of work of Schedule duly filled are to be submitted in "Financial Bid" online at website www.ireps.gov.in. No physical **Form No. 22** needs to be submitted.
- 1.1.6 Tender shall be submitted as per "**Preamble and General Instruction to Tenderers**" forming as part of the complete tender documents.

Signature of the Tenderer



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It is mandatory for all Tenderers to have Class-III Digital Signature Certified from any of the Licensed Certifying Agencies ('CA') to participate in E-Tendering of DFCCIL, (Tenderer can see the list of Licensed CAs from the link www.cca.gov.in in the name of the person who will submit the Online tender and is authorized to do so. To participate in E-Tender, it is mandatory for Tenderers to get themselves registered with the IREPS (www.ireps.gov.in) and to have User ID and Password.

www.ireps.gov.in is the only website for submission of tender 'Vender Manual' containing the detailed guidelines for E-Tendering is available on www.ireps.gov.in.

1.1.7 Submission of Offer

Tender shall be submitted through online mode only at www.ireps.gov.in. Tender submitted through any other mode will not be accepted. All the required documents (legible) as mentioned in Check list have to be uploaded along with the offer on www.ireps.gov.in failing which, the bid shall be summarily rejected and shall not be considered for further evaluation.

CHECK LIST FOR DOCUMENTS TO BE SUBMITTED

S. No.	Documents to be Attached	Tick (Yes/No)
1.	The Offer Letter as per format given in the Form No. 1	
2.	Power of Attorney of the person signing the tender documents in Original if specific to this work in the Form No. 10 or Attested Copy of the General Power of Attorney of the Company in favor of the person signing the tender.	
3.	Certified Copy of Registration of Company/Firm/Agency, Partnership Deed /Memorandum and Articles of Association of the Company/Firm/Agency.	
4.	Constitution of the Company/Firm/Agency and Form No. 2C in the form prescribed and Form No. 7 & 11 (if applicable).	
5.	Form No. 2, 2A, 2B, 6, 9, 18 along with all documents mentioned in Forms No. 2A and 2B, Form No. 17 & 18.	
6.	BG in lieu of Earnest Money (if applicable) in Form No. 4A	
7.	Complete Tender Document including Corrigendum/ Addendums duly Signed (all pages of bid document) by the Bidder.	

Important Notes:

- Documents mentioned from Sr No. 1 to 7 above should be scanned and uploaded along with offer as attachment at website www.ireps.gov.in.
- The detailed instructions of e-tendering can be read through website www.ireps.gov.in. The Addendum/Corrigendum, if any; shall be hosted on the website www.ireps.gov.in
- The supporting documents for assessing the technical capability and responsiveness are essentially required to be uploaded on the website www.ireps.gov.in along with Technical Bid.
- Tenderers are required to give Un-Conditional Offers. A Conditional Offer is liable to be rejected. DFCCIL reserves the right to modify, expand, restrict, scrap, reject and re-float tender without assigning any reasons whatsoever.

1.1.8 Any tender received without Earnest money and cost of tender documents in the form as specified in the tender documents shall not be considered and shall be summarily rejected. All tenderers (except exempted MSEs) are mandatorily required to submit Bid Guarantee/EMD. MSEs registered with NSIC upto the monetary limit of their registration for the tendered items are exempted from depositing Earnest Money. Such tenderer (s) shall have to upload with their offer, a scanned copy of requisite valid documentary evidence in support of their claim

1.1.9 DFCCIL reserves right to cancel the tender before submission /opening of tender, postpone the tender submission/ opening date and to accept/reject any or all tenders without assigning any reason there of DFCCIL's assessment of technical capability and responsiveness as per criteria laid down in this tender document shall be final and binding.

- 1.1.10. Tenderers may note that they are liable to be disqualified at any time during tendering process in case any of the information furnished by them is not found to be true. EMD of such tenderers shall be forfeited. The decision of DFCCIL in this regard shall be final and binding.
- 1.1.11 Information as required as per various Forms to tender document should be submitted by the tenderers without fail strictly as per formats.
- 1.1.12 the validity of offer shall be 120 **days** from the date of opening of the tender.
- 1.1.13 Transfer of the tender document by intending tenderer to another tenderer is not admissible. Tenderer can submit tenders only on the basis of documents downloaded from website: www.ireps.gov.in by them.

PART - I
Chapter-II
DATA SHEET

1.	NIT No.	DFC-DDU-BRI-INS-2024
2.	Name of Work	Detailed Technical Inspection of ROBs and Railway Flyovers including NDT testing as per requirement and relevant guidelines and submitting detailed report including suggesting suitable corrective measures wherever required under the jurisdiction of CGM/DFCCIL/DDU from DDUN to SEBN & CPBN of EDFC.
3.	Bidding Type	Domestic E-tender
4.	Tender Type	Open
5.	Bidding System	Single Stage Single Packet System
6.	Bidding Style	Single Rate for Each Schedule
7.	Pre-Bid Required	No
8.	Advertised Tender Value	₹49,62,049/- (Inclusive of GST@18%)
9.	Period of Completion	12 Months
10.	Validity of the offer	120 Days
11.	Are Joint Venture firms allowed to bid	NO
12.	Tender Document Cost (Non-Refundable)	₹3,540/-inclusive of all taxes to be deposited online through payment gateway provided at www.ireps.gov.in
13.	Earnest Money	₹99,300/- EMD to be deposited online through payment gateway provided at www.ireps.gov.in
Date & Time Schedule		
14.	Date Time of Uploading of NIT & Tender Document	09/09/2024 on www.ireps.gov.in
15.	Date and Time of Issue of Tender	Tender document can be downloaded from 09/09/2024
16.	Bidding Start Date	25/09/2024
17.	Last Date & Time of submission of Tender (Online)	09/10/2024 at 15 :00 hrs. on www.ireps.gov.in
18.	Date and Time of Opening of Bids online	09/10/2024 at 15 :30 hrs. on www.ireps.gov.in
20.	Retention Money/ Security Deposit	5% of Contract Value (to be deducted from On-account payment @ 6% till the value reaches 5% of Contract Value.
21.	Performance Bank Guarantee (PG)	PG have to be submitted within 21 days from the date of issue of Letter of Acceptance, for amount of 5% of the Contract Value.
22.	Address for Communication	Sh. J.K Singh, DyCPM/Engg-I (7060803034) 011-23761525 (10Lines)

Chapter-III
PREAMBLE & GENERAL
INSTRUCTION TO TENDERERS

PART- I**Chapter - III****PREAMBLE & GENERAL INSTRUCTIONS TO TENDERERS****1.3.1. Introduction**

Dedicated Freight Corridor Corporation of India Ltd. (DFCCIL), a public sector undertaking has been set up under the Indian Companies Act, 1956 (Amended 2013). DFCCIL is a Special Purpose Vehicle set up under the administrative control of Ministry of Railways to undertake planning & development, mobilization of financial resources and construction, maintenance and operation of these Dedicated Freight Corridors on various identified routes in INDIA. Government of India is the sole shareholder of the DFCCIL. DFCCIL has planned to construct Dedicated Freight Corridor covering about 3338 route Kilometres on Eastern and Western Corridors. The coverage of Eastern Corridor is from Ludhiana to Dankuni and Western Corridor is planned from Jawaharlal Nehru Port, Mumbai to Dadri near Delhi. DFCCIL has decided to Carry out Detailed inspection of Girder Bridges of DFCCIL under CGM/DDU.

1.3.2. Scope of Work (Terms of References)

On behalf of Managing Director/DFCCIL, CGM/DDU herein after referred to as 'DFCCIL' invites tenders/offers from Firms /Companies/Joint Ventures having requisite technical and financial capacity for execution of the following work:

"Detailed Technical Inspection of ROBs and Railway Flyovers including NDT testing as per requirement and relevant guidelines and submitting detailed report including suggesting suitable corrective measures wherever required under the jurisdiction of CGM/DFCCIL/DDU from DDUN to SEBN & CPBN of EDFC."

1.3.2.1 Functional Scope

- (i) The work to be carried out under this contract includes carrying out detailed inspection of the Girder bridge(s) and submitting an inspection report. Frequency of Inspection shall be decided by DFCCIL depending on condition of Bridge. Normally Frequency shall be once in 5 years.
- (ii) Notwithstanding anything to the contrary in the contract document, the scope of work briefed herein shall be treated as the scope of Work for the Contract in addition to the requirements of the other sections of the Contract documents.
- (iii) The scope of work is representative and will include all works required to successfully fulfil the requirement of "Detailed Inspection of Girder Bridges", not limited to items listed herein below. The scope of work will apply to every Girder Bridge for which the detailed inspection is carried out under this contract.

1.3.2.2 The scope of work shall broadly consist of:

- (i) To study the drawings and records of previous inspections carried out and any repairs undertaken.
- (ii) To review the data regarding various parameters of the bridge recorded through the instrumentation carried out on the bridge, if any.
- (iii) To carry out detailed inspection of the bridge and record all observations and upload all relevant evidence related to the Bridge Inspection in the Bridge Management System (BMS) App of DFCCIL and also record the inspection observations in **Bridge Inspection Register/e-register**. For this, the bridge inspector is directed to follow the Guidelines for bridge inspection issued by DFCCIL and if on any aspect of bridge DFCCIL's guidelines are not available, then Indian Railway Bridge Inspection guidelines are to be followed.
- (iv) To provide numerical rating with regards to the condition of the Bridge and its various components in line with the Numerical Rating system of Laid in Part-II of this tender document.
- (v) To submit an inspection report if there is a need for any special investigation/ testing/repairs recommended to be carried out on the bridge or for any other recommendation which cannot be provided through the BMS.

(vi) To provide any clarification sought by DFCCIL officials about the findings and recommendations related to the bridge inspection carried out.

1.3.3 Cost of the work: The estimated cost of the tendered work is approx. ₹49,62,049/- including GST @ 18%. Any firm recognized by the Department of Industrial Policy and Promotion (DIPP) as 'Startups' and any firm registered with under Udyam Registration for the item tendered as MSEs will be exempted from payment of cost of tender document.

1.3.3. The tenderer shall be governed by General Conditions of Contract (GCC), Preamble and General Instructions to Tenderers (GIT), Special Conditions of Contract (SCC) and technical specifications. Wherever there is a conflict in any condition between General Conditions of Contract (**GCC**) and Special Conditions of Contract mentioned in the tender documents, the condition mentioned in Special Conditions of Contract will prevail. However, the Engineer's decision in this connection shall be final and binding.

1.3.4. Location: Works are to be executed in the jurisdiction of CGM/DDU from. However, DFCCIL reserves the right to change the site of work, anywhere in DFCCIL and the consultant shall be bound to execute the work.

1.3.5. Order of Precedence of Documents: In tender/contract, in case of any difference, contradiction, discrepancy, with regard to conditions of tender/contract, specifications, drawings, bill of quantities etc., forming part of the tender/contract, the following shall be the order of precedence:

- (i) Contract Agreement
- (ii) Letter of Award
- (iii) Schedule of Items, Rates & Quantities
- (iv) Special Conditions of Contract
- (v) Technical Specifications as given in tender documents
- (vi) Drawings
- (vii) General Conditions of Contract
- (viii) IR Specifications/Guidelines/ manuals
- (ix) Relevant B.I.S. Codes
- (x) International codes

For example, if any Item is found common in Special Conditions of Contract and General Conditions of Contract then the provision given in Special Conditions of Contract will prevail over General Conditions of Contract for the same Item.

1.3.6. LANGUAGE OF BID: The Bid, as well as all correspondence and document(s) relating to the bid exchanged by the Bidder and the DFCCIL, shall be written in English.

1.3.7. (a) Tender Bid: The Tender Bid shall have to be submitted in Single Packet System through IREPS.

1.3.8. (b) Form of Tender: Tenders not submitted in the proper Forms are liable to be rejected.

(i) Documents to be enclosed online with the BID:

SN	Description	Documents
(1)	Offer letter complete.	Form No. 1
(2)	Tenderer's capability credentials in accordance with para 1.3.17.5) of Preamble and General Instructions to Tenderers.	Form No. 2A, 2B,2C
(3)	Various tender forms	Form No. 2, 6, 7, 9, 10, 11, 17, 18, 22
(4)	Earnest money in accordance with Para 1.3.10.22 and Cost of Tender Document in accordance with Para 1.3.10.21 of Preamble and General Instructions to Tenderers (Part-I, Chapter-III).	

1.3.9. Tender Document: This tender document consists of following five parts:

CHAPTERS	DESCRIPTION
	TECHNICAL BID

CHAPTERS	DESCRIPTION
Chapter I of Part-I	General Information
Chapter II of Part-I	Data sheet
Chapter III of Part-I	Preamble and General Instructions to Tenderers
Chapter IV of Part-I	General Conditions of Contract
Chapter V of Part-I	Special Conditions of Contract
PART - II	Technical Specifications
PART - III	Tender Forms
PART - IV	Schedule of Price

1.3.10. Sale and Submission of Tender Document

- 1.3.10.1** Tender shall be submitted through online mode only at www.ireps.gov.in. Tender submitted by any other mode will not be accepted.
- 1.3.10.2** All the required documents (legible) as mentioned in clause 1.1.7 (Check list from S.No.1-7) must be uploaded along with the offer on www.ireps.gov.in, failing which, the bid shall be summarily rejected and shall not be considered for further evaluation.
- 1.3.10.3** The detailed instructions of e-tendering can be read through website www.ireps.gov.in. The Addendum/Corrigendum, if any; shall be hosted on the website www.ireps.gov.in.
- 1.3.10.4** The supporting documents for Technical & financial capability & responsiveness are essentially required to be uploaded on the website www.ireps.gov.in as bid shall be accepted through online mode only.
- 1.3.10.5** Tenderers are required to give Un-conditional offers. A conditional offer is liable to be rejected. DFCCIL reserves the right to modify, expand, restrict, cancel, reject and re-float tender without assigning any reasons whatsoever.
- 1.3.10.6** The Tenderers shall closely peruse all the clauses, instructions, terms and conditions, scope of work, specification etc. as indicated in the Tender Document before quoting. Should the Contractor have any doubt about the meaning of any portion of the Tender Document or find discrepancies/omissions in the tender document issued or require clarification, he shall at once contact the authority inviting the tender for clarification at least twenty days before the due date of submission of the tender.
- 1.3.10.7** Bid Document shall be accompanied by all the documents required to be submitted as specified in the Tender Document along with all Addendums and Corrigendum.
- 1.3.10.8** All Bids shall be submitted in accordance with the instructions contained in the Tender Document (Bid Document). Non-compliance of any of the instructions contained in the Tender Document is liable in Bid being rejected.
- 1.3.10.9** After award of contract to the Successful bidder, if it is observed that there is any discrepancy or ambiguity about any terms and conditions mentioned in the Tender Document, the interpretation of same given by DFCCIL shall be considered as final and binding.
- 1.3.10.10** Bidder must fill up all the schedules and furnish all the required information on e-modes as per the instructions given in various sections of the Tender Document.
- 1.3.10.11** Submission of a tender by a tenderer implies that he had read all the tender documents including amendments/corrigendum if any, visited the site and made himself aware of the scope of the work to be done, local conditions and other factors having any bearing on the execution of the work.
- 1.3.10.12** DFCCIL reserves all rights to reject any tender including of those tenders who fail to comply with the instructions without assigning any reason whatsoever and does not bind itself to accept the lowest financial bid or any specific tender. The decision of

DFCCIL in this regard shall be final and binding. Any failure on the part of the tenderer to observe the prescribed procedure and any attempt to canvass for the work will prejudice the tenderer's bid.

1.3.10.13 Tenderers may note that they are liable to be disqualified at any time during tendering process in case any of the information furnished by them is not found to be true. Earnest Money Deposit (EMD) of such tenderer shall be forfeited. The decision of the DFCCIL in this regard shall be final and binding.

1.3.10.14 Evaluation of tenders will be made on the basis of Technical and Financial eligibility criteria and responsiveness criteria mentioned in the Bid Document and value of Financial Bid. However, DFCCIL reserves the right to seek any clarification from the Contractor. As a first step towards evaluation of Bids, the DFCCIL will determine whether each Technical Bid is responsive to the requirements of this TENDER. A Technical Bid shall be considered responsive only if:

- (a) Complete Bid is received online.
- (b) Bid is accompanied by the Bid Security and Original Copy of BG for Bid security (if any) are received physically within tender closing date and time.
- (c) The Original Copies of offer letter (Form No. 1), Affidavits of all JV members (Form No. 18), MoU for JV bidding (Form No. 7), Participation form of all JV members (Form No. 9), Power of Attorney for Authorised Signatory of Bid (Form No. 10) and PoA for a Lead Member (in case of JV) (Form No. 11), Integrity pact Form No. 17 are received physically within bid closing date and time.
- (d) Bid contains all the information (complete in all respects);
- (e) Bid does not contain any condition or qualification; and

The DFCCIL reserves the right to reject any Bid which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained by the Authority in respect of such Bid.

1.3.10.15 Modification/Substitution/Withdrawal of Bids: Once bid is submitted, the tenderer's will not be allowed to modification/substitute/withdrawal the offer.

1.3.10.16 Opening and Evaluation of Bids:

- (i) E-Tender shall be opened on-line at the address given below at the time and date as specified in Chapter-II (Data sheet) of Part-I in the presence of Tenderers or their authorized representatives if they choose to attend the online tender opening.
- (ii) Address: Online Opening of Tender at CGM office at DDU.
- (iii) For participating in the tender, the Authorized Signatory holding Power of Attorney shall be the Digital Signatory. In case, the Authorized Signatory holding Power of Attorney and Digital Signatory are not same, the Bid shall be considered non-Responsive.

1.3.10.17 Deadline for Submission of Tender: Tenderer must ensure to complete the tender submission process well before closing time, as www.ireps.gov.in will stop accepting any online Tender after Tender closing due date & time.

1.3.10.18 Cost of Tender Document: The Tenderer shall deposit cost of tender as prescribed, online through payment gateway of www.ireps.gov.in.

1.3.10.19 Earnest Money Deposit (Bid Security):

1.3.10.19.1(a) The tenderer shall be required to submit the Bid Security with the tender for the due performance with the stipulation to keep the offer open till such date as specified in the tender, under the conditions of tender. The Earnest Money Deposit for this work is ₹99,300/-.

[*The Bid Security shall be as under:*

<i>Value of the Work</i>	<i>Bid Security</i>
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<u>For works estimated to cost up to ₹ 1 crore</u>	<u>2% of the estimated cost of the work</u>
<u>For works estimated to cost more than ₹ 1 crore</u>	<u>₹ 2 lakh plus ½% (half percent) of the excess of the estimated cost of work beyond ₹ 1 crore subject to a maximum of ₹ 1 crore</u>

Note: The Bid Security shall be rounded off to the nearest ₹100. This Bid Security shall be applicable for all modes of tendering.- the text between [] to be deleted before issue of TENDER to tenderers

Note:-

- (i) Any firm recognized by the Department of Industrial Policy and Promotion (DIPP) as 'Startups' shall be exempted from payment of Bid Security.
 - ii) Any firm registered with under Udyam Registration for the item tendered as MSEs will be exempted from payment of earnest money.
- (b) It shall be understood that the tender documents have been issued to the tenderer and the tenderer is permitted to tender in consideration of stipulation on his part, that after submitting his tender he will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to the Engineer. Should the tenderer fail to observe or comply with the said stipulation, the aforesaid amount shall be liable to be forfeited to the DFCCIL.
- (c) If his tender is accepted, this Bid Security mentioned in sub para (a) above will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause General Conditions of Contract. The Bid Security of other Tenderers shall, save as herein before provided, be returned to them, but the DFCCIL shall not be responsible for any loss or depreciation that may happen thereto while in their possession, nor be liable to pay interest thereon.
- 1.3.10.19.2 The Bid Security shall be deposited either in cash through e-payment gateway or submitted as Bank Guarantee bond from a scheduled commercial bank of India or as mentioned in tender documents. The Bank Guarantee bond shall be as per **Form No.-4A** and shall be valid for a period of 120 days beyond the bid validity period.
- 1.3.10.19.3 In **case, submission of Bid Security in the form of Bank Guarantee, following shall be ensured:**
- i. A scanned copy of the Bank Guarantee shall be uploaded on e-Procurement Portal (IREPS) while applying to the tender.
 - ii. The original Bank Guarantee should be delivered in person to the official nominated as indicated in the tender document before tender opening time and date mentioned in the TENDER.
 - iii. Non submission of scanned copy of Bank Guarantee with the bid on e-tendering portal (IREPS) and/or non submission of original Bank Guarantee within the specified period shall lead to summary rejection of bid.
 - iv. The Tender Security shall remain valid for a period of 90 days beyond the validity period for the Tender.
 - v. The details of the BG, physically submitted should match with the details available in the scanned copy and the data entered during bid submission time, failing which the bid will be rejected
 - vi. The Bank Guarantee shall be placed in an envelope, which shall be sealed. The envelope shall clearly bear the identification "**Bid for the Project**" and shall clearly indicate the name and address of the Bidder. In addition, the Bid Due Date should be indicated on the right-hand top corner of the envelope.
 - vii. The envelope shall be addressed to the officer and address as mentioned in the tender document.
 - viii. If the envelope is not sealed and marked as instructed above, the Authority assumes no responsibility for the misplacement or premature opening of the contents of the Bid submitted and consequent losses, if any, suffered by the Bidder.
- 1.3.10.19.4** Tenders received without Earnest Money in full in the manner prescribed above shall be summarily rejected.

1.3.10.19.5 DFCCIL reserves the right of forfeiture of Earnest Money Deposit in case of Successful Tenderer if:

- a) Does not execute the Contract Agreement within 60 (sixty) days from the date of Issue of Letter of Acceptance; or
- b) Does not submit Performance Security of the requisite value (equal to 3% of contract value) as per Part-III (Tender Forms) of Tender Document, within 60 days of issue of Letter of Acceptance: or
- c) Does not commence the work within 7 days after receipt of Letter of Acceptance or date as specified in the Letter of Acceptance.
- d) Withdraws the offer during the period of validity/extended validity.
- e) When any of the information furnished by the tenderer not found true.

1.3.10.19.6 The forfeiture of Earnest Money Deposit (EMD) shall also be applicable if work is terminated at any stage as per terms and conditions of the contract.

1.3.10.20 Clause applicable for tender documents downloaded from Internet

Tenderer/s have to download tender documents at their own cost, for the purpose of perusal as well as for using the same as tender document for submitting their offer. Master copy of the tender document will be available in the office of CGM/DDU. After award of the work, an agreement will be drawn up. The agreement shall be prepared based on the master copy available in the office of CGM/DDU, DFCCIL, DDU and not based on the tender documents submitted by the Tenderer. In case of any discrepancy between the tender documents downloaded from the internet and the Master Copy, later shall prevail and will be binding on the Tenderers. No claim on this account shall be entertained.

1.3.10.21 Complete tender documents must be submitted duly completed in all respects on www.ireps.gov.in upto **15.00 hrs on 09.10.2024**. The **tender** will be opened at **15.30 hrs** on the same day and read out in the presence of such tenderer(s) as is/are present. In case the intended date for opening of tenders is declared a holiday, the tenders will be opened on the next working day at the same time. Any modified date and time for submission of tenders shall be uploaded on website www.ireps.gov.in. The detailed procedure of tender opening will be as per para 1.3.11.

1.3.10.22 The rates should be quoted in figures.

1.3.10.23 Each page of the bid document is to be signed by the tenderers or such person/s on his/their behalf who is/are legally authorized to sign for him/them.

1.3.10.24 Tenders containing erasures and/or alteration of the tender documents are liable to be rejected. Any correction made by Tenderer(s) in his/their entries must be attested by him/them.

1.3.10.25 Pre-bid conference: No

1.3.10.26 Opening of Tender:

- (a) Tender will be opened online at **15.30 hrs on 09.10.2024** at the DFCCIL, DDU in the presence of the tenderers or their representatives as may be present at the prescribed date and time.
- (b) After the opening of Tender including Technical and Financial, these bids shall be scrutinized and analyzed. If found necessary by the DFCCIL, the tenderers shall be asked to furnish clarifications, if required. The names of the tenderers whose bid are considered complete, responsive and meet eligibility criteria shall be shortlisted.

