Model Engineering Procurement and Construction (EPC)

Agreement

For

[Name of the Road/Bridge Work]

Ministry of Road Transport & Highways (MoRT&H)

October 2026

हरलीन कौर / Harleen Kaur
निदेशक / Director
सड़क परिवहन एवं राजमार्ग मंत्रालय
Ministry of Road Transport & Highways
भारत सरकार / Govt. of India
नई दिल्ली / New Delhi-110001

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Part I

Preliminary

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Engineering, Procurement and Construction Agreement

THIS AGREEMENT[1] is entered into on this the ……. day of ……, 20…..

Between

[The President of India through the Ministry of Road Transport & Highways, Government of India represented by:

Director General (Road Development) & Special Secretary, Ministry of Road Transport & Highways, Transport Bhawan, 1, Parliament Street, New Delhi 110001/

CE (NH) PWD, State of _____; <address> /

Chairman, National Highways Authority of India, G-5 & 6, Sector 10, Dwarka, New Delhi-110075/

MD, NHIDCL, PTI Building, Parliament Street, New Delhi/

DGBR <.....address>**]**

(*strike out whichever is not applicable*)

(hereinafter referred to as the **"Authority"** which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) of **One Part**;

And

<insert name of party>,[2] the selected bidder[3] having its registered office at <insert registered office address of the party>, (hereinafter referred to as the "**Contractor**" which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) of the **Other Part**.

Whereas:

A. [The Government of India] entrusted [the development, maintenance and management of National Highway No. **[4] including the section from km ** to km ** (approx. *** km)][5] to the Authority;

---

[1] Serially numbered footnotes in this Agreement are for guidance of the Authority and should be omitted from the draft Agreement forming part of Bid Documents. Footnotes marked "$" shall be retained in the draft Agreement.

[2] All provisions enclosed in curly parenthesis shall be retained in the Bid Documents and shall be modified as required after the selected bidder has been identified.

[3] Refers to the single entity or the Joint Venture (duly mentioning the details of all members of Joint Venture), which is the selected bidder under the RFP.

[4] All asterisks in this Model Agreement should be substituted by project-specific particulars in the draft Agreement forming part of Bid Documents.

[5] All project-specific provisions in this Model EPC Agreement have been enclosed in square parenthesis and may be modified, as necessary, before issuing the draft Agreement forming part of Bid Documents.

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B. The Authority resolved to [construct ***-Lane greenfield highway/rehabilitate and augment the existing road from km ** to km ** (approximately *** km) on the *** section of National Highway No.** (hereinafter called the "**NH** -**") in ***** by -Laning] on Engineering, Procurement, Construction ("**EPC**") basis in accordance with the terms and conditions to be set forth in an agreement to be entered into.

C. The Authority accordingly invited the proposals (the "**Request for Proposals**" or "**RFP**") from the eligible bidders as per the technical and commercial terms and conditions prescribed in the RFP for undertaking the Project.

D. After evaluation of the bids received, the Authority accepted the bid of the selected bidder and issued its Letter of Acceptance No. <insert details> dated <insert date> (hereinafter called the "**LOA**") to the selected bidder for [rehabilitation and augmentation of the above section of [NH **] at the Contract Price specified hereinafter, requiring the selected bidder to inter alia:

(i) to give his consent to enter into this Agreement and the enforceability of the provisions thereof, within 7 (seven) days of the date of issue of LOA;

(ii) submit Performance Security and Additional Performance Security (if any) within 30 (thirty) days of receipt of LOA in accordance with Clause 7.1, and

(iii) execute this Agreement within 15 (fifteen) days from the receipt of Performance Security and Additional Performance Security, if any.

E. The Contractor has fulfilled the requirements specified in Recital (D) above;

NOW, THEREFORE, in consideration of the foregoing and the respective covenants set forth in this Agreement, the sufficiency and adequacy of which is hereby acknowledged, the Authority hereby covenants to pay the Contractor, in consideration of the obligations specified herein, the Contract Price or such other sum as may become payable under the provisions of the Agreement at the times and in the manner specified by the Agreement and intending to be legally bound hereby, the Parties agree as follows:

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Article 1

Definitions and Interpretations

1.1 Definitions

The words and expressions beginning with capital letters and defined in this Agreement shall, unless the context otherwise requires, have the meaning ascribed thereto herein, and the words and expressions defined in the Schedules and used therein shall have the meaning ascribed thereto in the Schedules.

1.2 Interpretation

(i) In this Agreement, unless the context otherwise requires,

(a) references to any legislation or any provision thereof shall include amendment or re-enactment or consolidation of such legislation or any provision thereof so far as such amendment or re-enactment or consolidation applies or is capable of applying to any transaction entered into hereunder;

(b) references to laws of India or Indian law or regulation having the force of law shall include the laws, acts, ordinances, rules, regulations, bye laws or notifications which have the force of law in the territory of India and as from time to time may be amended, modified, supplemented, extended or re-enacted;

(c) references to a "person" and words denoting a juridical or natural person shall be construed as a reference to any individual, firm, company, corporation, society, trust, government, state or agency of a state or any association or partnership (whether or not having separate legal personality) of two