1.3.11. Validity of Tender: Tenderer shall keep his offer open for a minimum period of 120 days from the date of opening of the tender or as mentioned in the Tender Notice.

1.3.12. Execution of Contract Agreement: The Tenderer whose tender is accepted shall be required to appear in person at the office of CGM/DDU or if a firm or corporation, a duly authorized representative shall so appear and execute the contract agreement within 60 days after notice that the tender has been awarded to him. Failure to do so shall constitute a breach of the agreement affected by the acceptance of the tender in which case the full value of the earnest money accompanying the tender shall stand forfeited without prejudice

to any other rights or remedies. In the event of any tenderer whose tender is accepted refuses to execute the contract agreement as here in before provided, DFCCIL may determine that such tenderer has abandoned the contract and there upon his tender and acceptance thereof shall be treated as cancelled and DFCCIL shall be entitled to forfeit the full amount of the Earnest Money.

1.3.13. Security Deposit: The security deposit/rate of recovery mode of recovery on acceptance of tender shall be as per General Condition of the Contract.

1.3.14. Tenderer's Address: The tenderer should state in the tender his postal/electronic e-mail address(s) legibly and clearly. Any communication sent in time, to the tenderer by post at his said address shall be deemed to have reached the tenderer duly and in time. Important documents should be sent by registered post.

1.3.15. Right of DFCCIL to Deal with Tenders:

- (a) The DFCCIL reserves the right to cancel/ accept the tender in whole or in part without assigning reasons for any such action.
- (b) The authority for the acceptance of the tender will rest with the DFCCIL. It shall not be obligatory on the said authority to accept the lowest tender or any other tender and no tenderer(s) shall demand any explanation for the cause of rejection of his/their tender nor the DFCCIL undertake to assign reasons for declining to consider or reject any particular tender or tenders.

1.3.17.1 Eligibility Criteria

(A) Technical Eligibility Criteria

Criteria Requirement	Compliance Requirement		Documents
	Single Entity	Joint venture	Submission Requirements
1. The should have been a registered company for at least 5 year as on the date of Bid submission. 2. The Bidder should be an ISO9001-2015 certified company. 3. The bidder should have satisfactorily completed in the last three previous financial years and the current financial year upto the date of opening of the tender, one similar single service contract** for a minimum of 35% of advertised value of the bid. *Completed service contract includes on-going service contract subject to payment of bills amounting to at least 35% of the advertised value of the bid. ** Similar service contract means any contract that is so specified by the competent authority. 4. The Bidder should have a minimum total staff of 10 (Ten) persons including the key expert positions as on the date of submission. Key Expert Positions along with desirable qualification and experience is tabulated as under:	Must meet requirement	Not Allowed	The tenderer shall submit the completion certificates/Certified completion certificates from the client(s). It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self-attested by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document. Substantially Completed Work means an ongoing work in which payment equal to or more than 90% of the present contract value [excluding the payment made for adjustment of Price variation (PVC), if any] has been made to the contractor in that ongoing contract and no proceedings of termination of contract on Contractor's default has been initiated. The credential certificate in this regard should have been issued not prior to 60 days of date of

			invitation of present tender.
Sr. No.	Key Expert Position	Minimum Qualification	Minimum Relevant Experience
1	Structural Engineer	Postgraduate in structural Engineering	10 years of relevant experience in bridge design
2	Field Engineer	Graduate in Civil Engineering	8 years of relevant experience in Structural inspection/audit

****Definition of Similar Work:** An assignment of providing structural audits, construction management service for Railways/Metro/High speed Railway/Railway System for urban transport.

(B) Financial Eligibility Criteria

Criteria	Compliance Requirement		Documents
Requirement	Single Entity	Joint Venture	Submission Requirements
The bidder should have received payment against satisfactory execution of completed and ongoing works of all types during last three Financial years i.e. current year and preceding 3 years as per current ITCC/audited balance sheet of not less than 150% of the advertised estimated cost of work.	Must meet Requirement	Not Allowed	The tenderers shall submit requisite information as per Form No.-2B , along with copies of Audited Balance Sheets duly certified by the Chartered Accountant/ Certificate from Chartered Accountant duly supported by Audited Balance Sheet concern ed department /client and/or Audited Balance Sheet duly certified by the CharteredAccountant etc. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self-attested by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document.

Note:

1. In case the tenderer/s is a partnership firm, the work experience shall be in the name of partnership firm only.
2. Work experience certificates issued by Railways/Highways, any Central /State Govt. Department/PSU of India or Autonomous Body of Central/State Govt. of India shall be accepted.

1.3.17.2 Credentials of Tenderer

The tenderer shall provide satisfactory evidence in support of their technical and financial eligibility, which are acceptable to DFCCIL, as follows:

- (a) For Technical eligibility criteria, the details will be submitted in **Form No. 2A** along with supporting documents.
- (b) For Financial eligibility criteria, the details will be submitted in **Form No. 2B** along with supporting documents.
- (c) The tenderer shall submit the completion certificates/certified completion certificates from the client(s) or certified Photostat of original certificates of client. All documents either original or photocopy should be attested by Notary. These certificates should indicate the details of

works carried out and successful commissioning of similar type of work executed by the tenderer. Completion certificate issued by Railways/Highways, any Central /State Govt. Department/ PSU of India or Autonomous Body of Central/State Govt. of India will be accepted. The certificate from Private individual/Private Company for whom such works are executed shall not be accepted.

The following will be applicable for evaluating the eligibility:

- (i). For Similar nature of work – In case a work is started prior to 03 (Three) years, ending last day of month previous to the one in which tender is invited, but completed in last 03years, ending last day of month previous to the one in which tender is invited, the completed work shall be considered for fulfillment of credentials.
- (ii). The total value of similar nature of work completed during the qualifying period and not the payment received within the qualifying period alone, shall be considered. In case the final bill of similar nature of work has not been passed and final measurements have not been recorded, the paid amount including statutory deductions is to be considered. If final measurements have been recorded and work has been completed with negative variation, then also the paid amount including statutory deductions is to be considered.
- (iii). However, if final measurements have been recorded and work has been completed with positive variation, but variation has not been sanctioned, original contract agreement value or last sanctioned contract agreement value whichever is lower, shall be considered for judging eligibility.
- (iv). Tenderer shall submit a statement of contractual payments received during last three financial years and current financial year on the prescribed Performa as per Form No. 2B duly certified by Chartered Accountant clearly indicating the contractual amount received..

1.3.17.3 Care in Submission of Tenders:

- (i) Tenderers will examine the various provisions of The Central Goods and Services Tax Act, 2017(CGST)/ Integrated Goods and Services Tax Act, 2017(IGST)/ Union Territory Goods and Services Tax Act, 2017(UTGST)/ respective state's State Goods and Services Tax Act (SGST) also, as notified by Central/State Govt. & as amended from time to time and applicable taxes before bidding. Tenderers will ensure that full benefit of Input Tax Credit (ITC) likely to be availed by them is duly considered while quoting rates.
- (ii) The successful tenderer who is liable to be registered under CGST/IGST/UTGST/SGST Act shall submit GSTIN along with other details required under CGST/IGST/UTGST/SGST Act to DFCCIL immediately after the award of contract without which no payment shall be released to the Contractor. The Contractor shall be responsible for deposition of applicable GST to the concerned authority
- (iii) In case the successful tenderer is not liable to be registered under CGST/IGST/UTGST/ SGST Act, the DFCCIL shall deduct the applicable GST from his/their bills under reverse charge mechanism (RCM) and deposit the same to the concerned authority.
- (iv) When work is tendered for by a firm or company, the tender shall be signed by the individual legally authorized to enter into commitments on their behalf.
- (v) DFCCIL will not be bound by any power of attorney granted by the tenderer or by changes in the composition of the firm made subsequent to the execution of the contract. It may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Contractor

1.3.17.4 Documents testifying tenderer previous experience should be produced along with the tender. Tenderer(s) shall submit along with his / their tender:

- (a) A copy of notarized affidavit on a non-judicial stamp paper stating that they are not liable to be disqualified and all their statements/documents submitted along with bid are true and factual. Standard format of the affidavit to be submitted by the bidder is enclosed as **Form No. 18**. Non-submission of a copy of notarized affidavit by the bidder shall result in summarily rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self-attested by which they/he is for showing Capabilities mentioned in the Tender Document.

- (b) The DFCCIL reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall, when so required by the DFCCIL, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the DFCCIL shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the DFCCIL thereunder.
- i. In case of any information submitted by tenderer is found to be false forged or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender Earnest Money Deposit besides banning of business for a period of upto five years.
 - ii. In case of any information submitted by tenderer is found to be false forged or incorrect after the award of contract, the contract shall be terminated. Earnest Money Deposit (EMD), Performance Guarantee and Security Deposit available with the DFCCIL shall be forfeited. In addition, other dues of the contractor, if any, under this contract shall be forfeited and agency shall be banned for doing business for a period of upto five years.

1.3.18 Partnership Deeds, Power of Attorney etc.:

- (i) The tenderer shall clearly specify whether the tender is submitted on his own (Proprietary Firm) or on behalf of a Partnership Firm/Company/Joint Venture (JV)/Registered Society / Registered Trust etc. The tenderer(s) shall enclose the attested copies of the constitution of their concern and copy of PAN Card along with their tender. Tender Documents in such cases are to be signed by such persons as may be legally competent to sign them on behalf of the firm, company, association, trust or society, as the case may be. Following documents shall be submitted by the tenderer in case tenderer is not JV/Partnership firm:
- (a) **Company registered under Companies Act-2013:** The tenderer shall submit (i) the copies of **MOA (Memorandum of Association) / AOA (Articles of Association)** of the company; and (ii) A copy of Authorization/Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender on behalf of the company and create liability against the company.
 - (b) **LLP (Limited Liability Partnership):** If the tender is submitted on behalf of a LLP registered under LLP Act-2008, the tenderer shall submit along with the tender- (i) a copy of LLP Agreement, (ii) a copy of Certificate of Incorporation; and (iii) a copy of Power of Attorney/Authorization issued by the LLP in favour of the individual to sign the tender on behalf of the LLP and create liability against the LLP.
 - (c) **Registered Society & Registered Trust:** The tenderer shall submit (i) a copy of the Certificate of Registration, (ii) Deed of Formation; and (iii) a copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust.
- (ii) If it is NOT mentioned in the submitted tender that tender is being submitted on behalf of a Sole Proprietorship firm/Partnership firm/ Joint Venture/Registered Company etc., then the tender shall be treated as having been submitted by the individual who has signed the tender.
- (iii) After opening of the tender, any document pertaining to the constitution of Sole Proprietorship Firm / Partnership Firm / Registered Company/ Registered Trust / Registered Society etc. shall be neither asked nor considered, if submitted.
- (iv) A tender from Partnership firm etc. shall be considered only where permissible as per the tender conditions.
- (v) DFCCIL will not be bound by any change in the composition of the firm made subsequent to the submission of tender. DFCCIL may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Contractor.

- 1.3.19** The tenderer whether sole proprietor, a company or a partnership firm / joint venture (JV) / registered society / registered trust etc., if they want to act through agent or individual partner(s), should submit along with the tender, a copy of power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person specifically authorizing him/them to submit the tender, sign the agreement, receive money, co- ordinate measurements through contractor's authorized engineer, witness measurements, sign measurement books, compromise, settle, relinquish any claim(s) preferred by the firm and sign "No Claim Certificate" and refer all or any disputes to arbitration.

1.3.20 Employment/Partnership etc. of Retired Employees:

- (a) Should a tenderer be a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, whether in the executive or administrative capacity or whether holding a pensionable post or not, in DFCCIL for the time being, or should a tenderer being partnership firm/company /Joint Venture (JV) / registered society / registered trust etc have as one of its partners a retired Engineer or retired gazetted officer as aforesaid, or should a tenderer being an incorporated company have any such retired Engineer or retired officer as one of its directors or should a tenderer have in his employment any retired Engineer or retired gazetted officer as aforesaid, the full information as to the date of retirement of such Engineer or gazetted officer from the said service and in case where such Engineer or officer had not retired from government service at least 1 year prior to the date of submission of the tender as to whether permission for taking such contract, or if the Contractor be a partnership firm or an incorporated company, to become a partner or director as the case may be, or to take the employment under the Contractor, has been obtained by the tenderer or the Engineer or officer, as the case may be from the President of India or any officer, duly authorized by him in this behalf, shall be clearly stated in writing at the time of submitting the tender. Tenders without the information above referred to or a statement to the effect that no such retired Engineer or retired gazetted officer is so associated with the tenderer, as the case may be, shall be rejected.
- (b) Should a tenderer or Contractor being an individual, have a relative(s) or in the case of partnership firm/ company / joint venture (jv) / registered society / registered trust etc. one or more of his shareholder(s) or a relative(s) of the shareholder(s) employed in gazetted capacity in the DFCCIL, the authority inviting tenders shall be informed of the fact at the time of submission of tender, failing which the tender may be disqualified/rejected or if such fact subsequently comes to light, the contract may be rescinded in accordance with provision in of General Conditions of Contract.

1.3.21 The tenderer shall be considered disqualified/in-eligible if:

- (a) The Tenderer or any of its partners and/or subcontractors included in the tender has been banned for business with *Ministry of Railways* along with any of its attached and subordinate offices through an order issued by Ministry of Railways as per list available on Web site (<http://www.indianrailway.gov.in/railwayboard>) of Railway Board/DFCCIL pertaining to banning of Business, with the banning being valid as on the date of submission the Tender.
- (b) The Tenderer or any of its partners has suffered bankruptcy/insolvency or it is in the process of winding-up or there is a case of insolvency pending before any Court on the deadline of submission of application.

1.2.22 If the Tenderer/s deliberately gives any wrong information about credentials /documents in his/their tenders and thereby create(s) circumstances for acceptance of his/their tender, DFCCIL reserves the right to reject such tender at any stage, besides, shall suspend business with such tenderer. The EMD of such tenderers shall also be forfeited.

1.3.23 **Period of Completion:** The entire work is required to be completed in all respects within 12 months from the date of issue of the acceptance letter. Time is the essence of contract. The contractor shall be required to maintain steady and regular progress to the satisfaction of the Engineer to ensure that the work will be completed in all respects within the stipulated time.

1.3.24 **JOINT VENTURE (JV) : Participation of JV: Not Allowed**

1.3.25 **Participation of Partnership Firms in tenders:**

1.3.25.1 The Partnership Firms participating in the tender should be legally valid under the provisions of the Indian Partnership Act.

1.3.25.2 The partnership firm should have been in existence or should have been formed prior to submission of tender. Partnership firm should have either been registered with the Registrar or the partnership deed should have been notarized prior to date of tender opening as per the Indian Partnership Act.

1.3.25.3 Separate identity / name should be given to the partnership firm. The partnership firm should have PAN/TAN number in its own name and PAN/TAN number in the name of any of the constituent partners shall not be considered. The valid constituents of the firm shall be called partners.

1.3.25.4 Once the tender has been submitted, the constitution of the firm shall not be allowed to be modified / altered / terminated during the validity of the tender as well as the currency of the contract except when modification becomes inevitable due to succession laws etc., in which case prior permission should be taken from DFCCIL and in any case the minimum eligibility criteria should not get vitiated. The re-constitution of firm in such cases should be followed by

a notary certified Supplementary Deed. The approval for change of constitution of the firm, in any case, shall be at the sole discretion of the DFCCIL and the tenderer shall have no claims what-so-ever. Any change in the constitution of Partnership firm after opening of tender shall be with the consent of all partners and with the signatures of all partners as that in the Partnership Deed. Failure to observe this requirement shall render the offer invalid and full EMD shall be forfeited.

If any Partner/s withdraws from the firm after opening of the tender and before the award of the contract, the offer shall be rejected. If any new partner joins the firm after opening of tender but prior to award of contract, his/her credentials shall not qualify for consideration towards eligibility criteria either individually or in proportion to his share in the previous firm. In case the tenderer fails to inform DFCCIL beforehand about any such changes / modification in the constitution which is inevitable due to succession laws etc. and the contract is awarded to such firm, then it will be considered a breach of the contract conditions liable for determination of the contract under Clause 62 of GCC of Contract (Chapter-IV, Part-I).

- 1.3.25.5 A partner of the firm shall not be permitted to participate either in his individual capacity or as a partner of any other firm in the same tender.
- 1.3.25.6 The tender form shall be submitted only in the name of partnership firm. The EMD shall be deposited by partnership firm through e-payment gateway or as mentioned in tender document. The EMD submitted in the name of any individual partner or in the name of authorized partner (s) shall not be considered.
- 1.3.25.7 Authorized Member: One or more of the partners of the firm or any other person(s) shall be designated as the authorized person(s) on behalf of the firm, who will be authorized by all the partners to act on behalf of the firm through a "Power of Attorney", specifically authorizing him/them to submit & sign the tender, sign the agreement, receive payment, witness measurements, sign measurement books, make correspondences, compromise, settle, relinquish any claim(s) preferred by the firm, sign "No Claim Certificate", refer all or any dispute to arbitration and to take similar such action in respect of the said tender/contract. Such "Power of Attorney" should be notarized/registered and submitted along with tender.
- 1.3.25.8 On issue of Letter of Acceptance (LOA) to the partnership firm, all the guarantees like Performance Guarantee etc, shall be submitted only in the name of the partnership firm and no splitting of guarantees among the partners shall be acceptable.
- 1.3.25.9 On issue of Letter of Acceptance (LOA), contract agreement with partnership firm shall be executed in the name of the firm only and not in the name of any individual partner.
- 1.3.25.10 In case the Letter of Acceptance (LOA) is issued to a partnership firm, the following undertakings shall be furnished by all the partners through a notarized affidavit, before signing of contract agreement.
- (a) **Joint and several liabilities:** The partners of the firm to which the Letter of Acceptance (LOA) is issued, shall be jointly and severally liable to the DFCCIL for execution of the contract in accordance with General and Special Conditions of the Contract. The partners shall also be liable jointly and severally for the loss, damages caused to the DFCCIL/Railways during the course of execution of the contract or due to non-execution of the contract or part thereof.
 - (b) **Duration of the partnership deed and partnership firm agreement:** The partnership deed/partnership firm agreement shall normally not be modified/altered/ terminated during the currency of contract as contemplated in the conditions of the contract. Any change carried out by partners in the constitution of the firm without permission of DFCCIL, shall constitute a breach of the contract, liable for determination of the contract under Clause of the GCC.
 - (c) **Governing laws:** The partnership firm agreement shall in all respect be governed by and interpreted in accordance with the Indian laws.
 - (d) No partner of the firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other partner/s and that of the DFCCIL.
- 1.3.25.11 The tenderer shall clearly specify that the tender is submitted on behalf of a partnership firm. The following documents shall be submitted by the partnership firm, with the tender:
- i. A copy of registration certificate of partnership firm issued by competent authority.
 - ii. A copy of partnership deed, specifying shares, role and responsibilities of each partner.
 - iii. A notarized or registered copy of Power of Attorney in favour of the individual authorizing him to sign the documents and to submit the bid on behalf of partnership firm.
 - iv. All information on specified format for evaluation of eligibility criteria.
 - v. All documents in support of claim for eligibility criteria.
 - vi. An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by DFCCIL or any other Ministry / Department of the Govt. of India / any State Govt. from participation in tenders / contracts as on the date of opening of bids,

either in their individual capacity or in any firm in which they were / are partners. Concealment / wrong information in regard to above shall make the contract liable for determination under clause of the General Conditions of Contract.

1.2.26 Employer not bound to accept any tender: The employer shall not be bound to accept the lowest or any tender or to assign any reason for non-acceptance or rejection of a tender. The employer reserves the right to accept any tender in respect of the whole or any portion of the work specified in the tender papers or to reduce the work or to accept any tender for less than the tendered quantities without assigning any reason whatsoever.

1.3.27 Schedule of Prices: The Price Schedule of the tender document lists out the Schedule of Prices for various items. Based on these, the total tender value has also been worked out.

1.3.28 Performance Guarantee: Provisions of Performance Guarantee as per GCC shall be followed.

1.3.29 Negotiation: Should DFCCIL decide to negotiate with a view to bring down the rates, the tenderer called for negotiations should furnish the following form of declaration before commencement of negotiations:

"I.....do declare that in the event of failure of contemplated negotiations relating to Tender No.....dated my original tender shall remain open for acceptance on its original terms and conditions,".

1.3.30 Site Inspection: Tenderers are requested to inspect the site and carry out careful examination to satisfy them as to the nature of work involved and facilities available at the site. They should note carefully all the existing structures and those under construction through other agencies. They should also study the suitability of utilizing the different equipment and the machinery that they intend to use for the execution of the work. The tenderers should also select suitable sites for the purpose of locating their store yard, laboratory, staff quarters etc., and satisfy themselves regarding the feasibility of transporting the girders, etc. from the yard to the final site of placement etc.

1.3.31 Provisions Applicable for MSEs (Micro & Small enterprises)- In pursuance of the Public Procurement Policy for MSEs Order, 2018 effective from 1st Apr,2019 (notified under section 11 of MSME Act, 2006 - Notification dated 9 Nov,2018) following conditions are applicable for eligible MSEs:

i) Participating MSEs quoting a price within price band of L1 + 15% shall be allowed to execute work by bringing down their price to L1 price in a situation where L1 price is from someone other than an MSE and such MSEs can be together ordered upto 25% of the total tendered value.

The MSEs must also indicate the terminal validity date of their registration, otherwise, such offers will not be liable for consideration of benefits detailed in MSE notification of Government of India dt. 23.03.12.

1.3.32 Integrity Pact: The integrity pact duly executed and signed by the Bidder or his Authorized Representative shall be submitted at time of Bidding. The Performa for Integrity Pact is placed as **Form No. 17**.

1.3.33 GoI Public Procurement (Preference to make in India), Order 2017 issued vide DPIIT letter No. P-45021/2/2017-PP (BE-II) dated 16.9.2020 shall be followed for this tender.

Chapter IV
GENERAL CONDITIONS OF CONTRACT

The Standard General Conditions of Contract of Service-2018 of the Indian Railway/DFCCILs shall be followed with its latest correction slips and amendments issued from Indian Railway/DFCCILs.

The Standard General Conditions of Contract (GCC Service 2018) of the Indian Railway/DFCCILs, along with its latest correction slips and amendments, will form part of the tender/contract documents.

In case, there is an ambiguity in any definition, the decision of DFCCIL regarding the interpretation shall be final and binding.

Wherever there is conflict in any condition between GCC and special condition of contract mentioned in tender documents. The condition mentioned in special condition of contract will prevail. However, DFCCIL decision in this connection shall be final and binding.

A copy of the book-let incorporating the above “Standard General Conditions of Contract (GCC Service 2018)” may be perused in the Office of CGM/DDU or respective division.

Chapter V
SPECIAL CONDITIONS OF CONTRACT

PART - I**CHAPTER V****SPECIAL CONDITIONS OF CONTRACT**

1.5.1 This Tender shall be governed by Preamble and General instructions to tenderers, General condition of Contract, Special conditions of contract, Technical Specifications, Additional Technical specifications (if any), Drawings, Forms, Annexures, etc.

1.5.2 If there are varying or conflicting provisions in the documents forming part of the consultancy contract, Engineer shall be deciding authority with regard to the intentions of the provision and decision of Engineer will be final and binding on the consultant.

1.5.3 Terminology

Inspection Agency: An agency appointed by DFCCIL to undertake inspection of the bridges

Detailed Inspection: Inspection of the entire bridge structure at “touching distance” except of the parts which are physically impossible to be reached.

Bridge Inspection App: Bridge Management module of CRIS which facilitates easy recording of all observations during detailed bridge Inspection.

Bridge Instrumentation: Sensors/instruments installed on the bridge structure to monitor/record various parameters related to the health and performance of the bridge.

Touching distance: Such distance that allows inspecting official to touch part of the bridge and allow inspection from close quarters.

Competency: Knowledge, skills and attitudes that are essential for effectively performing the specified task (Bridge Inspection).

Inspector/Inspecting engineer: An inspector is a competent person who undertakes the inspection of the bridge and submits reports. Consultants have to deploy the inspectors who have requisite competency as laid down in clause No. 1.5.8.4 of SCC.

1.5.4 Scheme of work: Within a period of 15 days beginning from the date of issue of Letter of Acceptance of Tender, the Contractor/consultant shall submit the detailed planning and methodology for inspection of various bridges along with the inspection Equipment list and their procurement planning and various documents enumerated in tender papers to the employer.

1.5.5 Facilities to be provided by DFCCIL: DFCCIL shall provide the following facilities to consultant:

1. Access to the bridge and any traffic block required to facilitate the bridge inspection.
2. All safety preparedness required to provide safer access to various parts of the bridge and protection against any injury that is likely to be caused in the course of bridge inspection.
3. Access / log-in to log in the Bridge Inspection App and appropriate rights to enter data about bridge inspection. Short training will be provided to help the Inspecting engineer to understand the App and how to use it.
4. All information related to the Bridge(s) to be inspected, such as drawings, previous inspection reports and instrument data.

1.5.6 Professional liability of the consultant: It should be noted that the quality of the Bridge Inspections and reporting thereof have a strong impact on the stability and long-term health of the structures. The Inspection agency shall be professionally liable for the quality of the inspection and reports. The Inspection Engineer shall reach out to all parts of the bridge to which access has been provided by DFCCIL and will not leave any part un-inspected. The inspection Engineer shall also apply his professional judgement about the observations in a consistent manner and should be in a position to provide rationale for the same if called for. The inspection agency shall take out and maintain a ‘Professional Liability Insurance’ for an amount of **Rs. One crore** valid till the date of completion of the inspection work.

1.5.7 Occupational Health & Safety: It should be noted that the Bridge Inspection is an essentially hazardous activity. DFCCIL will impart required training to train Consultant Engineer(s)/staff(s) who will be involved in Bridge inspection activity on safety aspects when working on/along Railway track. Despite such arrangements, the responsibility of personal safety and security of the inspection Engineer shall rest with the inspection agency. The inspection Engineer shall at all times follow the instructions and advice of the representative of DFCCIL as far as access to the track or any part of the bridge is concerned. The inspection agency shall take out and maintain a Workmen Compensation insurance policy which shall

cover every employee of the inspection agency that is required to visit the DFCCIL bridge locations in connection with the Bridge Inspections.

It will be presumed that all data entered into the Bridge inspection App using the authorized Login id of the Inspecting engineer is actually recorded/entered by the Inspection engineer. It shall be the responsibility of the Inspecting Engineer to ensure that no person other than him has access to his registered cellphone for making unauthorized entries in the App.

1.5.8 Competency of Inspecting Engineer: The inspecting Engineer assigned to carry out the Bridge Inspection shall have the requisite competence to conduct the bridge Inspections. The Inspecting engineer shall be physically fit to perform the inspection and should have the ability to reach/access all parts of the bridge in a safe manner.

1.5.8.1 The inspecting Engineer assigned to carry out the Bridge Inspection shall have the requisite competency to conduct the bridge Inspections. The Inspecting engineer shall be physically fit to perform the inspection and should have the ability to reach/access all parts of the bridge in a safe manner.

1.5.8.2 The Inspection agency shall submit along with the bid detailed CV, in the prescribed format, of the Inspecting Engineer(s) that the agency proposes to deploy for carrying out bridge inspections. The quality of the CV submitted along with the bid shall be one of the criteria for selection of the Inspection agency. DFCCIL shall approve the deployment of the Inspection Engineer on the basis of any or all of the following, at its discretion:

- a. Review and verification of the profile
- b. Personal interview
- c. Written test

1.5.8.3 DFCCIL shall communicate in writing the approval or otherwise of the Inspection Engineers. The inspection agency shall deploy only the Engineers thus approved by DFCCIL for the Bridge Inspections. Should the inspection agency desire to change the inspection engineer, for every change, the same process shall be followed, and the inspection agency shall have to obtain the approval of DFCC by submitting the required details of the inspection engineer. The inspection agency shall deploy only the Engineers thus approved by DFCCIL for the Bridge Inspections.

1.5.8.4 Qualifications: The Bridge Inspector should have acquired a bachelor's degree in civil engineering from a college / university recognized by the UGC.

- i. **Work Experience:** The Bridge Inspector should have a minimum experience of 5 years, out of which a minimum experience of 3 years should be in Bridge design **or** Bridge construction **or** Bridge maintenance.
- ii. **Competence:** The assessment of the competency of Bridge Inspector will be on **ASK** model, where **A, S** and **K** stand for **Attitude, Skills** and **Knowledge** respectively is to be followed. For the Bridge Inspectors the requirement against attitude, Skills and Knowledge are laid down below.
- iii. **ATTITUDE:** The following attitude shall be exhibited by the bridge Inspector while discharging their duties:
 - Shall carry out their tasks with the firm belief that Bridge Inspection is a serious and professionally rewarding task impacting public property and safety.
 - Shall make report only on the basis of personal observation and not on the basis of guesswork or input from someone else.
 - Shall make all efforts to reach the bridge elements at touching distance during detailed inspection.
 - Shall not hesitate in escalating the matter if he is not confident about the matter at hand.
- iv. **SKILLS:** The Bridge Inspector shall have the skill to perform the following specific tasks and be proficient at the level prescribed. The description of different level of proficiency is as given below:
 - **Level 1:** Can perform the task but requires supervision
 - **Level 2:** Can perform some part of the task independently, but not totally
 - **Level 3:** Can perform the entire task independently without supervision

S.N.	Task to be performed	Level of proficiency
1	To identify 'deviation from normal' situation of a bridge from visual observation.	3
2	To assess seriousness of any observed deviation	3
3	To express the observations in a clear and concise manner	3
4	To propose immediate measures for serious observations	2
5	To draft inspection reports	2
6	To review Bridge instrumentation data and detect abnormalities	2
7	To operate the Bridge Inspection App and enter bridge inspection finding through it	3

- v. **KNOWLEDGE:** In order to perform the given tasks, the Bridge Inspector should possess knowledge about various subjects at the proficiency prescribed. The description of different level of proficiency is as given below:

- **Level 1:** Has basic knowledge about the subject, but does not know the subject in totality
- **Level 2:** Has width of knowledge about the subject, but does not know the 'why' of it
- **Level 3:** Has width and depth on knowledge about the subject, knows 'why' of it and can explain it to others

S.N.	Knowledge about subjects to have	Level of proficiency
1	Structural Engineering as applied to Bridges	2
2	Different IRS bridge codes (Bridge Rules, IRS: SBC, IRS: CBC, IRS: WBC, IRS B1, IRS Substructure code)	2
3	Types of superstructures of Railway Bridges, key terminology, their behavior and typical defects	3
4	Types of substructures of Railway Bridges, key terminology, their behavior and typical defects	3
5	Types of bridge bearings, key terminology, their behavior and typical defects	3
6	River training works, key terminology and typical abnormalities	2
7	Indian Railways' Numerical rating system for Bridges	3
8	Workflow of Bridge Inspection App of DFCCIL	3

1.5.9 Traffic Blocks / Power Blocks / Shut Down:

- (a) The DFCCIL shall arrange Power / Traffic / Shut down. Engineer/Engineer's representative will facilitate to make arrangements to obtain power blocks / shutdown (hereinafter referred to as blocks) for works to be carried under block. The requirement of traffic block blocks shall be assessed by the consultant and will submit to the Engineer/Engineer's representative. Consultant shall arrange adequate labours. with supervisors and sufficient tools and tackles required as per site conditions.
- (b) The works required to be done under traffic block shall be carried out only in the presence of DFCCIL officials. The DFCCIL supervisor shall certify safe conditions for passage of trains before resumption of traffic. The works to be done under traffic block shall be carried out under the provision of banner flag and protection of engineering flagman.

1.5.10 Infringement of patents:

- (a) The Consultant is forbidden to use any patents or registered drawings, process or pattern in fulfilling his contract without the previous consent in writing of the owner of such patent, drawing, pattern or trade mark, except where these are specified by the Employer himself. Royalties where payable for the use of such patented processes, registered drawings of patterns shall be borne exclusively by the Consultant. The consultant shall advise the DFCCIL of any proprietary right that may exist on such processed drawings or patterns which he may use of his own accord.
- (b) In the case of patent taken out by the Consultant of the drawings or patterns registered by him, or of those patents, drawings, or patents for which he holds a licence, the signing of the consultancy Contract automatically gives the DFCCIL the right to repair by himself the purchased articles covered by the patent or by any person or body chosen by him and to obtain from any sources he desires the component parts required by him in carrying out the repair work. In the event of infringement of any patent rights due to above action of the DFCCIL, he shall be entitled to claim damages from the contractor on the grounds of any loss of any nature which he may suffer e.g. in the case of attachment because of counterfeiting.
- (c) **Indemnification by consultant:** In the event of any claim or demand being made or action being brought against the DFCCIL for infringement of later patent in respect of any equipment, machine, plant, work or thing used or supplied by the Consultant under this consultancy contract or in respect of any methods of using or working by the DFCCIL of such equipment machine, plant work or thing, the contractor shall indemnify the employer and keep him indemnified and harmless against all claims, costs, charges and expenses arising from or incurred by reason of such claim provided that the Employer shall notify the consultant immediately any claim is made and that the consultant shall be at liberty, if he so desires with the assistance of the DFCCIL if required but at the Consultant's expense, to conduct all negotiations for the settlement of the same or any litigation that may arise there from and provided that no such equipment, machine, plant work or thing, shall be used by the DFCCIL for any purpose or in any manner other than that for which they have been The Policies of the consultant shall remain in force throughout the period of execution of the works and till the expiry of the defect liability period except for any specific insurance covers necessary for shorter period.

If the Consultant fails to effect or keep in force or provide adequate cover as acceptable to the engineer in the insurance policies mentioned above, then in such cases, the engineer may effect and keep in force any such insurance or further insurance on behalf of the Consultant. The recovery shall be made at the rate of 1.5 times the premium/premiums paid by the engineer in this regard from the payment due to the Consultant or from the consultant's Performance security. However, the Consultant shall not be absolved from his responsibility and /or liability in this regard

1.5.11 Accident

- (a) The Consultant shall, in respect of all staff engaged by him or by his sub-contractor, indemnify and keep the DFCCIL at all times indemnified and protected against all claims made and liabilities incurred under Workman's Compensation Act, the Factories Act and the Payment of Wages Act, and rules made there under from time to time or under any other labour and Industrial Legislation made from time to time.
- (b) The Consultant shall indemnify and keep the employer indemnified and harmless against all actions, suits, claim demands, costs, charges or expenses arising in connection with any death or injury sustained by any person or persons sustained due to the acts or omission of the Consultant r, his sub-contractors, his agents or his staff during the executions of this contract irrespective of whether such liability arises under the Workman's Compensation Act, or Fatal Accident Act or any other statute in force for the time being.
- (c) The Consultant's liability to meet third party claims of the type outlined above will be applicable only in cases where accidents have been caused by workmanship, material, execution or negligence on the part of the Consultant and further the liability of the Consultant will be limited to Rs.5 lakh for any one accident.
- (d) The Consultant shall be responsible for all repairs and rectification of damages to completed works or works under execution due to DFCCIL accidents, thefts, pilferage or any other cause, without delay to minimize or to avoid traffic detentions, in a section until the installation are provisionally handed over to the employer

1.5.12 Safety Measures:

- (a) The Consultant shall take all precautionary measures in order to ensure the protection of his own personnel moving about or working on the DFCCIL premises, but shall then conform to the rules and regulations of the DFCCIL if and when, in the course of the work there is likely to be any danger to persons in the employment of the Consultant due to running traffic while working in the DFCCIL/Railway lines and premises, the Consultant shall provide flagman or look out men for protection of such persons normal course of work, arising out of the failure of Consultant or his men to exercise reasonable precaution at all places of work.
- (b) Work shall be done only after due notice is given to the DFCCIL and time/s and date/s for experiments/trial operations agreed to by the employer. The contractor shall follow detailed instructions which will be issued to him regarding blasting operations in the vicinity of tracks.
- (c) The works must be carried out most carefully without any infringement of the Indian Railway Act or the General and Subsidiary Rules in force on the DFCCIL, in such a way that they do not hinder DFCCIL operation or affect the proper functioning of or damage any DFCCIL equipment, structure or rolling stock except as agreed to by the employer, provided that all damage and disfigurement caused by the contractor at his own cost failing which cost of such repairs shall be recovered from the contractor.
- (d) If safety of track is affected as a consequence of works undertaken by the contractor, the contractor shall take immediate steps to restore normal conditions. In case of delay, the employer shall, after giving due notice to the contractor in writing.

1.5.13 **Payment:** Payment will be governed by the terms specified in Part-I, Chapter IV and in accordance with accepted schedule of prices, read with relevant para of the other parts and Chapters of the Tender Papers. The DFCCIL retains the right to withhold money due to the Consultant arising out of this consultancy work for any default of the Consultant. Payment against Bridge Inspection work shall be made on submission of an invoice along with the following documents.

- a. Hard copy Bridge Inspection report in approved format of Bridge registers
- b. Inspection Data entry in BMS of DFCCIL
- c. Bridge stability/safety certificate
- d. Log of bridge inspections carried out; certified by the DFCCIL official who accompanied the bridge inspection
- e. A certificate from the DFCCIL official who accompanied the bridge inspection to the effect that any part of the bridge which was not inspected were on account of lack of access to that part of the bridge.
 - (i). The Consultant shall, whenever required, produce or cause to be produced for examination by the Employer any quotation / invoice, cost of other account, book of account, voucher, receipt letter, memorandum paper or writing or any copy of or extract from any such document and also furnish information and returns verified in such manner as may be required in anyway relating to the execution of this Consultancy or relevant for verifying or ascertaining the cost of the execution of this Consultancy (the decision of the DFCCIL on the question of relevancy of any documents, information or return being final and binding on the parties). The Consultant shall similarly produce vouchers etc., if required, to prove to the DFCCIL that services / materials supplied by him are in accordance with the specifications laid down in the Consultancy work.
 - (ii). If any portion of the work be carried out by a sub-contractor or any subsidiary or allied firm or company the DFCCIL shall have power to secure the books of such sub-contractor or any subsidiary or allied firm or company, through the Consultant, and such books shall be open to his inspection. The Consultant should seek prior permission from the DFCCIL for subletting whole and/or part of the work to any sub-contractor.
 - (iii). The obligations imposed by sub-clause (i) and (ii) above are without prejudice to the obligation of the Consultant under any statute, rules or order binding to the Consultant or other conditions of the Consultant.
 - (iv). It is an agreed term of the Consultancy work that the employer reserves the right to carry out post-payment Audit and/or technical examination of the works and the final bill, including all supporting vouchers, abstracts etc. and to make a claim on the Consultant for the refund of any excess amount paid to him if as a result of such examination any over payment to him is discovered to have been made in respect of any work done or alleged to have been done by him under the Consultancy work

1.5.14 All payments in respect of the Consultancy during the currency of the Consultant shall be made through Electronic Clearing System (ECS) / National Electronic Funds Transfer (NEFT/RTGS). The successful tenderer on award of contract must submit ECS/NEFT/RTGS Mandate Form complete in all respects as

detailed at **Form No. 6** of the tender document. However, if the facility of ECS/NEFT/RTGS is not available at a particular location, the payments shall be made by cheque.

1.5.15 **Integrity Pact:** As per office memorandum no F.No DPE/13(12)/11-Fin Dated 09.09.2011 issued by Ministry of Heavy Industries (DPE) all PSU should enter into Integrity pact in the required proforma in their procurement transaction/ Contracts with suitable changes specific to the situation in which the pact is to be used. The pact, entering into which would be a preliminary qualification for any bidder, essentially envisages an agreement between the prospective vendors / bidders and the DFCCIL, committing the persons/ officials on both sides not to resort to any corrupt practices in any aspect / stage of the contract. The Performa for Integrity Pact is placed as **Form No.-17**. The details of present DFCCIL's IEMs are as under:

i) **Shri. V. Kannan, Ex-CMD, Vijaya Bank,**

Address: TA-1, Krishna Regency, Third Floor, Tata Silk Farm, K R Road, Basavanagudi, Bangalore – 4,
Mobile No.08105305555, (email: Kannan.venkata@gmail.com)

ii) **Ms.Rashmi Verma, IAS (Retd.)**

Address: D-87, Ground Floor, Panchsheel Enclave, New Delhi – 110017
Mobile No.9810735544, (email: verma.rashmi@rediffmail.com)

1.5.16 **Frequency of Bridge Inspection:** Normally inspection frequency of Girder Bridges shall be once in a [5 year], until advised by DFCCIL in writing. Preferably all inspections are to be carried out between month of September and January. The Performa of Bridge Inspection registers for Girder Bridges is to be developed by Consultant in consultation of DFCCIL based on inspection Performa of Indian Railways for PSC and Steel Girder Bridges. Inspection rating to be done as per methodology mentioned in Technical specification chapter of this tender.

1.5.17 The manpower employed by the contractor shall have no right, whatsoever, for any appointment in the DFCCIL in temporary/adhoc/daily wages/regular capacity on the basis of their work in the DFCCIL.

1.5.18 The contractor shall ensure compliance with all relevant Central/State laws and rules as applicable such as Tax Laws, Labour Laws and Insurance Laws etc with regard to the contract and shall be solely responsible for the same and shall keep the DFCCIL fully indemnified against the liability of any Taxes, interest, penalty etc if any arising any connection with the contract may be incorporated. If any accident occurs with any worker of the contractor while doing his job, the DFCCIL will not be liable in any way and the sole responsibility for payment of compensation, etc. will be of the contractor.

1.5.19 “Except with the prior written consent of the Client, the Consultant and the Experts shall not at any time communicate to any person or entity any confidential information acquired in the course of the Services, nor shall the Consultant and the Experts make public the recommendations formulated in the course of, or as a result of, the Services.”

1.5.20 All reports and relevant data and information such as maps, diagrams, plans, databases, other documents and software, supporting records or material compiled or prepared by the Consultant for the DFCCIL in the course of the Services shall be confidential and become and remain the absolute property of the DFCCIL The Consultant shall, not later than upon termination or expiration of this Contract, deliver all such documents to the DFCCIL, together with a detailed inventory thereof. The Consultant may retain a copy of such documents, data and/or software but shall not use the same for purposes unrelated to this Contract without prior written approval of the Client.’

1.5.21 That both the parties shall hereby submit to the jurisdiction of the courts situated at [New Delhi] for the purpose of actions and proceedings arising out of the contract and the courts at [New Delhi] shall alone have the sole and exclusive jurisdiction to hear and decide such actions and proceedings.

1.5.22 **Imposition of minor penalty on account of minor lapses:** For serious defaults of consultants related to breach of safety of DFCCIL/IR Railway system, non-seriousness in bridge inspection/ preparation of inspection reports and delay in inspection of bridges penalty ranging from 0.055% to 0.05% of contract value per case may be imposed by DFCCIL subjected to maximum limit of 5% of contract price.

PART-II

TECHNICAL SPECIFICATIONS

- A. BRIDGE INSPECTION GUIDELINES**
- B. NUMERICAL RATING SYSTEM (NRS)**

The guidelines include a list of various defects likely to be observed in an element/material and specific aspects to be noted down by the Inspection Engineer. Wherever possible representative photographs of some defects are included in the guidelines. The guidelines are put under two separate categories as detailed below:

A. Bridge Element: These sets of guidelines will be applicable to different elements of the bridge, and each will be unique to that element. The following different guidelines will be developed:

1. River flow and river training works
2. Foundations – Deep (well/pile) and shallow
3. Substructure – piers & abutments
4. Bearing pedestal, Bearing – elastomeric, Pot PTFE and Spherical
5. Superstructure –
 - I. concrete (RCC and PSC)
 - II. Superstructure – composite girders
 - III. Superstructure – Steel plate girders
 - IV. Superstructure – open web girders
6. Track structure
7. Ancillaries (footpath, trolley refuge, walkway, OHE mast, pipeline)
8. Culverts

B. Material: Different construction materials are used in different parts of the bridge, but the nature of defect in the material is often common, regardless of which part of the bridge it is used. Therefore, it will be useful to develop guideline for inspection of different construction materials. The following guidelines are proposed:

1. Concrete
2. Steel
3. Elastomer (included in bearings)

C. In case guidelines for inspection is not included in these guidelines, then Indian Railway Bridge manual shall be followed.

Inspection of River and River training works

1.0 A large number of bridges cross rivers, canals, or other water streams. Inspection of the river flow conditions, and river training works is best carried out during the floods or immediately after the end of the monsoon season. Depending on the nature of river flow and local conditions, different river training works are constructed to either regulate the flow of the river safely or to protect the bridge foundations and approaches.

1.1 RIVER FLOW CONDITIONS: River change the course of their flow frequently. Human activity like farming, mining and navigation also has an effect on the river flow. While under ideal conditions, inspection of the river flow should be carried out during peak or receding floods, it is not always possible to do so for administrative and logistical constraints. Whenever the bridge is inspected, signs of condition of river flow should be inferred from visible signs and recorded. The inspection should cover the following:

- a. Sign of localized scour near pier and abutments
- b. Channelization of river flow from particular spans of the bridge
- c. Any obstruction to the flow of river
- d. Sign of HFL having been exceeded
- e. Signs of excessive meandering (detailed further in item 1.2.3 below)

1.2 GUIDE BUNDS: Guide bunds are made to channelize / guide the flow of the river through the bridge and prevent a meandering river from outflanking the bridge. These are earthen embankments made parallel to the direction of flow of the river. These are made of sufficient length upstream and downstream of the bridge axis and of specific shape based on detailed hydraulic model studies. The embankment of guide bund is protected against scour by laying launching apron at its toe. The launching apron can be made either by stone filled wire crates (also called Gabion) or with pre-cast concrete panels/blocks. Depending on the model study report, guide bunds may be constructed on only one bank or both banks of the river.

1.2.1 To inspect the guide bund, the inspection Engineer must travel on it from end to end. Launching of the crates of the apron on the river side are normal and should not be considered as a defect. However, the **extent and location of launching of the aprons** should be noted as it will be a useful piece of

information for any decision making in the future. On the other hand, if some portion of the **apron is totally missing** (may be washed away), then it calls for urgent attention. Similarly, launching of apron from the back side of the guide bund is an unusual occurrence and need to be reported for further investigation by experts.

1.2.2 The embankment slopes are normally protected by stone pitching (with or without grouting) to a level above HFL (free board). Inspection engineer should be on a **look out for erosion of embankment soil** either by river flow or from rainwater. Soil erosion need to be addressed urgently before the onset of the net monsoon season.

1.2.3 For large rivers with history of meandering, it is advisable that the inspection Engineer uses a boat to inspect upstream stretch of the river, at least till the upstream end of the guide bund. The purpose of this is to identify **any signs of extreme meandering of the river** which threatens to outflank the bridge.

1.3 SPURS / GROYNES: Spurs or groynes are flexible or rigid hydraulic structure built from a riverbank that interrupts water flow and limits the movement of sediment. It is usually made of concrete, stone crates or geotubes. **Spurs** can be attracting, deflecting, or repelling. Attracting spurs point downstream, serving to attract the stream flow toward themselves and repelling spurs point upstream to repel the flow toward the opposite bank. The ultimate objective of the spur is to prevent adverse flow conditions resulting to abnormal scour. Inspection of spurs should focus on the following aspects:

- Integrity of the spur itself, its shape and geometry
- Any damage to the spur or loss of the material of construction
- Any encroachment which can render the spur ineffective
- Effect of spur by way of causing scour in its area of influence.

1.3.1 Since interpretation of the effect of spur on behavior of the river is a matter of expertise in river behavior and river training works, its best if the inspection engineer takes large number of representative photographs of the area around the spur.

1.4 FLOOR APRON & DROP WALL: Floor apron and drop walls are typically constructed to protect shallow foundations, though in special circumstances, it can be constructed around well or pile foundations also. The floor apron consists of in-erodible material like concrete, flat gabion boxes or some other type of paving. The upstream and downstream ends of the apron are protected by construction of a drop wall. An apron can fail by abrasive action of the river or by the river gouging out material locally from the apron. The drop walls can fail if the river is able to cause a scour deeper than the bottom of the drop wall. If the drop wall fails, the apron can be undermined and washed away by the flowing water. Inspection of apron and drop wall should cover the following:

- Integrity of the drop walls, whether they are in place, alignment undisturbed and retain their verticality.
- Extent of scour near the drop walls to assess if there is any chance of the wall getting undermined.
- Any local damage in the apron floor
- Any obstruction to the flow of river on the apron floor
- Any cracks or cavity in the floor from which water can percolate down and cause damage in future
- Any growth of vegetation in the wall or the apron

1.5 APPROACH EMBANKMENT: Approach embankments, though not a part of the bridge structure, are important to maintain integrity of the abutment. Depending upon the type of abutment and its location, part of the approach embankment slope can be within the river flow. In some cases, the river can overflow the banks and reach the toe of the slope of approach embankment. The construction of and protection provided to an approach bank is more or less similar to that of the embankment of a guide bund. The only difference is that the approach bank is subjected to the Railway live load, which the guide bund embankment is not. Inspection of the approach embankment should include the following aspects.

- I. Integrity of the toe of the embankment against scoring action of the river
- II. Integrity of the pitching if provided on the side slopes
- III. Growth of vegetation
- IV. Signs of rain cuts in the embankment slope
- V. Disturbance to the side slope from the design profile
- VI. Proper functioning of longitudinal and cross drains in high embankments

Inspection of foundations

2.0 Foundations of bridges are classified as Deep foundations and shallow/open foundations. Shallow foundations are made where a rock or firm soil (competent load bearing stratum) is available at shallow depths. This is the case with minor bridges and major bridges with high bearing capacity strata close to the ground level. Most important and major bridges have deep foundations. The main difficulty with inspection of bridge foundations is the lack of accessibility of the foundation. Invariably, much of the

foundation is hidden below the ground level and it is neither advisable nor practical to excavate the soil around the foundation solely for the purpose of inspection. In such a situation, the Inspection engineer has to rely on keen observation and sound judgment about the overall condition of the bridge to interpret the condition of the foundation.

2.1 DEEP FOUNDATIONS

2.1.1 On DFCCIL system, the deep foundations comprise of either well foundation or pile foundation. These foundations transfer the loads and forces from the superstructure to such depths where competent strata is obtained. All deep foundations on DFCCIL are made using concrete as a structural element. For defects related to concrete as a material in the deep foundation, please refer to the guideline for inspection of Concrete structures. This guideline contains advice related to inspection of the well or pile as a structural element.

2.1.2 Defects in deep foundation elements primarily refer to the availability of the competent soil around it, its position and verticality. A brief description of each of these and guidelines for inspecting them follows.

- a. **SCOUR AROUND FOUNDATIONS:** Scour of the riverbed is a dynamic phenomenon and it keeps fluctuating with the flood conditions. Unless the scour is measured during the peak floods or during receding floods, it is unlikely to be observable later on. During inspections, attempt should be made to reach every foundation by walking on the riverbed or by using a boat to access the foundations which continue to be surrounded by water even post monsoon season. In case any foundation was subjected to heavy scour, it is likely that a partially filled up scour hole will be visible. If so, its maximum depth and approximate size may be recorded. In case of foundations still in the stream, attempt may be made to measure the depth of the riverbed around the foundation. Echo sounders or rope with weight at its lower end or wooden staff may be used for the soundings.
- b. **TILT:** Normally any tilt of the foundation in the cross direction will immediately manifest in disturbance of the track structure. Tilt along the traffic direction may not readily manifest in the track structure. For most inspections, visual observation of the verticality of the foundation is enough and unless indicated by any tell-tale signs in the superstructure, this may be recorded as 'OK'.
- c. **SETTLEMENT:** Settlement of the foundation will immediately be manifest by disturbance in the vertical alignment of the track. Should such a situation arise, the affected foundation should be inspected from close quarters and the RL of the top of the well/pile cap should be measured with survey instruments to calculate the amount of settlement. A review of track levels should be done to cross-check the survey results. While the immediate correction is to provide additional plates at the bearings to compensate for the settlement, this is not a permanent solution. The foundation settlement should be kept under continuous observation, preferably by installing instruments to record the level of the top foundation or that of pier cap. A special investigation by an expert is required to arrive at the root cause of the settlement and a permanent solution.
- d. **PILING UP OF DEBRIS:** Top of the well cap or the pile cap are locations where debris carried by the flood water tend to accumulate. While the debris do not pose any immediate threat to the performance of the bridge, these need to be removed as a good practice / basic maintenance hygiene factor.
- e. **MARKINGS:** Marking of HFL and danger level is a standard practice and during inspections, it should be checked whether the markings are at the right place and are visible from a distance.

2.2 SHALLOW FOUNDATIONS

2.2.1 All shallow foundations on DFCCIL are made using concrete as a structural element. For defects related to concrete as a material in the shallow foundation, please refer to the guideline for inspection of Concrete structures. This guideline contains advice related to inspection of the shallow foundation as a structural element.

- a. **SETTLEMENT:** Shallow foundation found on rock are unlikely to undergo any noticeable settlement. The guideline given above for settlement in deep foundations apply to shallow foundation also. Unlike deep foundation, however, settlement in shallow foundation may also manifest by disturbance in the soil strata (surface) surrounding the foundation. If a protective floor apron/pitching has been laid on the bed, there may be signs of separation between the edge of the footing and the apron. Photos may be taken of the soil all around the foundation for reference to be made to technical experts about the issue.
- b. **LOSS OF CONTACT:** In case there is a visible sign of loss of contact between the foundation mat/raft and the supporting soil, it represents a serious issue with the possibility of failure/tilting of the structure. The loss of contact may be a cause or a result of the distress. If loss of contact is a sign of distress, it should be accompanied by tilting of the sub-structure or cracks in the raft material. However, it is possible that loss of contact has taken place due to erosion of the soil from under the raft. In such a situation, if the loads are still being safely transferred to the ground, there may be no other sign of distress in the pier or the foundation. While details of the loss of

contact may be recorded, it is equally, if not more urgent and important to take immediate action to restore the contact, if possible, keep the bridge under watch and request for investigation by an expert. It should be kept in mind that the raft or base slab of foundation is generally not visible except in case of heavy scour which is unlikely. The inspection Engineer has to use his technical knowledge and diagnostic skills in case of any sign of distress related to the shallow foundations.

Inspection of Substructure

- 3.0** Substructure of bridges are the elements that connect the foundations with the superstructure. In some cases, like the arch/Box bridge, there is little to differentiate between substructure and superstructure. On the other hand, in case of abutments, often the substructure and foundation is the same. While the superstructure can be accessed from the track and the foundation by road/river, the substructure is not easy to access, especially when the piers are very tall. All attempts should be made to get as close to the substructure element as possible and also to get a clear view of the piers from adjacent spans/pier caps. Guidelines for inspecting piers and abutments are given below separately.
- 3.1 PIERS:** On the DFCCIL system, all piers are made in concrete. Pile caps are the point of transition between the foundation and piers and may be included in either of the two, it doesn't really matter. The following aspects may be inspected in a pier.
- a. **VERTICALITY:** In the case of deep foundations, piers are rigidly connected to the foundations through the well/pile cap and any tilt in the foundation will automatically be transmitted to the piers. In case of shallow foundations also, any differential settlement of the foundation will reflect as pier being out of vertical. By appropriate measurements, the degree of inclination (tilt) can be measured and recorded. However, in order to get the true value of the tilt, any tilt existing at the time of construction should have been recorded. To cross check the verticality/tilt of the pier, slope of the top surface of the well/pile cap and pier cap should be measured using a spirit level. With these inputs a reasonable conclusion can be reached in most cases. *It should be understood that measurements of verticality of Piers may not reflect true picture unless the "As built" initial data is available. Therefore, during the first inspection of every bridge (immediately after commissioning) reading should be taken as reference reading for subsequent measurements. Additionally, if the tilt is suspected, close inspection of seating of bearings on pedestal may be carried out, which will get disturbed in case of any tilt.*
 - b. **DEFLECTION:** In rare case, bending of the piers may take place due to large horizontal forces coming on it. One needs to distinguish between tilt and bending as a cause for the pier to appear out of vertical, as the consequences of the two will be quite different. Further, when the pier bends (but does not tilt) the top surface of the well/pile cap shall remain level/horizontal. In case of bending, there will be associated distress in the form of horizontal cracks in the pier on the convex side (tension face). Such defects should be separately reported.
 - c. **FENDERS:** In some special cases, bridges in navigable rivers are provided with fenders to protect it against impact of barges/ships. Similarly bridges having their foundation/piers along a trafficked road are provided with crash barriers/fenders. These should be examined for any sign of impact damage and integrity of their connection with the main body of the pier or the well/pile cap.
 - d. **DEFECT IN MATERIAL:** Various defects in the concrete (material of construction) may be visible in the piers and these should all be recorded with specific location of each defect pinpointed. For defects in concrete as a material please refer to a separate guideline on the subject. Portions of the pier lying between HFL and LWL should be given greater attention as these locations are more susceptible for deterioration.
- 3.2 ABUTMENTS:** Main difference between piers and abutment is that abutments are subjected to additional forces from the embankment earth retained by it (except in the case of spill through abutments). Wing walls and return walls are also additional elements of an abutment, apart from the main live load bearing parts. Presence of soil around the bed block level increases the possibility of damage due to soil and vegetation etc. The following aspects may be inspected in an abutment:
- a. **VERTICALITY & SETTLEMENT:** Abutments are subject to active earth pressure and tractive/braking forces in the longitudinal direction. These may cause to abutment to tilt towards the pier. This should be discernible from a change in the gap between the dirt wall and the end/face of the girder. Any settlement in the abutment will be visible due to disturbance in the track's vertical alignment on the approach as well as in the span adjoining the abutment. In all cases detailed measurements should be taken and marked on the drawing for clear understanding of the issue involved. Settlement and tilting can also occur in the wing/return walls. However, if the tilt or settlement is limited to the wing/return walls, it should also result in some distress in the concrete at the junction of the main abutment and wing wall. These areas should be thoroughly examined for signs of cracks, which will help in correct diagnosis of the situation.
 - b. **BULGING:** Bulging is a local manifestation of the effect of earth pressure on the walls of the abutment. Bulging is a less serious defect than settlement and tilt as it does not point towards global instability. Bulging, being a sign of excessive deflection / flexure should normally also be

accompanied by cracks in concrete. Cracks, if observed should be mapped and shown on the drawing in relationship with the bulging.

- c. **OBSTRUCTION TO MOVEMENT:** Since the abutment retains embankment soil and track ballast, there are chances of the space between the end of the girder and dirt wall being blocked by soil/earth or other foreign material. Such blockage can prevent the free movement of the girders and needs to be cleared.
- d. **WEEP HOLES:** Generally, weep holes are provided in the abutment walls which retain the embankment soil. The purpose is to allow drainage of water from the backfill and minimize the earth pressure on the walls. During inspection, one should look out for signs of proper functioning of the weep holes. There are brown stain marks on the walls left by the water draining from the weep hole. One should also look out for excessive flow of soil from the weep hole, which indicates absence of a filter between the backfill soil and the wall.
- e. **VEGETATION:** Growth of vegetation in the cracks and areas around the dirt wall, bed block and wing walls can result in pressure on the concrete and resultant damage to concrete, especially its edges. It can be easily addressed during routine maintenance of the bridge.
- f. **ABUTMENT ON HILL SLOPES:** This presents a special case of the abutment, and such structures are normally constructed in hilly terrain. Apart from the other aspects referred above, the stability of the hill slope on which the abutment rests needs to be checked. Points to look for include signs of rain cuts or local slip circle failure of the hill slope. If any protection work such as shotcreting or toe wall, has been carried out, these should be inspected for signs of any distress.
- g. **DEFECT IN MATERIAL:** For defects in concrete as a material please refer to a separate guideline on the subject.

Inspection of Bearings

4.0 Bearings are amongst the most critical part of a bridge. Compared to their size and cost, bearings have very large impact on the health of the bridge and its satisfactory performance. During every bridge inspection, the bearings must be inspected without fail. Bearings perform a very important function of transmitting forces from the superstructure to the substructure/foundations while simultaneously allowing translation and rotation as per the design requirements. Malfunctioning of bearings can result in large forces developing in the superstructure and/or substructure and this may lead to distress. Pedestals on which the bearing rests is also treated as a part of the bearing unit and included in this guideline. Guidelines for inspecting bearings are given below for different types of bearings.

4.1 **PEDESTALS:** The purpose of the pedestal is to create specific location where to seat the bearing and also create sufficient gap between the soffit of the girder and top of pier cap to permit placement of jacks for lifting the girders during bearing replacement. The checklist for inspection of pedestals is given below:

- a. **EDGE DISTANCE:** Please check the drawing for distance between the edge of the bearing and the pedestal. Inadequate edge distance can result in failure of the pedestal. Inadequate edge distance could either be a construction defect or sign that the bearing has shifted during service.
- b. **CRACKS/SPALLING:** Due to the limited size of the bearing, very large contact stresses results in the pedestal. While the pedestal is designed to withstand these stresses and special reinforcement is provided in it, over loading or low in-situ strength or pre-existing non-structural (shrinkage) cracks can lead to more severe cracking or spalling. This is a serious situation and needs to be addressed urgently.
- c. **DEBRIS:** The space around the bearing and pedestal should be free of any obstruction which can prevent free movement and rotation of the bearing.
- d. **WATER LOGGING:** The top surface of the pedestal and pier cap should not be prone to water logging and the inspection engineer should look for any tell-tale signs indicating the possibility of this happening.

4.2 **ELASTOMERIC BEARING:** Elastomeric bearings are commonly provided in small and medium span RCC and PSC bridges. All elastomeric bearings on DFCCIL are reinforced type with steel plates embedded within the elastomers. The following aspects need to be inspected for an elastomeric bearing.

- a. **POSITION:** Under typical combination of vertical and lateral loads, elastomeric bearings are known to have 'walked out' from their installed position. To be forewarned about this, the position of the bearing with respect to its position as installed needs to be checked and conformed. Measuring the distance between the edge of the elastomer and the pedestal is the way to do this. Whilst this check may be made for both longitudinal and transverse direction, the walking out is generally observed in the longitudinal direction.
- b. **EXCESSIVE MOVEMENT/SHEAR STRAIN:** Elastomeric bearings accommodate horizontal movements by shear strain. While some amount of shear strain is to be expected, excessive shear strain can result in failure of the bearing. While no specific value can be prescribed in this guideline for the permissible shear strain, a value equal to or more than 50% of the total thickness of the elastomers can be definitely considered high and worth further investigation. While measuring the

movement, the temperature should also be noted down as it has a direct impact on the thermal expansion/contraction and the expected movement at the bearing level.

- c. **EXCESSIVE ROTATION:** Elastomeric bearings accommodate rotation by differential compression of the elastomer layers. While some amount of rotation is to be expected, excessive rotation (differential compression in elastomers) should trigger investigation. No limits can be specified, and the inspection Engineer has to apply his judgement and observation about the deflection of the span to decide if the observed unequal compression is an area of concern.
- d. **EXCESSIVE BULGING:** Under the vertical loads, the elastomers compress and also bulge over the free edges. Slight bulging of the elastomers between the embedded steel plates is a sign that the bearing is participating in load transfer. However, excessive bulging in some bearing or in some elastomer layer in a bearing reveal abnormality in load sharing. These should be noted down and reported.
- e. **UNEQUAL LOAD DISTRIBUTION:** It is a normal practice to design all elastomeric bearings under any girder to share the loads equally. However, if the installation of the bearings is not done accurately or if some bearing shifts from its position, the load distribution amongst bearing under the same span and on the same pier can get skewed. This may be revealed by differential bulging of elastomers seen on adjacent bearings. If such a phenomenon is distinctly visible, it needs to be noted down.
- f. **LOSS OF CONTACT:** The bearing should be in full contact with the soffit of the girder above and the top surface of the pedestal below. Any gap in either of the two contact faces is not a healthy sign and needs to be noted down.
- g. **SEPARATION OF ELASTOMER:** Effective performance of the elastomeric bearing depends on proper bond between the elastomers and the reinforcing plates embedded inside. If there are signs of separation of the two, it points to failure of the bearing and a defect to be reported.
- h. **MATERIAL FAILURE (ELASTOMER):** Failure of elastomer as a material may manifest by cracks in the elastomer or softening/ flowing of the elastomer material or crazing cracks on its surface. Any abnormal sight about the elastomer as a material needs to be observed and recorded.

4.3 POT PTFE BEARINGS / SPHERICAL BEARINGS: A neoprene pot bearing has a stainless-steel plate that is attached to the sole plate. This stainless-steel plate slides on a polytetrafluoroethylene (PTFE) disc. The PTFE disc is attached to a steel piston, which rests on a neoprene pad, allowing for the rotation of the structure. The pad rests in a shallow steel cylinder that is attached to the base plate. This cylinder is referred to as the pot. Guide bars in the expansion pot bearing restrict transverse movement. A fixed bearing version of this configuration does not possess the stainless-steel plate or the PTFE disc. Spherical bearing, also called spherical bridge bearing, is one type of bridge bearings with large rotation capacity. Pot bearing and spherical bearing can be divided into three types: fixed spherical bearing, guided spherical bearing and free sliding spherical bearing. Before inspecting these bearings, the inspection Engineer should study the drawing and understand the overall bearing arrangement in each span (which movement/rotation is permitted or restrained at each bearing location). The following aspects should be covered while inspecting a POT bearing or a POT-PTFE bearing

- a. **MOVEMENT & ROTATION:** Pot bearing longitudinal movement can be measured in the same way as for a sliding plate bearing. The movement is one half of the difference between the front and back distances of the top and bottom plates. If the pot bearing allows movement in two directions, the inspection Engineer should measure transverse movement as well. The temperature at which the measurements are taken should also be recorded
- b. Although not normally required, pot bearing rotation should also be measured if it appears to be excessive. The top and bottom plates of a pot bearing are usually designed to be parallel if no rotation has taken place. Rotation can therefore be determined by measuring the length of the bottom plate and the distance between the two plates (height) at the front and back of the bearing.
- c. **CORROSION:** All metal (steel) parts of the bearings are painted to prevent corrosion. However, there is a possibility that the paint is scratched during transportation, handling, and installation. In aggressive environment, this can lead to corrosion of steel components. Access to bearings is normally very difficult and it is worth taking preventive action as early as possible. Corrosion should therefore be nipped in the bud by early detection and surface protection measures.
- d. **LEAKAGE OF ELASTOMER:** The elastomer is fully confined within the pot and should normally not be visible. Therefore, any sign of elastomer on the outer surface indicates that the neoprene element is extruded from the pot.
- e. **DAMAGE TO GUIDE BARS:** The guide bars prevent excessive movement and are subjected to forces if there is any tendency of the structure/bearing to have such movements. From this perspective, check guide bars for wear, binding, cracking and deterioration.
- f. **WELDS:** Investigate welds for cracks. Though the welds are not subject to the forces being transmitted by the bearing, any unusual restraint or improper seating can stress the weld and cause its failure.
- g. **DUST SEAL:** The low friction between PTFE SS sliding surface requires the contact surface to be free from dust and foreign material. Towards this objective, a dust seal is provided on the periphery

of the contact face between the top plate and the pot. Inspect whether the dust seal is intact and effective in performing the task of preventing ingress of dust inside.

- h. SEATING/SEPARATION BETWEEN SS & PTFE:** Examine pot bearings for proper seating of the various elements with respect to one another. That is, check to see that the neoprene pad is properly seated within the pot and that the top plate is located properly over the elements below. Also check if all the bolts connecting the bearing with the girder are properly tightened. Also check for any signs of shearing of bolts connecting the bearing to the girder or the pedestal.
- i. BENDING OF PLATES/LOSS OF CONTACT:** The top plate should be in full contact with the soffit of the girder and the bottom plate with the pedestal. Any partial loss of contact can result in unequal load distribution and excess stress on the plates or the concrete surface in contact. Check through visual observation or use a feeler gauge to ensure proper contact at the bearing surfaces.
- j. CLEANLINESS:** Look for any build-up of dirt and debris in and around the bearing that would affect the smooth operation of the bearing
- k. LOCK IN:** The top and bottom parts of the bearing are bolted to each other to facilitate safe transportation and installation. Post installation, the plates locking the two parts together should be removed to permit free movement of the bearing as intended. Inspect to ensure that no lock in of the bearing exists due to any inadvertent mistake of not removing the plates/bolts.

Inspection of Superstructure

5.0 Superstructure of bridges are the elements that carry the load from the traffic. Superstructure are the closest to the live load and have to face impact and vibrations to the highest degree. The superstructure also interfaces with the track structure and has to provide for and accommodate the track structure and its movements. In addition to the live loads (train loads), the superstructure also carries footpath, trolley refuges, OHE and utility crossings. This guideline covers inspection of different structural forms of the superstructure. Guidelines for inspection of steel as a structural material is covered under a separate guideline. Inspection of the ancillaries and track structure are also covered under separate guidelines. The superstructure on DFCCIL are broadly the following types:

- a. RCC/PSC Concrete slabs
- b. PSC Concrete I girders
- c. PSC Concrete Box girders
- d. Steel plate girders
- e. Composite girders
- f. Steel open web girders

5.1 CONCRETE SLABS & I GIRDERS: Concrete slabs are the simplest form of superstructure and are provided for spans up to 12.2 m. The slabs could be either RCC or PSC. Further, it could comprise of a single unit or made up of multiple pre-cast units place side by side. Checklist of inspection of slabs and I girders is very similar; hence these are covered under one heading. The following aspects need to be inspected for slab bridges:

- a. SEATING:** Slabs are generally not provided with any bearing and these rest directly on the pier cap / abutment. These are the points of high stress and need to be inspected closely.
- b. DEFLECTION:** Checking the maximum (mid span) deflection should provide adequate information about safe behavior of the superstructure in case of short spans. In order to be useful, the measurement of midspan deflection should be measured on one fixed point at the midspan on either side, and average of the two values reported as the mid span deflection. To facilitate this, permanent reference points, which will not be disturbed, must be marked over the support and mid span of each span on either side. Mid span deflection values under DL and superimposed DL (SIDL), if available from the design document may be referred for verifying whether the measured deflection is within limit. The amount of deflection for small spans is not large and slight error in measurement may give misleading results. High accuracy is therefore required in measurement of deflection. A more useful purpose of recording the midspan deflection is to track it with passage of time and develop a time-deflection chart for assessing the performance of the superstructure and as an aid to diagnostic in future.
- c. DRAINAGE:** Effective drainage of water from the deck/track is important for the quality of the track structure and also for minimizing deterioration of the material (concrete or steel) of the superstructure. The top surface of the superstructure is given adequate slope and drainage spouts are provided to facilitate quick drainage. The drainage spouts may be examined to check if they are functioning effectively or have been choked. Check whether the outlet of the drainpipe is discharging the water at an inappropriate place of the substructure or crossing below. Also inspect the down pipe for any break, opened out joints or damage and resulting leakage.
- d. BALLAST RETAINER:** Integrity of ballast retainers is essential to ensure integrity of the track. Check whether ballast is spilling (overflowing) from the retainers. This could either be due to over ballasting or some local damage to the retainer.

- e. **VIBRATIONS:** Since the superstructure is in direct contact with the live loads, it is subject to highest level of impact and vibration. Any abnormal behavior of the superstructure or any latent defect may manifest through unusual deflection and vibration. The inspection engineer should therefore utilize the opportunity of any passing train to sense the response of the bridge superstructure to the traffic. While this calls for experience and judgement on part of the engineer to notice abnormality, the judgment can be gained and refined by repeated observations.
- f. **DEFECT IN MATERIAL:** Various defects in the concrete (material of construction) may be visible in the girder and these should all be recorded with specific location of each defect pinpointed. For defects in concrete as a material please refer to a separate guideline on the subject.

5.2 CONCRETE BOX GIRDERS: Concrete box girders are provided for larger spans. The main difference between I girders and box girders is that an I girder (actually multiple I girders) is an open section whereas the box is a closed section. If access is provided from the pier cap and the end diaphragm to enter the box girder, it presents an opportunity to inspect the concrete from a touching distance. Such an opportunity must always be utilized. Another key difference between I girders and box girders is that the box girder is more likely to be pre-stressed as compared to I girders. All the items to be inspected in slab/ I girders explained above also apply to box girders, with the following additions / differences.

- a. **CAMBER:** Instead of just measuring deflection at mid-span, it is better to measure the camber of the box girder as it provides more reliable information. For measuring the camber, reference points need to be marked on the box girder at convenient places (top surface of ballast retainer or footpath provides such places). The reference points may be 6 or 8 or 10 in number, depending upon the span length, spacing of the points being in the range of 5-8 meters. Reference points should be made on either side of the track and separate camber diagrams can be drawn for the up and down face. In case the box girder is very deep and there is adequate headroom inside the box, the measurement can be attempted on reference points marked on the bottom slab of the box. However, this will require proper lighting and clear line of sight to a benchmark/reference point on the pier, which could be a challenge. In pre-stressed concrete bridges, time dependent losses in prestressing force will manifest through loss of camber and this becomes an important input for assessing the long-term behavior of PSC girders.
- b. **ANCHORAGES:** Anchorage is a point along the pre-stressing cable (in post tensioned system) where the prestressing system is most vulnerable. It is also the only place where one can make visual observation of the prestressing system. Look for signs of corrosion, damage to mortar shield at the anchorage, crushing of concrete and cracks in concrete in the anchor zone.
- c. **LOCATIONS:** While the attempt should be to inspect all parts of the superstructure, some areas need greater attention as these are known to be points of greater stress and locations where distress is seen more often. For slabs, I girders and box girders, the locations to focus attention should include the following
 - i. Area near bearings
 - ii. Underside (tension face) near midspan
 - iii. Junction between I girder and deck slab
 - iv. Junction between girders and diaphragms
 - v. Anchorage zone in PSC girders
 - vi. Inside of the box girders

5.3 STEEL PLATE GIRDERS & COMPOSITE GIRDERS: Steel plate girders, like concrete I girders are typically provided for small spans, up to 24 m. Standard spans of composite girders have been developed for up to 30.5m spans. Steel plate girders are welded type and all field joints are bolted (HSFG bolts). For steel plate girders (and steel portion of the composite girders), the following aspects need to be inspected:

- a. **DEFLECTION:** Please refer to the guidelines related to deflection provided above under concrete slab bridges and I girders, which apply to steel plate girders and composite spans also. It can be done with card deflection test under same type of Loco.
- b. **VIBRATIONS:** Steel girders being lighter than concrete girders, exhibit larger vibration under traffic. Please refer to the guidelines related to vibration provided above under concrete slab bridges and I girders, which apply to steel plate girders and composite spans also. The inspection Engineer should also be alert for any resonance that may be felt during passage of trains. ***Resonance is the phenomenon of increased amplitude that occurs when the frequency of a periodically applied force (train) is equal or close to a natural frequency of the system (girder/bridge) on which it acts.***
- c. **CLEANLINESS:** Check members for cleanliness and freedom from debris, especially on the top side of the bottom flange, any member for that matter. *Unclean members should be especially suspect since this indicates lack of maintenance and ideal conditions for deterioration.* Cleaning may be necessary to properly inspect the members for cracks and corrosion.
- d. **DISTORTION:** Members subjected to compressive forces are therefore prone to distortion and buckling, if the actual forces exceed design values or if there is any change in support conditions and bracings. Most compression members can bend/twist which can reduce their effectiveness significantly. The following elements / locations should be checked for signs of distortion:

- i. Top flange in steel plate girders
- ii. Web plates near the bearing stiffeners in both plate girder and composite girders
- iii. All bracing members

- e. **JOINTS:** Check carefully along the first row of the bolts for cracking as these carry more loads than other bolts. The first row is the one closest to the edge of the gusset plate perpendicular to the axis of the member.
- f. **LOOSE BOLTS:** Inspection of bolted joints should be carried out visually to identify loose or broken bolts. **Tapping the bolt with a hammer is not allowed.** Looseness of bolts may be judged by signs of rust beneath the washer or bolt head, or apparent looseness of the washer or some displacement at the joint or unusual position of connected members. Loose or broken HSFG bolts should not be tightened but should be marked for easy identification at the time of their replacement by the maintenance team.
- g. **JOINT SLIP:** The joints with HSFG bolts are designed to transfer the forces through friction between the contact surfaces of the connected members and plates. If the force on the joint exceeds the service loads, the joints can slip, and the forces are then transferred through bearing of the bolt against the plated/members. Slip of the joint may indicate that the loads have, sometimes in the past, exceeded the serviceability stage limit. The slip should be visible by clear sign of movement at the edge of the joint (maximum amount equal to the clearance between the hole and bolt diameter)
- h. **DEFECT IN MATERIAL:** Various defects in the steel (material of construction) may be visible anywhere in the girder and these should all be recorded with specific location of each defect pinpointed. For defects in steel as a material please refer to a separate guideline on the subject.
- i. **LOCATIONS:** Given below is a list of locations which are more critical and the chances of finding defects at such places is higher than other locations.
 - i. Bearing areas
 - ii. Shear zones (closer to the supports)
 - iii. Flexure zones (bottom face near midspan of simply supported girders and top face near supports of continuous spans)
 - iv. Fatigue prone details
 - v. Secondary members
 - vi. Areas that trap water and debris
 - vii. Areas exposed to traffic

5.4 OPEN WEB GIRDERS: Open web girders, also called as through truss girders are provided for spans larger than 30 m. RDSO has standardized open web girder designs for 30, 45, 60, 76.2, and 90 m and 106.7 spans for different loading standards. On DFCCIL system, some non-standard spans have also been adopted due to site conditions. Open web girders comprise of two trusses, top and bottom lateral bracings and the floor system. The floor system consists of cross girders, connecting the two trusses and rail bearers (stingers) spanning between cross girders, along the traffic direction. All field joints of the open web girders are made using HSFG bolts. The members themselves are built up section welded in the fabrication shop. Open web girders invariably carry un-ballasted track, called as open deck system. Steel rocker/roller, POT-PTFE or SPHERICAL bearings are used with these girders due to a combination of higher loads and movements. The following aspects need to be inspected in an open web girder:

- a. **ACCESS & SAFETY:** Since the open web girders are not provided with ballasted deck and given their longer spans, adequate and safe access and walkways are crucial to facilitate effective inspection and maintenance. All walkways, footpaths, railings, ladders and access to trolley/mam refuges should be examined as a part of inspection and also in the interest of the safety of inspection Engineer himself.
- b. **CAMBER:** Camber is provided in the girder to compensate for deflection under load. Camber should be retained during service life of the girders if there is no distress. The original camber of a girder is indicated in the stress sheet or camber diagram sheet. Camber observations are required to be taken at the same ambient temperature as adopted for the original camber mentioned in the stress sheet. The camber as observed during the inspection is compared with the designed camber. For measuring the camber, spot levels should be taken by using high survey equipment on all intermediate panel points on both sides. From these, the relative level of each panel point from a line joining the first and last panel point (on bearings) can be derived and plotted in the form of a camber diagram. Any loss of camber should be thoroughly investigated and brought on record.
- c. **DISTORTION:** Please refer to the guideline provided under plate girder section above. In the case of open web girders, following locations are prone to distortion:
 - i. Top chord members
 - ii. Diagonals
 - iii. Lateral bracings
 - iv. Portal bracings

- d. **OVERSTRESSED MEMBERS:** Local buckling indicates overstress of compression members. Wrinkling in the flange, webs or cover plates are common signs of buckling. Overstress in a tensile member result in localized contraction in the cross-section area of the member, which is usually accompanied by the flaking of paint.
- e. **OTHERS:** All other points related to **vibrations, cleanliness, loose bolts, joint slip** etc. as provided in the section above apply equally to open web girders.
- f. **DEFECT IN MATERIAL:** Various defects in the steel (material of construction) may be visible anywhere in the girder and these should all be recorded with specific location of each defect pinpointed. For defects in steel as a material please refer to a separate guideline on the subject.
- g. **CRITICAL LOCATIONS:** Any loss of camber should be thoroughly inspected and brought on record
 - i. Rail bearers
 - ii. Rail bearers to cross girder connection
 - iii. Cross girder to panel point connections
 - iv. Bottom chord near bearings
 - v. Connection of lateral bracings at panel points

Inspection of Track Structure on Bridge

6.0 The track structure represents interface between the bridge and the live load. The purpose of the bridge is to support and facilitate effective functioning of the track. Strictly speaking, the track structure is a part of track inspection and maintenance. However, the behavior of the track on the bridge is different from that on the embankment and therefore it deserves to be separated from routine track inspection. Moreover, the behavior of the track within the bridge length provides useful insight about the overall behavior of the bridge and therefore considered to be within the domain of the Bridge inspection. On DFCCIL system, there are only two types of track structures, viz ballasted track with PSC sleepers and open deck with steel channel sleepers. The guideline therefore only focuses on these two types of track structures. Details of the treatment of LWR over the bridge should be carefully studied so that relevant features of the same can be properly inspected. Following aspects need to be seen while inspecting the track structure:

- a. **TRACK ALIGNMENT:** It should be ascertained whether the track is central on the rail bearers and the main girders. It should also be checked whether the track is in good line and level. Unless there are any visible signs of misalignment, no measurements are called for. Any kink in the alignment of the track; especially over a pier suggests some abnormal situation related to that pier. Departure from line may be caused by:
 - I. Incorrect seating of girders
 - II. Shifting of girders laterally or longitudinally
 - III. Incorrect seating of sleepers on girders (in open decks)
- b. **TRACK LEVEL:** The level of track provides the earliest warning sign about settlement in any of the foundations or any other distress like tilt or shift. Dip in the longitudinal level of the track at a pier suggests distress in the bearing or settlement of the foundation. Detailed level measurements may be recorded if there are visual signs of disturbance in the track levels.
- c. **LWR & SEJ:** LWR may or may not have been continued over the bridge depending upon its overall length, rail section used and the temperature zone in which it falls. The interaction between the track and bridge structure is very complex, especially in the case of multi-span bridges. Satisfactory behaviour of the LWR on the bridge and its approaches need to be checked. Following aspects need to be inspected:
 - I. Ballast section over 50 m length of the approach for compliance with provision of LWR manual.
 - II. Use of creep anchor on the approaches (if provided)
 - III. Effectiveness of box anchoring, wherever provided
 - IV. Gaps at the SEJ along with the temperature and any indication of creep from that (if provided)
- d. **APPROACHES:** It should be checked if the track on approaches of girder bridges tends to settle down with respect to the level of track on the bridge proper. Similarly, it should be checked whether the alignment track on the approaches is in line with the track on the bridge. The gauge, cross level and packing under the sleepers should be checked. The condition of the ballast wall should be checked for at least up to 50 meters on the approaches. This portion of the track should be well anchored, which means that the track should have PRC sleepers with elastic fastening and fair T type (or similar) creep anchors. The adequacy of clearances of running rails over ballast walls at the abutments should be checked. Any tilt or damage to the ballast wall should be checked.
- e. **BALLAST CUSHION:** Check for clear ballast cushion available below the sleepers. In addition, check the condition of the ballast, whether it is clean or caked up. On bridges where guard rails are not provided, the whole width of the bridge between the parapet walls shall be filled with ballast up to the sleeper level.

- f. **STEEL CHANNEL SLEEPERS:** The location where the steel channel sleepers are installed are the most heavily loaded parts of a girder bridge. The sleeper themselves and the top flange of the plate girder/stringer below it is subjected to high impact load and is also susceptible to corrosion due to accumulation of water etc. In view of this, as many sleeper seats as possible should be closely inspected to get an idea of the general condition of the track/girder interface. Corrosion in sleepers, local damage to any sleeper and condition of the welds should be inspected. Conditions of fastening between the rail & sleepers and between sleepers and rail bearer should also be checked.
- g. **GUARD RAILS:** Proper functioning of guard rail is very important for the safety of trains in the unfortunate event of a derailment on the bridge. Following aspects should be checked:
- I. Clearance of guard rail and running rail
 - II. Level of guard rail
 - III. Condition of guard rail and its fastening
 - IV. End anchorage of guard rail
- h. **SIGN BOARDS:** Inspection of various boards related to the bridge may be covered under this section. Following is the list of board / information display that should be checked.
- I. Speed restriction board (if any)
 - II. Name board of the bridge
 - III. Bridge tablet providing salient features
 - IV. Bridge plaques
 - V. HFL and Danger level
 - VI. Flood gauge

Inspection of Bridge Ancillaries

- 7.0 There are a few elements of the bridge that are not part of its main load bearing function but support some aspect of bridge inspection or maintenance. All of such elements are bracketed under the term “ancillaries”. While the ancillaries do not by themselves affect the safety/stability of the bridge, they have a supporting role to play. If the ancillaries do not function as intended, activities related to inspection and maintenance can be hindered. Sometimes, failure of an ancillary structure can adversely affect the safety of the traffic. Inspection of ancillary structures is important from this perspective.
- I. FOOTPATH & WALKWAYS:** Footpath and walkway are crucial for allowing access to all piers without the need of walking on the tracks. It should be checked whether the footpath provides safe and uninterrupted surface for walking. The integrity of the hand railing should be checked. Defects in material of construction (concrete or steel) should be checked as per the respective guideline for concrete and steel.
- II. INSPECTION LADDERS AND PLATFORMS:** Generally, ladders are provided to allow access from the track to the top of the pier cap. In open web girders, the end raker and top chords may be used as a ladder if handrails are not provided to facilitate the inspection engineer to climb over these. Inspection platforms are provided at the pier cap level to facilitate inspection of bearings. These elements are invariably made of steel. Check for corrosion of the members, damage to railings and condition of the connections. Check if the ladders and inspection platforms provide adequate safety to the person using it.
- III. TROLLEY/MAN REFUGE:** Trolley/MAN refuges are provided to facilitate parking of inspection trollies or for standing KM during passage of trains. The number/ spacing of trolley/man refuge should be checked for compliance with the applicable DFCCIL Schedule of Dimensions. It should be checked whether the access to the trolley/man refuge from the track is such as to permit easy and quick transfer of the trolley/man from the track to the refuge. Connection of the trolley/man refuge structure to the main bridge should be examined carefully for its integrity. Defects in the material of construction (concrete or steel) should be checked as per the respective guideline for concrete and steel.
- IV. OHE MAST/CONNECTION:** In electrified section and long bridges, the OHE needs to have supports within the bridge length. This can be in the form of an OHE mast attached to the pier/abutment cap, or a bracket attached to some part of the truss in the case of open web girder. Only the structural attachment of OHE is in the purview of bridge inspection. In case of OHE mast, check for the integrity or functioning of the holding down bolts and verticality of the OHE mast. In case of open web girder, treat the bracket connecting the OHE to the truss as a structural steel element and check for alignment, corrosion, distortion in members etc.
- V. PIPELINE/CABLE CROSSING:** Pipeline/Cable crossings are linear elements and are connected to the bridge at specified intervals. Check the drawing for the arrangement of connecting the pipeline/cable supports to the bridge; specially to identify if the connection is rigid or flexible. In case of a rigid connection, it is essential that arrangement for permitting thermal expansion and contraction in the pipeline/cable is similar to that of the bridge (such that no forces are transferred from the bridge to the pipeline and vice-versa due to restraints against thermal movements). Inspect

the bracket suspenders of pipeline/cable support as structural elements. Inspect these for distortion, corrosion and integrity of bolts etc. A pipeline that carries any hazardous material poses a risk of fire and explosion and the overall integrity of such pipes and their joints need to be checked.

- VI. HEIGHT GAUGES:** In Road under bridges, height gauges are provided to prevent the road vehicles carrying over dimensioned consignment (ODC) damaging the soffit of the girders. The integrity of the height gauge should be observed and recorded. Any sign of damage to the height gauge itself or to the soffit of the girders (despite the presence of the height gauge) should be observed.

Inspection of RCC Box/Pipe Bridges

- 8.0 A RCC Box/Pipe is a structure that allows water to flow under railway line or pass road traffic from one side of embankment to the other side. A RCC Box/Pipe is typically embedded so as to be surrounded by soil of the embankment.
- 8.1 RCC box/pipes have an important function to perform; that is to allow passage of water across the railway line and thus prevent the water stream from causing damage to the embankment. On any railway, the number of RCC boxes and pipes are usually much more than the bridges, but each RCC box/pipe can be inspected much faster and with greater ease due to easy access and limited items to inspect.
- 8.2 A RCC box/Pipe does not have separate foundation/substructure or superstructure. It is one structure performing the function of all these elements. The RCC box/pipe does not have bearings or expansion joints. The items to be inspected in a RCC box/pipe are detailed below:
- I. **ALIGNMENT:** RCC Box/Pipe are almost always laid in a straight line. If it is a cast-in-situ structure, is unlikely that its alignment will be disturbed. In case of RCC box bridge made with a number of precast units (pipes or segments of boxes), in rare situation, there may be distortion in the alignment of the units. This should be noted, and likely cause investigated.
 - II. **SLOPE & LEVEL:** The most commonly noticed defect in a RCC Box/Pipe is the settlement of a part of it resulting in disturbance to the slope/level/vertical alignment of the RCC Box/Pipe. This could be due to settlement below the RCC Box/Pipe or local failure of some segment of the RCC Box/Pipe. If noticed, this should be inspected in detail and the profile of the invert/floor of the RCC Box/Pipe measured and plotted for analysis and as an aid to diagnosis.
 - III. **CLEARANCE:** Unless designed as a siphon, the RCC Box/Pipe should have adequate clearance to allow flow of water without any heading up taking place. The clearance is difference between the invert level and the HFL. Signs of HFL should be looked for to assess if design clearance is available. (However, it should be born in mind that requirement of clearance may not be applicable for BOX or Pipe bridge which, even if not designed as syphons, can run full). Further, the RCC Box/Pipe should be free of any obstruction such as construction debris, bushes/branch of trees, animal carcass etc. If found, any obstruction should be cleared as soon as possible and before the next monsoon season.
 - IV. **WING WALL:** The function of the wing wall/face wall is to retain the embankment slope and also to channelize the stream through the bridge. Inspect the wing/ face wall for its alignment/verticality and signs of undermining. Also check for the connection between the face wall and the segments of the bridge.
 - V. **FLOORING ON APPROACH:** Approach to the RCC Box/Pipe is paved to ensure that the water from the stream does not undermine the RCC Box/Pipe bridges. Check for integrity of the flooring on the approach, signs of settlement, cracks/openings that may allow the water to seep through and find a path under the bridge. Look for angle of entry of the stream and any obstruction to direct entry of water into the bridges.
 - VI. **CUSHION:** Soil cushion including Ballast above the RCC Box/Pipe is required to ensure that there is proper distribution of the live load and there is no localised over loading of the RCC Box/Pipe. Check for adequacy of the cushion and check for any unusual signs like settlement at the transition between RCC Box/Pipe and embankment.
 - VII. **MATERIAL:** All RCC Box/Pipe on DFCCIL, being in concrete, inspect the bridge's barrel and face wall as concrete material and refer to a separate guideline on this subject. Typical defects to be looked for include cracks, spalling, erosion and rebar corrosion.

Inspection of Concrete Elements

- 9.0 There are a variety of defects that can be seen in a Concrete structure or element. Not all defects are serious in nature. *Some defects are created at the time of construction itself and continue to remain in the absence of repairs. Such defects should ideally have been identified and repaired at the time of handing over/ commissioning.* This guideline provides a list of all possible defects in concrete and what observations should be made to assist in assessing their severity and decide corrections. While this guideline is common to all elements from foundation to superstructure, the degree of severity will vary depending on the location of the defect. The following defects are always construction defects and do not occur during the operation period.
- a. Honeycombs

- b. Bug holes
- c. Cold joints
- d. Construction joints
- e. Off set at formwork joints
- f. Less cover to reinforcement
- g. Shadow of rebar on concrete surface
- h. Foreign material embedded in concrete

9.1 Other defects may have been there right at the time of construction or may have developed later. If these defects did not exist at the time of handing over/ commissioning, it indicates initiation of the defect during operational phase and to that extent, these are likely to be a greater cause of concern. These include the following:

- a. Cracks
- b. Delamination and spalling
- c. Efflorescence
- d. Rebar corrosion
- e. Damaged / broken edges
- f. Blisters or pop outs
- g. Surface abrasion / dusting

9.2 While the above two lists include defects in concrete as a material, there are defects which can be classified as not defect in material, but defect in an element. These are separately covered the guideline related to different bridge components. The paragraph below provides guidance on the observation to be made and data collected for various defects. Needless to say, photographs from a distance as well as close up should be taken to help experts interpret the defect better. The defects likely to be more serious in nature are covered first and those likely to be less serious are covered later.

9.3. GENERALLY SERIOUS DEFECT

a. CRACKS:



Cracks in concrete are amongst the most common defect and some of these can be very serious. The following information should be obtained and recorded:

- i. Date of first occurrence (enquire with people who routinely pass close to the structure)
- ii. Length of crack; approximate information should suffice
- iii. Width of crack; use a crack comparator or feeler gauge for this
- iv. Location and orientation
- v. Whether there is a single crack or a series of cracks
- vi. If there are multiple cracks, the pattern of cracks
- vii. Whether the crack is dry or wet
- viii. Whether there is any deposit at the cracked surface
- ix. Whether there is any rust stain along the crack

- b. **DELAMINATION/SPALLING:** Delamination or spalling of concrete represent an advanced stage of corrosion of reinforcement. These are amongst the most serious defect in an RCC structure and require urgent attention. If the defect is located at a structurally critical location, do not aggravate the problem by further tapping the concrete to find out the extent of damage. Delamination and spalling are invariably accompanied by visible cracks in the concrete near/around it. Please record the following information:
- i. Location of delamination/spalling
 - ii. Size/area affected by delamination/spalling
 - iii. Whether there is clear sign of reduction in size of reinforcement or breakage of reinforcement due to corrosion
 - iv. Cracks visible in the area near delamination/spalling
 - v. Any excessive deflection associated with delamination/spalling

c. **EFFLORESCENCE:**



Efflorescence is the presence of salt on the concrete surface, often at the cracks. The salts are generally white in colour and it could be either hydroxide, sulphate, carbonate, or chloride of calcium. Efflorescence is a sign of passage of water through the concrete and leaching out of lime from the concrete. Efflorescence is slightly more serious than a mere crack as it indicates migration of water through the concrete and possible increase in porosity of concrete. Efflorescence can also occur without a crack if the concrete is porous enough to allow passage of water through it. Efflorescence, if noticed along with a crack will get covered by item a/viii above. If noticed without a crack, its location and size should be noted down.

- d. **CORROSION:** Similar to efflorescence, corrosion of rebar will be generally accompanied by cracks in concrete, in which case, it will be covered by item a/ix above. It is possible that there is no sign of corrosion of reinforcement embedded in a concrete member, but corrosion may be visible in exposed parts such as tie rods, hand railing, walkway, ladders etc. which are attached to the concrete. The condition of such elements should be observed, especially near their embedment in concrete as these can provide early warning about impending corrosion of the reinforcement.
- e. **HONEYCOMBS:** A honeycomb is a patch of concrete where the coarse aggregates are exposed, and the mortar is missing. Tap the concrete around the edge of the honeycomb to expose its full extent. Often honeycomb is surrounded by an area where the surface is covered by a thin layer of mortar with concrete honeycombed below it. Note down the following information:
- i. Location Approximate area of the honeycomb and its dimension
 - ii. Whether reinforcement is visible
 - iii. Depth of honeycomb



9.4 LESS SERIOUS DEFECTS

COLD JOINT / CONSTRUCTION JOINT:



A cold joint or a poorly located and formed construction joint creates a plane of weakness in the concrete element and can adversely affect the durability of RCC/PSC elements. This defect is unlikely to be serious in itself unless accompanied by one of the serious defect listed above. However, if identified early, it can be rectified well in time to prevent it from becoming serious later on.

a. BUG HOLES

Bug holes are small air voids visible on the surface of concrete. These can vary from less than a mm in size to as large as 20-25 mm. Small bug holes are very common and need not be registered as a defect. Large bug holes if too many in number and located at a critical position can result in reduced cover to reinforcement and can pose a risk of reduced durability. The location and subjective assessment of size of the larger bug holes may be recorded.



- b. **DAMAGED/BROKEN EDGES:** The edge of concrete element could be damaged at the time or removal of the formwork or during construction and erection of other elements. In case, these are identified as new defects created during the operational phase, it could indicate impact of a vehicle or inspection tool or floating item (in case of foundation and substructure) or vandalism. The extent and location of the damage should be noted down. The severity of the defect will depend on its location, depth of damage and whether there is any crack near the damaged portion.
- c. **FOREIGN MATERIAL IN CONCRETE:** This is always a construction stage defect and reflects poorly on the quality of construction. The foreign material is typically a piece of wood, foam, bamboo, plastic pieces or thermocol (EPS). When removed from concrete, it will become the defect similar to 'damaged edge'. The location and extent of foreign material may be noted down.
- e. **LESS COVER TO REBAR / REBAR SHADOW:** Normally, less cover to rebar is not visible after all concrete has been cast. In some case, such as underside of slabs and beams, impression of reinforcement can be seen indicating very low cover. If such parts are accessible, these should be inspected from touching distance to ascertain if the observation really pertains to less cover. Otherwise, rebar cover meter survey will have to be commissioned. Less cover reduces the durability of concrete and repair action will depend on the location/environment exposure condition of the structure. The exact location and extent of area over which low cover is suspected should be noted down



- d. **SURFACE ABRASION / DUSTING:** In bridges, abrasion of concrete is generally noticed in the foundation and substructure which are subject to strong water currents. Dusting is a phenomenon associated with poor concrete in the top surface of a slab. Such a situation is unlikely to occur in a Railway Bridge. Abrasion will manifest by exposure of coarse aggregate or other marks on the surface of concrete (pier, well & pile cap and floor aprons). The location and extent of abrasion should be noted.
- e. **BLISTER/POP OUTS:**



Blister and pop outs are very local defects and indicated by an irregular cavity on the concrete surface.

It is typically caused by removal of coarse aggregate (or a foreign material or large air void) from concrete surface. This being a very local and superficial defect, surface repair is usually adequate. The location of blister should be recorded.

Inspection of Steel as material

10.0 Structural steel is used for construction of bridge superstructure, namely in plate girders, composite girders, and open web girders. Structural steel is rarely used in the substructure of foundations. There are a variety of defects that can be seen in a steel structure or element. Not all defects are serious in nature. Some defects are created at the time of construction itself and continue to remain in the absence of repairs. Such defects should ideally have been identified and repaired at the time of handing over/commissioning. This guideline provides a list of all possible defects in steel and what observations should be made to assist in assessing their severity and decide corrections. While this guideline is common to all types of structures, the degree of severity will vary depending on the location of the defect. For the purpose of this guidelines, weld and paint are also considered as a part of 'steel as material'. The following defects may be found in a structural steel element, which relate to material and not the member as a whole. Guidelines about these defect, typical location where these are expected, and their inspection are detailed below:

1. **CRACKS:** Members subject to tensile stresses are the ones likely to have cracks if the tensile stress exceeds the capacity of the members. Elements subjected to reversal of stresses are prone to fatigue damage and cracks can initiate at even lesser stresses. Some latent defect in the steel may also cause initiation of the crack. Cracks can also originate due to corrosion and pitting. Cracks in steel superstructure elements are serious in nature, due to fatigue criticality of these elements, and need to be addressed on priority. In case cracks are seen or suspected, the location should be cleaned with a wire brush and examined closely under adequate light. If required DPT may also be carried out to assess the length of the crack. The following locations should be specially checked for cracks:
 - I. Tension (bottom) flange of plate girders, especially at termination of cover plates
 - II. Point on the web where the vertical stiffener terminates near the bottom flange
 - III. Point on the web where the horizontal stiffener terminates in the tension zone
 - IV. Connection of flange or web of the girder with gusset plates of bracing connection
 - V. Moment carrying connections such as stringer to cross girder and cross girder to main truss
 - VI. Any point of stress concentration such as a bolt hole or a notch
2. **CORROSION:** Steel structures are susceptible to atmospheric action leading to corrosion which eats up the steel section and can initiate cracking and also reduces the structural capacity. Presence of oxygen, water and chloride are essential for corrosion of steel. For a superstructure, which exposed to the atmosphere, oxygen and water are almost always present. Presence of chlorides depend on the location of the bridge, coastal areas being the most aggressive in this context. Sometimes, discharge of salt water from the trains also contributes chlorides. Proper drainage is important to reduce the risk of corrosion and it is well established that areas that hold water or are moist for long periods get corroded faster. It is important to assess the magnitude of corrosion and consequent loss of effective structural section and also identify the cause of corrosion. Members and connections subject to high stress fluctuations and stress reversals in service are the most common suspect in respect of corrosion. The following locations should be inspected for sign of corrosion in steel superstructure:
 - I. Floor system that carries the traffic (stringers, cross-girders and bracings)
 - II. Top surfaces of flanges
 - III. Panel joints in open web girders where water tends to accumulate
 - IV. Point of contact of top flange of stringers and plate girders with sleepers
 - V. Members near the bearings where debris tend to accumulate
 - VI. Web of plate girder of composite girders which may receive water spray from the drain holes
 - VII. Edges, notches, and holes where paint may not have been applied after cutting/drilling
 - VIII. Junction of web and horizontal stiffeners
 - IX. Over batten plates in diagonal and vertical members of an open web girder
3. **PAINT:** Paint is the main defence against corrosion of steel structures and integrity of paint should be inspected and reported. Condition of paint and extent of corrosion are two sides of the same coin. If the paint is free of defect, corrosion is unlikely. However, in some cases, corrosion initiated from a small scratch can lead to wider loss of paint protection. While there can be many defects in a painted surface, the following list includes some of those which are more common and relevant:
 - I. **Loss of adhesion /peeling:** This refers to complete loss of bond between the paint and the substrate. It may be caused by inadequate surface preparation during painting or poor drying condition during painting or too thin / dry primer. In aggressive environments, this can soon initiate widespread corrosion of the steel and therefore needs to be repaired on priority.
 - II. **Localised damage /scratch:** This could be either a construction stage defect caused by damage to paint during transportation and launching which was not touched up, or it could have been caused during the operations period by some maintenance activity. These are not as serious as total loss of paint but can invite corrosion and then quickly progress on to larger areas.

III. Blistering: In damp weather, a small quantity of water vapour is absorbed into the paint structure and is then evaporated again in dry conditions (osmosis). This process is normal and does not harm a well-constructed finishing process. However, poor processing of the primers will leave hygroscopic/water soluble substances (salts) behind as contaminants. These cause a local concentration of a saltwater solution which lift the paint film into water blisters. Blisters can occur in many sizes, patterns and frequency and can form between individual layers or beneath the entire film build. In dry weather most blisters will temporarily recede.

IV. Poor Coverage: Substrate showing through the topcoat. Old paintwork, spot primer or areas of filler are visible through the topcoat.

4. **WELDS:** Almost all steel superstructures require built up sections. In DFCCIL, all steel girders are fabricated by welding and site assembled by HSFG bolts. While it is expected that the QC checks in fabrication workshops would ensure that there are no defective welded members delivered to site and installed, yet in rare cases some defects can remain undetected until the structure is subjected to loads. Welded structure and welds themselves are prone to fatigue damage (welds are more sensitive to the repeated stresses and once crack starts it can grow fast and seriously reduce the strength of the member). Therefore, the entire structure should be carefully inspected from close quarters. However, some locations and weld details should be given special attention, and these are listed below:

- I. butt welds in tension flange or tension member
- II. welds at ends of transverse and longitudinal stiffeners
- III. welds of attachments to web and tension flange or tension member,
- IV. ends of welded cover plates,
- V. intersecting weld,
- VI. Tack welds and plug welds
- VII. Weld repairs
- VIII. End of welds / weld craters
- IX. Unusual joints

While there can be numerous different defects in a weld, most of these defects occur at fabrication stage and as stated above are eliminated/rectified before erection. Defect that can occur during the service life of the structure is primarily **cracks** and the focus of inspection should be to look for these. It is useful to carry a magnifying glass for weld inspection as the weld cracks tend to be much smaller in size and the background does not facilitate easy detection of crack by naked eye.

Uniformity in Numerical Rating System (NRS)

- A. The "Numerical Rating System" for bridge inspection assigns a "Unique Rating Number" (URN) to represent the physical condition of a bridge. The URN of a bridge shall be arrived at based on the condition of components and a "Condition Rating Number" (CRN) assigned to each of them. The various components of a bridge in sequence, are:
 - i) foundations and flooring, if any,
 - ii) masonry/concrete in substructure,
 - iii) training and protective works, if any,
 - iv) bed blocks,
 - v) bearings and expansion arrangements,
 - vi) superstructure - Girders/ Slab etc.
 - vii) track structure.
- B. The CRN is allotted to each of the above components based on their condition at the time of inspection, using the scale 0 1 2 3 4 5 6:
 - I. When any component in a bridge is more than one in number CRN is assigned to each of them and the lowest value used. For example, if a bridge has five piers and two abutments, and these are given the CRN of 5,4,3,2,5,5,4 then the CRN for the substructure component of the bridge would be minimum of 5,4,3,2,5,5,4, i.e. 2.
 - II. If in any bridge, one or more components do not exist, the CRN for such components shall be shown as 6.
 - III. In any component is not inspected the assign CRN as 0
- C. From the CRNs for different components of a bridge, an overall Rating Number (ORN) for the bridge is then given. The ORN is the lowest of the seven CRNs of a bridge, except 0.
- D. For a major/important bridge, the URN would comprise of eight digits, the first digit indicating the ORN and the following seven digits the CRNs of each of its above seven components in sequence as indicated in item A, above.
- E. URN of a minor bridge shall be represented by its ORN only, i.e. by a single digit to indicate its overall condition using the guidelines contained in Sub-para B.

- F. The objective of Numerical rating system is to make assessment of condition of bridges more objective and in a form that can be saved, retrieved and analysed easily. It also helps in assessing rate of deterioration of the health of the bridge (or its elements)
- G. However, the aim of creating an objective assessment cannot be met unless there is uniformity in assigning CRN to various elements of the bridge. Assigning a CRN depends on the experience and judgment of the inspecting official and is likely to vary from person to person. If such subjectivity is allowed to creep in the assessment, the purpose of assessing the rate of deterioration may not be achieved.
- H. In order to bring in uniformity about CRN assigned by the inspecting officer, a guideline is required which shall be reviewed from time to time and improved with experience. Following broader guideline describes different situation and type of defects that an inspecting officer may come across and assign the CRN that each such situation or defect may normally deserve:

SN	ELEMENT BEING INSPECTED	CONDITION JUSTIFYING NUMERICAL RATING			
		1 (REQUIRING IMMEDIATE REBUILDING/ REHABILITATION)	2 (REQUIRING PLANNED REBUILDING/ REHABILITATION)	3 (REQUIRING MAJOR REPAIRS)	4 (REQUIRING ROUTINE MAINTENANCE)
1	Overall	In the event of an accident on the bridge or major earthquake or storm, where there was a disruption in traffic and the bridge has been restored using temporary arrangements		--	--
2	Foundation	Continued rapid settlement or tilt of foundation that is affecting track parameters.	Slow and isolated settlement and/or tilt of foundations	Corrosion in RCC of foundation, heavy scour around foundation	Missing HFL/ Danger level, sign of scour around foundation
3	River training works & hydraulic	Severe erosion of banks or breaches in protection works.	Deep rain cuts	Small and isolated rain cuts in guide bank	Obstruction in water way of bridge
4	Substructure	Large cracks in transverse direction, signs of buckling of rebar or crushing of masonry / concrete	Small cracks showing signs of progression	Leaching of mortar, joints Cracks that appear to be live / growing, Spalling of concrete at isolated places	Weep hoes not functioning properly Minor cracks / surface cracks, Hints of initial corrosion, attrition of surface
5	Bearings	Bearing is completely not functional and the girder has been placed on alternate temporary supports.	Any defect in the bearing which will require the bearing to be removed from its position.	Any defect in the bearing which can be repaired without removing the bearing.	Accumulation of debris around bearings or poor drainage around it.
6a	Concrete super structure	Major distress in the girder that threatens to render the bridge unsafe	Significant loss of camber Major cracks oriented so as to be a structural crack Large scale corrosion of reinforcement Large scale spalling of concrete	Cracks that appear to be live / growing Spalling of concrete at isolated places	Weep hoes not functioning properly Minor cracks / surface cracks Edge damage
6b	Steel super structure	Major distress in the girder that threatens to render the bridge unsafe	Significant loss of camber Failure of welds, bolts of rivets from main members or their connections	Failure of welds, bolts and rivets from secondary members	Peeling of paint Accumulation of water Loose bolt or rivets Cracks in weld at isolated place
7	Track structure	--	--	Cracks or damage to sleepers	Creep of track Isolated loss of fastenings
8	Approaches	See explanation under item "overall" above	Deep rain cuts, Settlement of approach embankment, damaged Wing/return wall	Small and isolated rain cuts, sign of leaning of Wing /return wall	Overgrowth of vegetation, spillage of ballast, disturbance of will mouth pitching
9	Culverts & boxes	Structural failure of the box structure Large sag of any element that has major impact on track geometry	Continuous sagging of part of the culvert which calls for frequent attention to track over the culvert	Cracks in concrete Bulging of base or side walls Erosion of soil at the discharge end, piping, leaning of wing/return wall	Growth of vegetation inside the culvert or obstruction to free flow Ingress of oil from joints and weepholes, disturbance of will mouth pitching/floor apron

PART - III
TENDER FORMS

PART- III**TENDER FORMS**

FORM No.	SUBJECT
Form No. 1	Offer Letter
Form No. 2	Tenderer's Credentials
Form No. 2A	Technical Eligibility Criteria Details
Form No. 2B	Financial Eligibility Criteria Details
Form No. 2C	Applicant's Party Information Form
Form No. 3	Contract Agreement
Form No. 4A	Bank Guarantee Bond for EMD
Form No.4B	Performance Guarantee Bond
Form No. 5	Standing indemnity bond for on account payment.
Form No. 6	ECS / NEFT / RTGS
Form No. 7	Draft MOU for Joint Venture Participation
Form No. 8	Draft Agreement for JV
Form No. 9	Pro-forma of Participation from each partner of JV
Form No. 10	Power of Attorney for authorized signatory of JV Partners
Form No. 11	Power of Attorney to lead partner of JV
Form No. 12	Proforma for Time Extension
Form No. 13	Certificate of Fitness
Form No. 14	Proforma of 7 days' Notice
Form No. 15	Proforma of 48 Hours' Notice
Form No. 16	Proforma of Termination Notice
Form No. 17	Format of Integrity pact.
Form No. 18	Format for affidavit to be uploaded by tenderer along with the tender document
Form No. 19	Final Supplementary Agreement
Form No.20	Proforma for Certification by Arbitrators appointed under Cl. 63 & 64 of GCC
Form No.21	Proforma for Agreement for Arbitration
Form No. 22	Price schedule for Inspection of Bridges

OFFER LETTER**Tender No.****Dated:****Name of Work:** [name of work] on Consultancy Mode

To,

[Name of CGM unit & address]

I/We, the undersigned, declare that:

- 1) I/We _____ have read the various conditions to tender attached hereto and agree to abide by the said conditions. I/We also agree to keep this offer open for acceptance for a period of **120 days** from the date fixed for closing of the tender and in default thereof, I/We will be liable for forfeiture of my/our "Bid Security". I/We offer to do the work for [Name of work] on Consultancy Mode at the rates quoted in the attached bill(s) of quantities and hereby bind myself/ourselves to complete the work in all respects within [mention the duration of work] months from the date of issue of letter of acceptance of the tender.
- 2) I/We also-hereby agree to abide by the General Conditions of Contract, with all correction slips up-to-date and to carry out the work according to the Special Conditions of Contract and Specifications of materials and works as laid down by DFCCIL in the annexed Special Conditions/Specifications, for the present contract.
- 3) A Bid Security of ₹ _____ has already been deposited online/ submitted as Bank Guarantee bond. Full value of the Bid Security shall stand forfeited without prejudice to any other right or remedies in case my/our Tender is accepted and if:
 - (a) I/We do not submit the Performance Guarantee within the time specified in the Tender document;
 - (b) I/We do not execute the contract documents within seven days after receipt of notice issued by the DFCCIL that such documents are ready; and
 - (c) I/We do not commence the work within fifteen days after receipt of orders to that effect.
- 4) I/We am/are a Startup firm registered by Department of Industrial Policy and Promotion (DIPP) and my registration number is valid upto (Copy enclosed) and hence exempted from submission of Bid Security.
- 5) We are a Labour Cooperative Society and our Registration No. is withand hence required to deposit only 50% of Bid Security.
- 6) Until a formal agreement is prepared and executed, acceptance of this tender shall constitute a binding contract between us subject to modifications, as may be mutually agreed to between us and indicated in the letter of acceptance of my/our offer for this work.
- 7) We have not been blacklisted/banned in accordance with Preamble and General Instructions to tenderers.
- 8) We are neither Bankrupt/Insolvent nor in the process of winding-up nor there is a case pending before any Court on deadline of submission of the Bid.
- 9) If our bid is accepted, we commit to deploy all key experts as indicated in this Bid, and
- 10) All information, statements and description in this bid are in all respect true, correct and complete to the best of our knowledge and belief and we have not made any tampering or changes in the bidding documents on which the bid is being submitted and if any tampering or changes/incorrect information are detected at any stage, we understand the bid will invite summarily rejection and forfeiture of bid security, the contract will be liable to be terminated along with forfeiture of performance security, even if LOA has been issued.

DFC-DDU-BRI-INS-2024
SIGNED, SEALED AND DELIVERED

By the said _____ Name

By the said _____ Name

On behalf of the Contractor in the Presence of

On behalf of the Contractor in the Presence of

Witness: _____

Witness: _____

Name: _____

Name: _____

Address: _____

Address: _____

Enclosures:- Complete Bid document (Total --- Pages).

TENDERER'S CREDENTIALS

S. No	Description
1.	For technical experience/competence, give details of similar completed works during the last three financial years (i.e., current financial year and three previous Financial Years) in the proforma given in Form-2A
2.	For financial capacity and organizational resources, give details of contractual payments received for the last three financial years (i.e., current financial year and three previous financial years) as per audited balance sheet certified by Chartered Accountant in the proforma given in Form-2B
3.	Give the constitution of your firm. Attach certified copies of legal documents in support thereof. Form-2C

TECHNICAL ELIGIBILITY CRITERIA DETAILS

**Details of the similar works completed
(As per Para 1.3.17 (A) of Preamble and General Instructions to Tenderers)**

Similar Contract No.		
Contract Identification		
Award date		
Completion date		
Role in Contract	Prime Contractor	Member in JV
Total Contract Amount (Rs.)		
If member in a JV, specify participation in total Contract amount	<i>[insert a percentage amount]</i>	<i>Total contract amount in Rs.</i>
Employer's Name: Address: Telephone/fax number E-mail:		
Description of the similarity in accordance with Criteria 1.3.17 (A)		

The bidder shall attach Certified completion certificates issued by the client duly attested by Notary as per Eligibility Criteria of the tender documents.

Signature of the
Tenderer with Seal

FINANCIAL ELIGIBILITY CRITERIA DETAILS
(As per Para 1.3.17 (B) of Preamble and General Instructions to Tenderers)

Each Bidder or each member of a JV must fill in this form separately:

NAME OF BIDDER/JV PARTNER:

Annual Contractual Turnover Data for the Previous 3/4 Years (Contractual Payment only)			
Year	Amount Currency	Exchange Rate	Indian National Rupees Equivalent
Average Annual Contractual Turnover for last 3 years			

- The average annual contractual turnover shall be calculated as an average of "total contractual payments" in the previous three financial years. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover.
- The information supplied shall be substantiated by data in the audited balance sheets and profit and loss accounts for the relevant years in respect of the bidder or all members constituting the bidder.
- Contents of this form should be certified by a Chartered Accountant duly supported by Audited Balance Sheet duly certified by the Chartered Accountant.
- The bidder shall attach necessary documents in support of the above.**

SEAL AND SIGNATURE OF THE BIDDER

Certified that all figures and facts submitted in this form have been furnished after full consideration of all observations/notes in Auditor's reports. _____

(Signature of Chartered Accountant)

Name of CA: _____

Registration No: _____

(Seal)

APPLICANT'S PARTY INFORMATION FORM

<p>Applicant name: <i>[insert full name]</i></p>
<p>Applicant's Party name: <i>[insert full name of Applicant's Party]</i></p>
<p>Applicant's Party country of registration: <i>[indicate country of registration]</i></p>
<p>Applicant Party's year of constitution: <i>[indicate year of constitution]</i></p>
<p>Applicant Party's legal address in country of constitution: <i>[insert street/ number/ town or city/ country]</i></p>
<p>Applicant Party's authorized representative information Name: <i>[insert full name]</i> Address: <i>[insert street/ number/ town or city/ country]</i> Telephone/Fax numbers: <i>[insert telephone/fax numbers, including country and citycodes]</i> E-mail address: <i>[indicate e-mail address]</i></p>
<p>1. Attached are copies of original documents of D Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above. D In case of a government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status.</p> <p>2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.</p>

Signature of the Tenderer with Seal

CGM /DDU/ DFCCIL

CONTRACT AGREEMENT OF CONSULTANCY WORKS

THIS AGREEMENT ("Agreement") is made at _____ on the ____ day of _____ BETWEEN Dedicated Freight Corridor Corporation of India Ltd, a Govt. of India Enterprise under Ministry of Railways and a company incorporated under the provisions of the Companies Act, 1956/2013 having it's registered office at 5th Floor, Supreme Court Metro Station Complex, New Delhi-110001 represented through its Managing Director or acting through the GM/Technical (hereinafter referred to as "DFCCIL" which expression shall, unless repugnant to the context, be deemed to include it's successors and assigns' of the one part and __ (complete address and legal status) _____, a company / corporation / JV incorporated under the laws of _____ having its principal place of business at _____ (herein after called the "Contractor or Consultant" which expression shall, unless repugnant to the context, be deemed to include it's successors and assigns) of other part.

WHEREAS the Contractor has agreed with the DFCCIL for performance of the works _____ set forth in the SOR hereto annexed upon the General Conditions of Contract, and the Specifications of _____ and the Special Conditions and Special Specifications, if any and in conformity with the drawings here-into annexed AND WHEREAS the performance of the said works is an act in which the public are interested.

NOW THIS INDENTURE WITNESSETH that in consideration to the payments to be made by the DFCCIL, the Consultant will duly perform the said works in the said SOR set forth and shall execute the same with great promptness, care and accuracy in a workman like manner to the satisfaction of the DFCCIL and will complete the same in accordance with the said specifications and said drawings and said conditions of contract on or before the ____ day of _____ 20__ and will maintain the said works for a period of _____ Calendar months from the certified date of their completion and will observe, fulfill and keep all the conditions therein mentioned (which shall be deemed and taken to be part of this contract, as if the same have been fully set forth herein), and the DFCCIL, both hereby agree that if the Contractor shall duly perform the said works in the manner aforesaid and observe and keep the said terms and conditions, the DFCCIL will pay or cause to be paid to the Consultant for the said works on the final completion thereof the amount due in respect thereof at the rates specified in the SOR hereto annexed.

This Agreement shall not be varied, altered, modified, cancelled, changed, or in any way amended except by mutual agreement of the parties in a written instrument executed by the parties hereto, their legal representatives or their respective successors or assignees. In case any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement, but this Agreement shall be construed as if such invalid or illegal or unenforceable provision had never been contained herein.

IN WITNESS WHEREOF the parties hereto have caused their respective Common Seals to be hereunto affixed/ (or have hereunto set their respective hands and seals) the day and year first above written.

For and on behalf of the Contractor

For and on behalf of the DFCCIL

Signature of the authorized official
Name of the official

Signature of the authorized official
Name of the official

Stamp/seal of the Contractor

Stamp/Seal of the DFCCIL

SIGNED, SEALED AND DELIVERED

By the said _____Name

By the said _____Name

On behalf of the Contractor in the presence of:

On behalf of the DFCCIL in the presence of:

Witness _____

Witness _____

Name _____

Name _____

Address _____

Address _____

Enclosures:-

1. Tender Papers No.

2. Letter of Acceptance of Tender No. _____ Dated _____ along with Summary of Prices

(Refer Clause 1.3.11.22 of Chapter-III of Part-I)

PROFORMA FOR BANK GUARANTEE FOR BID GUARANTEE/BID SECURITY*(On non-judicial stamp paper, which should be in the name of the Executing Bank).*

Ref.: _____

Date: _____

(ON BANK'S LETTER-HEAD WITH ADHESIVE STAMP) .

To

The Managing Director
 acting General Manager (Technical), Room No. 324,
 Corporate Office, Dedicated Freight Corridor
 Corporation of India Ltd., 3rd floor, Supreme Court
 Metro Station Building Complex, Pragati Maidan,
 New Delhi -110001, INDIA

Dear Sir,

Bank Guarantee Bond No.:**Date:-----**

In consideration of the Managing Director/DFCCIL acting through-----
(Designation & address of Contract Signing Authority), DFCCIL (hereinafter
 called "The DFCCIL") having invited the bid for _____ through Notice inviting
 tender (NIT) No.. _____, We have been informed that **[Insert name of
 the Bidder]**..... **(hereinafter called "the Bidder")** intends to submit its bid
 (hereinafter called "the Bid") .

WHEREAS, the Bidder is required to furnish Bid Security for the sum of **[Insert
 required Value of Bid Security]**, in the form of Bank Guarantee, according to
 conditions of Bid.

AND

WHEREAS,**[Insert Name of the Bank]**, with its Branch**[Insert
 Address]** having its Headquarters office at..... **[Insert Address]**, hereinafter called
 the **Bank**, acting through**[Insert Name and Designation of the
 authorised persons of the Bank]**, have, at the request of the Bidder, agreed to
 give guarantee for Bid Security as hereinafter contained, in favour of the DFCCIL:

1. KNOW ALL MEN that by these present that I/We the undersigned **[Insert name(s)
 of authorized representatives of the Bank]**, being fully authorized to sign and
 incur obligations for and on behalf of the Bank, confirm that the Bank, hereby,
 unconditionally and irrevocably guarantee to pay to the DFCCIL full amount in the
 sum of **[Insert required Value of Bid Security]** as above stated.
2. The Bank undertakes to immediately pay on presentation of demand by the DFCCIL
 any amount up to and including aforementioned full amount without any demur,
 reservation or recourse. Any such demand made by the DFCCIL on the Bank shall
 be final, conclusive and binding, absolute and unequivocal on the Bank
 notwithstanding any disputes raised/ pending before any Court, Tribunal,
 Arbitration or any Authority or any threatened litigation by the Bidder or Bank.
3. The Bank shall pay the amount as demanded immediately on presentation of the
 demand by DFCCIL without any reference to the Bidder and without the DFCCIL
 being required to show grounds or give reasons for its demand of the amount so
 demanded.

4. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Bidder.
5. The Bank agrees that no change, addition, modifications to the terms of the Bid document or to any documents, which have been or may be made between the DFCCIL and the Bidder, will in any way absolve the Bank from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification made by DFCCIL at any time.
6. This guarantee will remain valid and effective from.....***[insert date of issue]***till***[insert date, which should be minimum 60 days beyond the expiry of validity of Bid]***. Any demand in respect of this Guarantee should reach the Bank within the validity period of Bid Security.
7. The Bank Guarantee is unconditional and irrevocable.
8. The expressions Bank and DFCCIL herein before used shall include their respective successors and assigns.
9. The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the DFCCIL. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No.758.
10. The Bank hereby confirms that it is on the SFMS (Structured Financial Messaging System) and shall invariably send the advice of this Bank Guarantee to the following bank details –

IFSC CODE	UBIN0546836
IFSC TYPE	BRANCH
BANK NAME	Union Bank of India,
BRANCH NAME	Motibagh Branch
CITY NAME	New Delhi
ADDRESS	Moti Bagh -1, New Delhi - 110066
STATE	DELHI
BG ENABLED	YES

11. The Guarantee shall be valid in addition to and without prejudice to any other security Guarantee(s) of Bidder in favour of the DFCCIL. The Bank, under this Guarantee, shall be deemed as Principal Debtor of the DFCCIL.

Date

Bank's Seal and authorized signature(s)

[Name in Block letters]
[Designation with Code]

No.]/.....

[P/Attorney] No.

Witness:

- 1 Signature, Name & Address & Seal
- 2 Signature, Name & address & Seal

(Bank's Common Seal)

Note:

1. It shall be ensured that the complete particulars of the Banks' (issuing bank guarantee) mailing address including telephone number, fax number & E-mail ID are invariably indicated on the Bank Guarantee.
2. All italicized text is for guidance on how to prepare this bank guarantee and shall be deleted from the final document.

SAMPLE

(Refer Clause 1.3.28 of Chapter-III of Part-I)

Name of the Bank _____

Managing Director/ DFCCIL Bank Guarantee Bond No.____
 Acting through _____[Designation Dated _ and address of contract signing authority]

PERFORMANCE GUARANTEE BOND

In consideration of the Managing Director/ DFCCIL acting through [Designation & Address of Contract Signing Authority], Dedicated Freight Corridor Corporation of India Limited, [New Delhi] hereinafter called "DFCCIL" having agreed under the terms and conditions of agreement/Contract Acceptance letter No. _____ dated made between _____(Designation & address of contract signing Authority) and _____(hereinafter called "the said contractor(s)" for the work_____ (hereinafter called "the said agreement") having agreed for submission of a irrevocable Bank Guarantee Bond for Rs._____ (Rs. __only) as a performance security Guarantee Bond from the contractor(s) for compliance of his obligations in accordance with the terms & conditions in the said agreement.

1. We _____(indicate the name of the Bank) hereinafter referred to as the Bank, undertake to pay to the DFCCIL an amount not exceeding Rs. _____(Rs. _____only) on demand by the DFCCIL.
2. We _____(indicate the name of the bank, further agree that (and promise) to pay the amounts due and payable under this guarantee without any demur merely on a demand from the DFCCIL through the GROUP GENERAL MANAGER/ FINANCE Dedicated Freight Corridor Corporation of India Limited, New Delhi or _____ (Designation & Address of contract signing authority) DFCCIL, stating that the amount claimed is due by way of loss or damage caused to or would be caused or suffered by the DFCCIL by reason of any breach by the said contractor of any of the terms or conditions contained in the said agreement or by reason of the contractor failure to perform the said agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____ (Rs. __only)
- 3 (a) We, __ (indicate the name of Bank) further undertake to pay to the DFCCIL any money so demanded notwithstanding any dispute or dispute raised by the contractor (s) in any suit or proceeding pending before any court or Tribunal relating to liability under this present being absolute and unequivocal.
- (b) The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.
4. We, _ (indicate the name of bank) to further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the DFCCIL under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged by _____(Designation & Address of contract signing authority) on behalf of the DFCCIL, certify that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor (s) and accordingly discharges this guarantee
5. (a) Notwithstanding any thing to the contrary contained herein the liability of the bank under this guarantee will remain in force and effect until such time as this guarantee is discharged in writing by the DFCCIL or until (date of validity/extended validity) whichever is earlier and no claim shall be valid under this guarantee unless notice in writing thereof is given by the DFCCIL within validity / extended period of validity of guarantee from the date aforesaid.
- (b) Provided always that we _____(indicate the name of the Bank) unconditionally undertakes to renew this guarantee to extend the period of guarantee form year to year before the expiry of the period or the extended period of the guarantee, as the case may be on being called upon to do so by the DFCCIL. If the guarantee is not renewed or the period extended on demand, we (indicate the name of the Bank) shall pay the DFCCIL the full amount guarantee on demand and without demur.
6. We, _____ (indicate the name of Bank) further agree with the DFCCIL that the DFCCIL shall have the fullest liberty without our consent and without effecting in any manner out of obligations hereunder to vary any of the terms and conditions of the said contract from time to time or to postpone for any time or from time to time any to the powers exercisable by the DFCCIL against the said contractor (s) and to forbear or enforce any of the terms and conditions of the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said contractor (s) or for any bearance act or omission on the part of the DFCCIL or any indulgence by the DFCCIL to the said contractor (s) or by any such matter or thing whatsoever which under the

Signature of the Tenderer

Rajish Kumar

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law relating to sureties for the said reservation would relive us from the liability.

- 7. This guarantee will not be discharged by any change in the constitution of the Bank or the Contractor (s).
- 8. We, _____(indicate the name of the Bank) lastly undertake not to revoke this guarantee except with the previous consent of the DFCCIL in writing.
- 9. This guarantee shall be valid upto _____ (Date of completion plus 60 days beyond that). Unless extended on demand by DFCCIL. Notwithstanding anything to the contrary contained herein before, our liability under this guarantee is restricted to Rs. _____ (Rs/ _____ only) unless a demand under this guarantee is made on us in writing on or before _____ we, shall be discharges from our liabilities under this guarantee thereafter

Dated _____ the day of _____ for _____
_____ (indicate the anme of bank)

Signature of Bank Authorize official (Name):
Designation:
Full Address

Witness:

- 1. _____
- 2. _____

SAMPLE**STANDING INDEMNITY BOND FOR PAYMENTS
(Against supply and installation and functionality of material/equipment/sensors)****(On paper of requisite stamp value)**

We, M/s _____ hereby undertake that we hold at our stores Depot/s at _____ for and on behalf of the Managing Director/ DFCCIL acting in the premises through the [Chief Project Manager]/DFCCIL or his successor (hereinafter referred to as "The Employer") all materials for which "On Account" payments have been made to us against the Contract for _____ (_____) on the section _____ DFCCIL also referred to as Group/s _____ vide letter of Acceptance of Tender _____ dated _____ and material handed over to us by the employer for the purpose of execution of the said contract, until such time the materials are duly erected or otherwise handed over to him.

We shall be entirely responsible for the safe custody and protection of the said materials against all risk till they are duly delivered as erected equipment to the employer or as he may direct otherwise and shall indemnify the employer against any loss/damage or deterioration whatsoever in respect of the said material while in our possession and against disposal of surplus materials. The said materials shall at all times be open to inspection by any officer authorized by the [CPM] in charge of Dedicated Freight Corridor Corporation of India Limited.

Should any loss, damage or deterioration of materials/equipment/sensors occur or surplus material disposed off and refund becomes due, the Employer shall be entitled to recover from us the 85% of supply portion to the Contract (as applicable) and also compensation for such loss or damage if any long with the amount to be refunded without prejudice to any other remedies available to him by deduction from any sum due or any sum which at any time hereafter becomes due to us under the said or any other Contract.

Dated this day __day of _202

for and on behalf of

M/s _____ (Contractor) Signature of
witness

Name of witness in Block letter.

Address.

**ECS / NEFT / RTGS
MANDATE FORM**

Date :

To,

[Designation of Finance Officer of CGM unit]

Sub : ECS / NEFT / RTGS payments

We refer to the ECS / NEFT / RTGS set up by DFCCIL for remittance of our payments using RBI's NEFT / RTGS scheme, our payments may be made through the above scheme to our under noted account.

Name of Bank	
Name of City	
Bank Code No	
Name of Bank Branch	
Branch Code No	
Address of Bank Branch	
Telephone Number of Bank Branch	
Fax No of Bank Branch	
Name of customer / Tenderer as per account	
Account Number of Tenderer appearing on cheque book	
Type of Account (S. B. / Current / Cash credit)	
IFSC code for NEFT	
IFSC code for RTGS	
9-Digit-code number of the bank and branch appearing on the MICR cheque issued by the bank.	
GST Number	
PAN Number	
Details of Cancelled Cheque leaf	
Telephone no of tenderer	
Cell Phone Number of the tenderer to whom details with regard to the status of bill submitted to Accounts Office i.e Co6 & Co7 & Cheque Purchase Orders particulars can be intimated through SMS	
Tenderer's E - mail ID	

Confirmed by Bank signature of tenderer with stamp and address
Enclose a copy of crossed cheque

DRAFT MEMORANDUM OF UNDERSTANDING (MOU) For JOINT VENTURE PARTICIPATION BETWEEN

((Refer Clause 1.3.24.14.3 of Chapter-III of Part-I)

M/s having its registered office at (hereinafter referred to as) acting as the Lead Partner of the first part,
and

M/s having its registered office at (hereinafter referred to as) in the capacity of a Joint Partner of the other part.
and

M/s having its registered office at (hereinafter referred to as) in the capacity of a Joint Partner of the other part.

The expressions of and shall wherever the context admits, mean and include their respective legal representatives, successors-in-interest and assigns and shall collectively be referred to as “the Parties” and individually as “ the Party”

WHEREAS:

Dedicated Freight Corridor Corporation of India Limited (DFCCIL) [hereinafter referred to as “Client”] has invited bids for ... “[Insert name of work].....”

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. The following documents shall be deemed to form and be read and construed as an integral part of this MOU.
 - (i) Notice for Bid, and
 - (ii) Bidding document
 - (iii) Any Addendum/ Corrigendum issued by Dedicated Freight Corridor Corporation of India Limited
 - (iv) The bid submitted on our behalf jointly by the Lead Partner.
2. The `Parties` have studied the documents and have agreed to participate in submitting a `bid` jointly.
3. M/sshall be the lead member of the JV for all intents and purpose and shall represent the Joint Venture in its dealing with the Client. For the purpose of submission of bid proposals, the parties agree to nominate as the leader duly authorized to sign and submit all documents and subsequent clarifications, if any, to the Client. However M/s shall not submit any such proposals, clarifications or commitments before securing the written clearance of the other partner which shall be expeditiously given by M/s.....to M/s.....
4. The `Parties` have resolved that the distribution of responsibilities and their proportionate share in the Joint Venture is as under:
 - (a). Lead Partner;
 - (i)
 - (ii)
 - (iii)
 - (b). Joint Venture Partner
 - (i)
 - (ii)
 - (iii)

[Similar details to be given for each partner]

5. JOINT AND SEVERAL RESPONSIBILITIES

The Parties undertake that they shall be jointly and severally liable to the Client in the discharge of all the obligations and liabilities as per the contract with the Client and for the performance of contract awarded to their JV.

6. ASSIGNMENT AND THIRD PARTIES

The parties shall co-operate throughout the entire period of this MOU on the basis of exclusivity and neither of the Parties shall make arrangement or enter into agreement either directly or

indirectly with any other party or group of parties on matters relating to the Project except with prior written consent of the other party.

7. EXECUTIVE AUTHORITY

The said Joint Venture through its authorized representative shall receive instructions, payments from the Client. The management structure for the project shall be prepared by mutual consultations to enable completion of project to quality requirements within permitted cost and time.

8. BID SECURITIES

Till the award of the work, JV firm/Lead Partner of JV firm shall furnish Bid Security to the Client on behalf of the joint venture which shall be legally binding on all the members of the Joint Venture.

9. BID SUBMISSION

Each Party shall bear its own cost and expenses for preparation and submission of the bid and all costs until conclusion of a contract with the Client for the Project. Common expenses shall be shared by all the parties in the ratio of their actual participation.

10. INDEMNITY

Each party hereto agrees to indemnify the other party against its respective parts in case of breach/default of the respective party of the contract works of any liabilities sustained by the Joint Venture.

11. For the execution of the respective portions of works, the parties shall make their own arrangements to bring the required finance, plants and equipment, materials, manpower and other resources.

12. DOCUMENTS & CONFIDENTIALITY

Each Party shall maintain in confidence and not use for any purpose related to the Project all commercial and technical information received or generated in the course of preparation and submission of the bid.

13. ARBITRATION

Any dispute, controversy or claim arising out of or relating to this agreement shall be settled in the first instance amicably between the parties. If an amicable settlement cannot be reached as above, it will be settled by arbitration in accordance with the Indian Arbitration and Conciliation Act 1996 or any amendments thereof. The venue of the arbitration shall be Delhi.

14. VALIDITY

This Agreement shall remain in force till the occurrence of the earliest to occur of the following, unless by mutual consent, the Parties agree in writing to extend the validity for a further period.

- a. The bid submitted by the Joint Venture is declared unsuccessful, or
- b. Cancellation/ shelving of the Project by the client for any reasons prior to award of work
- c. Execution of detailed JV agreement by the parties, setting out detailed terms after award of work by the Client.

15. This MOU is drawn in number of copies with equal legal strength and status. One copy is held by M/s and the other by M/s.....&M/s and a copy submitted with the proposal.

16. This MOU shall be construed under the laws of India.

17. NOTICES

Notices shall be given in writing by fax confirmed by registered mail or commercial courier to the following fax numbers and addresses:

Lead Partner	Other Partner(s)
.....
(Name & Address)	(Name & Address)

IN WITNESS WHEREOF THE PARTIES, have executed this MOU the day, month and year first before written.

M/s.....	M/s.....
.....
(Seal)	(Seal)

Witness
 1.....(Name & Address)
 2..... (Name & Address)

Notes: (1) In case of existing joint venture, the certified copy of JV Agreement may be furnished

DRAFT FORMAT OF JOINT VENTURE AGREEMENT

To be executed on non-judicial stamp paper of appropriate value in accordance with relevant Stamp Act and to be registered with appropriate authority under Registration Act.

The JV agreement shall be structured generally as per contents list given below:

A. CONDITIONS AND TERMS OF JV AGREEMENT

1. Definitions and Interpretation
2. Joint Venture – Include Equity of members, transferability of shareholding of equity of a partner leaving during the subsistence of the contract.
3. Proposal Submission
4. Performance – To indicate scope of responsibility of each member
5. Language and Law
6. Exclusively
7. Executive Authority
8. Documents
9. Personnel
10. Assignment and Third Parties
11. Severability
12. Member in Default
13. Duration of the Agreement
14. Liability and sharing of risks
15. Insurance
16. Sharing of Promotion and Project Costs, Profits, Losses and Remuneration
17. Financial Administration and Accounting
18. Guarantees and Bonds
19. Arbitration
20. Notices
21. Sole Agreement and Variation

B. SCHEDULES

1. Project and Agreement Particulars
2. Financial Administration Services
3. Allocation of the obligations
4. Financial Policy and Remuneration

PRO-FORMA LETTER OF PARTICIPATION FROM EACH PARTNER OF JOINT VENTURE (JV)

(To be executed on non-judicial stamp paper of appropriate value in accordance with relevant Stamp Act and to be registered with appropriate authority under Registration Act.)

No....

Dated

From:

.....

.....

To,

[Name and address of CGM unit]

Re: ... "[Insert name of work].....".

Ref: Your notice for Invitation for

dated

1. We wish to confirm that our company/firm has formed a Joint Venture with(i)..... & ii)..... for the purposes associated with IFB referred to above.

(Members who are not the lead partner of the JV should add the following paragraph).*

2. The JV is led by ... whom we hereby authorise to act on our behalf for the purposes of submission of Bid for and authorise to incur liabilities and receive instructions for and on behalf of any and all the partners or constituents of the Joint Venture.'

OR

*(Member(s) being the lead member of the group should add the following paragraph)**

3. In this group we act as leader and, for the purposes of applying for Bid, represent the Joint Venture:
4. In the event of our JV being awarded the contract, we agree to be jointly with i) & ii) (names of other members of our JV) and severally liable to the Dedicated Freight Corridor Corporation of India Limited, its successors and assigns for all obligations, duties and responsibilities arising from or imposed by the contract subsequently entered into between Dedicated Freight Corridor Corporation of India Limited and our JV.
5. *I/We, further agree that entire execution of the contract shall be carried out exclusively through the lead partner.

Yours faithfully, (Signature)

(Name and capacity of Signatory).....

Company Seal

* Delete as applicable

Note : In case of existing joint venture, the certified copy of JV Agreement may be furnished

FORMAT FOR POWER OF ATTORNEY FOR AUTHORISED SIGNATORY OF JOINT VENTURE (JV) PARTNERS

POWER OF ATTORNEY*

(To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant stamp Act. The stamp paper to be in the name of the company who is issuing the power of Attorney)

Know all men by these presents, we ... do hereby constitute, appoint and authorise Mr/Ms. who is presently employed with us and holding the position ofas our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our bid for the work of ... Including signing and submission of all documents and providing information / responses to Dedicated Freight Corridor Corporation of India Limited , representing us in all matters, dealing with Dedicated Freight Corridor Corporation of India Limited in all matters in connection with our bid for the said project.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

Dated this the day of 202..

(Signature of authorised Signatory)

Signature of Lead Partner

Signature of JV Partner(s)

.....

.....

**(Signature and Name in Block letters of Signatory)
Seal of Company**

Witness

Witness 1 : Name

Address :

Occupation:

Witness 2:

Address:

*Notes: i) To be executed by all the partners jointly, in case of a Joint Venture

FORMAT FOR POWER OF ATTORNEY TO LEAD PARTNER OF JOINT VENTURE (JV)

(To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant stamp Act. The stamp paper to be in the name of the company who is issuing the power of Attorney)

“POWER OF ATTORNEY*"

Whereas Dedicated Freight Corridor Corporation of India Limited has invited Bids for the work of “[name of work] on Consultancy Mode."

Whereas, the members of the Joint Venture comprising of M/s. ..., M/s. ..., M/s., and M/s. are interested in submission of bid for the work of ...*[Insert name of work]*... in accordance with the terms and conditions contained in the bidding documents.

Whereas, it is necessary for the members of the Joint Venture to designate one of them as the Lead Partner, with all necessary power and authority to do, for and on behalf of the Joint Venture, all acts, deeds and things as may be necessary in connection with the Joint Venture's bid for the project, as may be necessary in connection the Joint Venture's bid for the project.

NOW THIS POWER OF ATTORNEY WITNESSETH THAT:

We, M/s., hereby designate M/s., being one of the partners of the Joint Venture, as the lead partner of the Joint Venture, to do on behalf of the Joint Venture, all or any of the acts, deeds or things necessary or incidental to the Joint Venture's bid for the contract, including submission of bid, participating in conferences, responding to queries, submission of information/ documents and generally to represent the Joint Venture in all its dealings with the DFCCIL or any other Government Agency or any person, in connection with the Bid/contract for the said work until culmination of the process of bidding till the contract agreement if successful, is entered into with the Dedicated Freight Corridor Corporation of India Limited and thereafter till the expiry of the contract agreement.

**To be executed by all the members of the JV except the lead member. The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.*

We hereby agree to ratify all acts, deeds and things lawfully done by lead member, our said attorney, pursuant to this power of attorney and that all acts deeds and things done by our *aforesaid* attorney shall and shall always be deemed to have been done by us/ Joint Venture.

Dated this the Day of 202

.....

(Signature)

..... (Name in Block letters of Executants) Seal of Company

Witness 1	
Name:	
Address:	
Occupation:	
Witness 2	
Name:	
Address:	
Occupation:	

PROFORMA FOR TIME EXTENSION

No. _____

Dated: _____

Sub: (i) _____ (name of work).

(ii) Acceptance letter no. _____

(iii) Understanding/Agreement no. _____

Ref: _____ (Quote specific application of Consultant/Contractor for extension to the date received) _____

Dear Sir,

1. The stipulated date for completion of the work mentioned above is _____. From the progress made so far and the present rate of progress, it is unlikely that the work will be completed by the above date (or 'However, the work was not completed on this date').
2. Expecting that you may be able to complete the work if some more time is given, the competent authority, although not bound to do so, hereby extends the time for completion from _____ to _____.
3. Please note that an amount equal to the liquidated damages for delay in the completion of the work after the expiry of _____ (give here the stipulated date for completion with/ without any liquidated damage fixed earlier) will be recovered from you as mentioned in Clause 17B of the GCC for the extended period, notwithstanding the grant of this extension. You may proceed with the work accordingly.
4. The above extension of the completion date will also be subject to the further condition that no increase in rates on any account will be payable to you.
5. Please intimate within a week of the receipt of this letter your acceptance of the extension of the conditions stated above.
6. Please note that in the event of your declining to accept the extension on the above said conditions or in the event of your failure after accepting or acting upto this extension to complete the work by _____ (here mention the extended date), further action will be taken in terms of Clause 62 of the GCC.

Yours faithfully

For and on behalf of the DFCCIL
 Name of the Official:-
 Stamp/Seal of the DFCCIL

CERTIFICATE OF FITNESS

1. (a) Serial Number _____
(b) Date _____
2. Name of person examined _____
3. Father's Name: son/daughter of _____
Residing at _____
4. Sex _____
5. Residence: _____
6. Physical fitness
7. Identification marks _____
8. Date of birth, if available, and/or certified age _____

I certify that I have personally examined (name) _____ who is desirous of being employed in a factory or on a work requiring manual labour and that his/her age as nearly as can be ascertained from my examination, is _____ years.

I certify that he/she is fit for employment in a factory or on a work requiring manual labour as an adult/child.

9. Reasons for :
(a) Refusal to grant certificate, or _____
(b) Revoking the certificate _____

Signature or left hand

Thumb impression of the person examined.

Signature of Certifying Surgeon

Note: In case of physical disability, the exact details and cause of the physical disability should be clearly stated.

PROFORMA OF 7 DAYS NOTICE

(Without Prejudice)

To

M/s _____

Dear Sir,

Contract Agreement No. _____

In connection with _____

1. In spite of repeated instructions to you by the subordinate offices as well as by this office through various letters of even no. _____, dated _____; you have failed to start work/show adequate progress and/or submit detailed programme for completing the work/ part of work (details of part of work to be mentioned).
2. Your attention is invited to this office/_____office letter no. _____, dated _____ in reference to your representation, dated _____.
3. As you have failed to abide by the instructions issued to commence the work /to show adequate progress of work you are hereby given 7 days' notice in accordance with Clause 62 of the General Conditions of Contract to commence works / to make good the progress, failing which further action as provided in Clause 62 of the GCC viz. to terminate your Contract and complete the balance work without your participation will be taken.

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the DFCCIL
Name of the Official: -
Stamp/Seal of the DFCCIL

PROFORMA OF 48 HRS. NOTICE

(Without Prejudice)

To

M/s _____

Dear Sir,

Contract Agreement No. _____

In connection with _____

1. Seven days' notice under Clause 62 of the GCC was given to you under this office letter of even no., dated _____; but you have taken no action to commence the work/show adequate progress of the work.
2. You are hereby given 48 hours' notice in terms of Clause 62 of the GCC to commence works / to make good the progress of works, failing which and on expiry of this period your above contract will be rescinded and the work under this contract will be carried out independently without your participation and your Security Deposit shall be forfeited and Performance Guarantee shall also be encashed and any other consequences which may please be noted.

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the DFCCIL

Name of the Official: -
Stamp/Seal of the DFCCIL

PROFORMA OF TERMINATION NOTICE

(Without Prejudice)

No. _____

Dated _____

To

M/s _____

Dear Sir,

Contract Agreement No. _____

In connection with _____

1. Forty-eight hours (48 hrs.) notice was given to you under this office letter of even no., dated _____; but you have taken no action to commence the work/show adequate progress of the work.
2. Since the period of 48 hours' notice has already expired, the above contract stands rescinded in terms of Clause 62 of the GCC and the balance work under this contract will be carried out independently without your participation. Your participation as well as participation of every member/partner in any manner as an individual or a partnership firm/JV is hereby debarred from participation in the tender for executing the balance work and your Security Deposit shall be forfeited and Performance Guarantee shall also be encashed.

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the DFCCIL

Name of the Official: -

Stamp/Seal of the DFCCIL

Performa for Integrity Pact

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on-----
 --day of the month of----- 2022, between, on one hand, the DFCCIL acting through
GM/Tech/DFCCIL, (hereinafter called the CLIENT, which expression shall mean and include, unless the
 context otherwise requires, his successors in office and assigns) of the First Part and M/s-- -----
 represented by Shri -----Chief Executive Officer (hereinafter called the "BIDDER" which
 expression shall mean and include, unless the context otherwise requires, his successors and permitted
 assigns) of the Second part.

WHEREAS the CLIENT proposes to procure (Name of the Consultancy Service, Name of Works Contract) and
 the [A] is willing to Offer/has offered for works.

WHEREAS the [A] is a private company/ public company/ Government undertaking/ partnership/ registered
 export agency, constituted in accordance with the relevant law in the matter and the CLIENT is a PSU
 performing its functions or behalf of the President of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any
 influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered
 into with a view to:-

Enabling the CLIENT to obtain the desired said (Name of the Stores/Equipment/Item, Name of the
 Consultancy Service, Name of Works Contract, Name of Services) at a competitive price in conformity with
 the defined specifications by avoiding the high cost and the distortionary impact of corruption on public
 procurement, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure [B] by
 providing assurance to them that their competitors will also abstain from bribing and other corrupt practices
 and the CLIENT will commit to prevent corruption, in any form, by its Officials by following transparent
 procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

Commitments of the CLIENT

1. CLIENT undertakes that no official of the CLIENT, connected directly or indirectly with the [B], will
 demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift,
 reward, favour or any material or immaterial benefit or any other advantage from the [A] either for
 themselves or for any person, organization or third party related to the [B], in exchange for an advantage
 in the bidding process, bid evaluation, contracting or implementation process related to the [B].
- 1.0 The CLIENT will, during the pre-contract stage, treat all BIDDERS alike, and will provide to all BIDDERS
 the same information and will not provide any such information to any particular BIDDER which could
 afford an advantage to that particular [A] in comparison to other BIDDERS.
- 1.1 All the officials of the CLIENT will report to the appropriate Government office any attempted or
 completed breaches of the above commitments as well as any substantial suspicion of such a breach.
- 1.2 In case any such preceding misconduct on the part of such official(s) in reported by the [A] to the
 CLIENT with full, and verifiable facts and the same is prima facie found to be correct by the CLIENT,
 necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings
 may be initiated by the CLIENT and such a person shall be debarred from further dealings related to
 the [B] process. In such a case while an enquiry is being conducted by the CLIENT the proceedings
 under the [B] would not be stalled.

Commitments of BIDDERS

- 1.3 The [A] commits itself to take all measures necessary to prevent corrupt practices, unfair means and
 illegal activities during any stage of its bid or during any pre-contract or post-contract stage) in order
 to secure the [B] contract or in furtherance to secure it and in particular committee itself to the
 following:-

Signature of the Tenderer

Rajish Kumar

- 1.3.1 The [A] will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission fees, brokerage or inducement to any official of the CLIENT, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the [B] in exchange for any advantage in the bidding, evaluation, contracting and implementation of the [B].
- 1.3.2 The [A] further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any Material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the CLIENT or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the [B] or any other [B] with the Government for showing or forbearing to show favour or disfavour to any person in relation to the [B] or any other [B] with the Government.
- 1.3.3 * [A] shall disclose the name and address of agents and representatives and Indian [A] shall disclose their foreign principals or associates.
- 1.3.4 *[A] shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
- 1.3.5 The [A] further confirms and declares to the CLIENT that the [A] is the original manufacturer/integrator/authorized government sponsored export entity of the defense stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the CLIENT or any of its functionaries, whether officially or unofficially to the award of the [B] to the [A] nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation
- 1.3.6 The [A] either while presenting the bid or during pre-contract negotiations or before signing the [B] shall disclose any payments he has made, is committed to or intends to make to officials of the CLIENT or their family members, agents, brokers or any other intermediaries in connection with the [B] and the details of services agreed upon for such payments.
- 1.3.7 The [A] will not collude with other parties interested in the [B] to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the [B].
- 1.3.8 The [A] will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 1.3.9 The [A] shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the CLIENT as part of the business relationship, regarding plans, technical proposals and business details, including, information contained in any electronic data carrier. The [A] also undertakes to exercise due and adequate care lest any such information is divulged.
- 1.3.10 The [A] commits to refrain from giving any complaint directly or through any other manner without Supporting it with full and verifiable facts.
- 1.3.11 The [A] shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 1.3.12 If the, [A] or any employee of the [A] or any person acting on behalf of the [A], either directly or Indirectly, is a relative of any of the officers of the CLIENT, or alternatively, if any relative of an officer of the CLIENT has financial. Interest/stake in the Bidder's firm, the same shall be disclosed by the [A] at the time of filling of tender.
- 1.3.13 The term 'relative' for this purpose would be as defined in section 6 of the companies act 1956.
- 1.3.14 The [A] shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the CLIENT.

2. Previous Transaction

The [A] declares that no previous transgression occurred in the last three years immediately before signing of this integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any public sector enterprise in India or any Government department in India that could justify BIDDER's exclusion from the tender process.

The [A] agrees that if it makes incorrect statement on this subject, [A] can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

3. Earnest Money (Security Deposit)

- 3.1 While submitting commercial bid, the [A] shall deposit an amount (to be specified in BID) as Earnest Money/Security Deposit, with the CLIENT through any of the following instruments:
- (i). A confirmed guarantee by an Indian nationalized bank, promising payment of the guaranteed sum to the CLIENT on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the CLIENT shall be treated as conclusive proof of payment.
 - (ii). Any other mode or through any other instrument (to be specified in the BID).
- 3.2 The earnest money/Security deposit shall be valid up to a period of five years or the contractual obligations to the complete satisfaction of both the BIDDER and the CLIENT, including warranty period, whichever is later.
- 3.3 In case of the successful [A] a clause would also be incorporated in the article pertaining to performance Guarantee in the [B] that the provisions of sanctions for violation shall be applicable for forfeiture of performance bond in case of a decision by client to forfeit the same without assigning any reason for imposing sanction for violation of this pact.
- 3.4 No interest shall be payable by CLIENT to the [A] on earnest Money /Security Deposit for the period of its currency

4. Sanctions for Violations

- 4.1 Any breach of the aforesaid provisions by the [A] or any one employed by it or acting on its behalf (whether with or without the knowledge of the [A] shall entitle the CLIENT to take all or any one of the following actions, wherever required:-
- (i). To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the [A]. However, the proceedings with the other BIDDER(s) would continue.
 - (ii). The earnest money deposit (in pre-contract stage) and/or security Deposit/performance Bond (after the [B] is signed) shall stand forfeited fully and the CLIENT shall not be required to assign any reason therefore.
 - (iii). To immediately cancel the [B], if already signed, without giving any compensation to the [A].
 - (iv). To recover all sums already paid by the CLIENT, and in case of an Indian [A] with interest thereon at 2% higher than the prevailing prime lending rate of state bank of India, while in case of a [A] from the country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to [A] from the CLIENT in connection with any other [B], such outstanding payment could also be utilized to recover the aforesaid sum and interest.
 - (v). To encash the advance bank guarantee and performance bond, if furnished by the [A], in order to recover the payments, already made by CLIENT, along with interest.
 - (vi). To cancel all or any other contracts with the [A]. The [A] shall be liable to pay compensation for any loss or damage to the Client resulting from such cancellation/rescission and the client shall be entitled to deduct the amount so payable from the money(s) due to the [A].
 - (vii). To debar the [A] from participating in future bidding processes of the DFCCIL/Government of India for a minimum period of five years, which may be further extended at the discretion of the CLIENT.
 - (viii). To recover all sums paid in violation of this pact by [A] to any middleman or agent or broker with a view to securing [B] the contract.
 - (ix). In cases where irrevocable letters of credit have been received in respect of any [B] signed by the client with the [A], the same shall not be opened.
 - (x). Forfeiture of Performance Bond in case of a decision by the client to forfeit the same without assigning any reason for imposing sanction for violation of this pact.

The client will be entitled to take all or any of the actions mentioned at para 6.1(i) to (x) of this pact also on the commission by the [A] or any one employed by it or acting on its behalf (whether with or

without the knowledge of the [A], of an offence as defined in chapter IX of the Indian penal code, 1860 or prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

- 4.2 The decision of the CLIENT to the effect that a breach of the provisions of this pact has been committed by the [A] shall be final and conclusive on the [A]. However, the [A] can approach the Independent Monitor(s) appointed for the purposes of this Pact.
- 5.1 The [A] undertakes that it has not supplied/is not supplying similar product/systems or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India or PSU and if it is found at any stage that similar product/system or sub systems way supplied by [A] to any other Ministry/Department of the Government of India or a PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the [A] to the CLIENT, if the [B] has already been concluded.
- 6.1 The CLIENT has appointed Independent Monitors (hereinafter referred to as Monitors) for this pact in consultant with the central vigilance commission (Names and addresses of the Monitors to be given)
- 6.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this pact.
- 6.3 The monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.
- 6.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 6.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the CLIENT
- 6.6 The BIDDER(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the CLIENT including that provided by the BIDOER. The [A] will also grant the Monitor, upon his request and demonstration of a valid Interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be und 'contractual obligation to treat the information and documents of the [A] with confidentiality.
- 6.7 The client will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.
- 6.8 The monitor will submit a written report to the MD/DFCCIL within 8 to 10 weeks from the date of reference or intimation to him by the CLIENT/BIDDER and, should the occasion arise, submit proposal for correcting problematic situations
- 10.1 The validity of this integrity pact shall be from date of its signing and extend upto 5 years or the complete execution of the [B] to the satisfaction of both the CLIENT and the [A] including warranty period, whichever is later. In case [A] is unsuccessful, this integrity pact shall expire after six months from the date of the signing of the [B].
- 10.2 Should one or several provisions of this pact turn out to be invalid; the remainder of this pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.3 The parties hereby sign this integrity pact at on

CLIENT
Name & Designation of DFCCIL
Witness

BIDDER
CHIEF EXEUCTIVE OFFICER

Witness

1. 2.

Note:

[A]- To be replaced by BIDDER/Seller provider as the case was may be.
[B]- To be replaced by contract/supply contract as the case was may be

**FORMAT FOR AFFIDEVIT TO BE UPLOADED BY TENDERER ALONGWITH
THE TENDER DOCUMENT
(Clause 1.3.17 Part - I, Chapter - III)**

(To be executed in presence of Public notary on non-judicial stamp paper of the value of Rs. 100/-
The stamp paper has to be in the name of the tenderer)**

Tender Notice No.....
Name of Work:.....

I.....(Name and designation)**appointed as the attorney/authorized signatory of the tenderer (including its constituents), M/s_____ (hereinafter called the tenderer) for the purpose of the Tender documents for the work of _____ as per the tender TENDER No. _____ of DFCCIL, do hereby solemnly affirm and state on the behalf of the tenderer including its constituents as under:

1. I/we the tenderer (s) am/are signing this document after carefully reading the contents.
2. I/We the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the tender documents from website www.ireps.gov.in. I/we have verified the content of the document from the website and there is no addition, no deletion or no alteration to the content of the tender document. In case of any discrepancy noticed at any stage i.e. evaluation of tenders, execution of work or final payment of the contract, the master copy available with the DFCCIL Administration shall be final and binding upon me/us.
4. I/we declare and certify that I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the capability/qualification requirements.
5. I/We also understand that my/our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon me/us.
6. I/We declare that the information and documents submitted along with the tender by me/us are correct and I/we are fully responsible for the correctness of the information and documents, submitted by us.
7. I/we certify that I/we the tenderer(s) is/are not blacklisted or debarred by Railways/DFCCIL or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
8. I/we understand that if the contents of the affidavit submitted by us are found to be forged/false or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the Bid Security besides banning of business for a period of upto five year. Further, I/we (insert name of the tenderer) **_____and all my/our constituents understand that my/our offer shall be summarily rejected.
9. I/we also understand that if the contents of the affidavit submitted by us are found to be false/forged or incorrect at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of Bid Security/Security Deposit and Performance guarantee besides any other action provided in the contract including banning of business for a period of upto five year.
10. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country
or,
if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed)

Place:
Dated:

DEPONENT
SEAL AND SIGNATURE OF THE TENDERER

VERIFICATION

I/we above named tenderer do hereby solemnly affirm and verify that the contents of my/our above affidavit are true and correct. Nothing has been concealed and no part of it is false.

Place:
Dated:

DEPONENT
SEAL AND SIGNATURE OF THE TENDERER

** The contents in Italics are only for guidance purpose. Details as appropriate are to be filled in suitably by tenderer

This affidavit is to be given by each member of JV in case of JV

FINAL SUPPLEMENTARY AGREEMENT

1. Articles of agreement made this day _____ in the year _____ between the DFCCIL , acting through the _____ Administration having his office at _____ herein after called the DFCCIL of the one part and _____ of the second part.
2. Whereas the party hereto of the second part executed an agreement with the party hereto of the first part being agreement Number _____ dated _____ for the performance _____ herein after called the 'Principal Agreement'.
3. And whereas it was agreed by and between the parties hereto that the works would be completed by the party hereto of the second part on _____ date last extended and whereas the party hereto of the second part has executed the work to the entire satisfaction of the party hereto of the first part.
4. And whereas the party hereto of the first part already made payment to the party hereto of the second part diverse sums from time to time aggregating to ₹ _____ including the Final Bill bearing voucher No. _____ dated _____ of value _____ duly adjusted as per price variation clause, if applicable (the receipt of which is hereby acknowledged by the party hereto of the second part in full and final settlement of all his /its claims under the principal agreement.

And whereas the party hereto of the second part have received sum of ₹ _____ through the Final Bill bearing voucher No. _____ dated _____, if applicable (the receipt of which is hereby acknowledged by the party thereto of the second part) from the party hereto of the first part in full and final settlement of all his/its disputed claims under principal agreement.

Now, it is hereby agreed by and between the parties in the consideration of sums already paid by the party hereto of the first part to the party hereto of the second part against all outstanding dues and claims for all works done under the aforesaid principal agreement excluding the Security Deposit, the party hereto of the second part have no further dues of claims against the party hereto of the first part under the said Principal Agreement. It is further agreed by and between the parties that the party hereto of the second part has accepted the said sums mentioned above in full and final satisfaction of all its dues and claims under the said Principal Agreement.

(Applicable in case Final Supplementary Agreement is signed after release of Final Payment)

Or

And whereas the party hereto of the first part already made payment to the party hereto of the second part diverse sums from time to time aggregating to ₹ _____ through various On Account Bills (the receipt of which is hereby acknowledged by the party hereto of the second part).

And whereas the party hereto of the second part have received sum of ₹ _____ through various On Account Bills (the receipt of which is hereby acknowledged by the party thereto of the second part) from the party hereto of the first part and party hereto of the second part have accepted final measurements recorded on Page No..... to Page No.... of Measurement Book No.....and corresponding Final Bill duly adjusted as per price variation clause (PVC), if applicable, for full and final settlement of all his/its disputed claims under principal agreement.

Now, it is hereby agreed by and between the parties in the consideration of sums already paid through various On Account Bills and sums to be paid through Final Bill duly adjusted as per price variation clause (PVC), if applicable, based on accepted final measurements including the Security Deposit by the party hereto of the first part to the party hereto of the second part against all outstanding dues and claims for all works done under the aforesaid principal agreement, the party hereto of the second part have no further dues of claims against the party hereto of the first part under the said Principal Agreement.

(Applicable in case Final Supplementary Agreement is signed before release of Final Payment)

5. It is further agreed and understood by and between the parties that the arbitration clause contained in the said principal agreement shall cease to have any effect and/or shall be deemed to be non-existent for all purposes.

Signature of the Consultant/s

for and on behalf of the DFCCIL

Witnesses

ADDRESS: _____

Signature of the Tenderer

Rajish Kumar

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Certification by Arbitrators appointed under Clause 63 & 64 of General Conditions of Contract

1. Name:
2. Contact Details:
3. Prior experience (Including Experience with Arbitrations):
4. I do not have more than ten on-going Arbitration cases with me.
5. I hereby certify that I have retired from _____ w.e.f. ____ and empaneled as DFCCIL Arbitrator as per 'The Arbitration and Conciliation Act- 1996'.
6. I have no any past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind.

Or

I have past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind. The list of such interests is as under:

7. I have no any past or present relationship with or interest in any of the parties whether financial, business, professional or other kind, which is likely to give rise to justifiable doubts as to my independence or impartiality in terms of The Arbitration and Conciliation Act-1996.

Or

I have past or present relationship with or interest in any of the parties whether financial, business, professional or other kind, which is likely to give rise to justifiable doubts as to my independence or impartiality in terms of The Arbitration and Conciliation Act-1996. The details of such relationship or interests are as under:

8. There are no concurrent Circumstances which are likely to affect my ability to devote sufficient time to the arbitration and in particular to finish the entire arbitration within twelve months.

Or

There are Circumstances which are likely to affect my ability to devote sufficient time to the arbitration and in particular to finish the entire arbitration within twelve months. The list of such circumstances is as under:

Reference Para 64.3 & 64.6 of GCC

Agreement For Arbitration under Arbitration and Conciliation (Amendment) Act 1996

I/we..... (Name of agency/Contractor) with reference to agreement no..... raise disputes as to the construction and operation of this contract, or the respective rights and liabilities, withholding of certificate and demand arbitration in respect of following claims:

Brief of claim:

- (i) Claim 1- Detailed at Annexure-
- (ii) Claim 2 –
- (iii) Claim 3 –

I/we..... with reference to Agreement No..... hereby raise disputes as to the construction and operation of this contract, or the respective rights and liabilities, withholding of certificate and demand arbitration in respect of following claims:

We further agree that the cost of arbitration will be shared by the parties as per Clause 64(6) of the GCC.

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Signature of Claimant_____ Signature of Respondent_____

Bill of Quantity**Form No.22**

Schedule A					
<p>Consulting service charges for "Detailed Technical inspection and necessary testing including basic Non-destructive testing for bridges like ROB's, and RFOs (Rail Flyover) including approach viaduct spans etc. at different places from DDUN station to SEBN-CPBN of EDFC as per the terms of this document, and relevant IRC/ Railway guidelines or as directed by engineer in charge. The purpose is more intensive and detailed inspection which will involve close examination of elements of the structure. It will be primarily close visual assessment supplemented with standard instrumented aids, methods and equipment as required. It also includes submission of detailed inspection report in prescribed Performa in three sets of Hard copy as well as soft copy with all necessary supporting documents and photographs. It also includes technical analysis and suggestions for further special investigation if any as per requirement and suggestion of repairs and its methodology. It should be duly signed and sealed. (Cost includes for the close visual inspection, arrangement of required inspection tools and equipment like Mobile bridge inspection unit/ man lifting crane and submission of final report).</p>					
Item No	Description of the Item	Unit	Qty	Rate	Amount
1	Rate for the each Span of ROBs(RCC) &Major Bridge	Each Span	537	6,500.00	34,90,500.00
2	Rate for the each Span of ROB RFO (Composite Girder + Steel Girder)	Each Span	71	29,500.00	20,94,500.00
Total					55,85,000.00
Schedule B					
<p>Consulting service charges for "Detailed Technical inspection and necessary testing including basic Non-destructive testing for bridges like ROB's, and RFOs (Rail Flyover) including approach viaduct spans etc. at different places from DDUN station to SEBN-CPBN of EDFC as per the terms of this document, and relevant IRC/ Railway guidelines or as directed by engineer in charge. The purpose is more intensive and detailed inspection which will involve close examination of elements of the structure. It will be primarily close visual assessment supplemented with standard instrumented aids, methods and equipment as required. It also includes submission of detailed inspection report in prescribed Performa in three sets of Hard copy as well as soft copy with all necessary supporting documents and photographs. It also includes technical analysis and suggestions for further special investigation if any as per requirement and suggestion of repairs and its methodology. It should be duly signed and sealed. (Cost includes for the close visual inspection, arrangement of required inspection tools and equipment like Mobile bridge inspection unit/ man lifting crane and submission of final report).</p>					
Item No	Description of the Item	Unit	Qty	Rate	Amount
1	Rate for Rebound Hammer (Schmidt Hammer)Test	Each	200	1,180.00	2,36,000.00
2	Pull out CAPO test	Each	10	10,030.00	1,00,300.00
Total					3,36,300.00
Total Schedule Value(A+B)					59,21,300.00
Estimated Bid Value(16.20% Below)					49,62,049.00

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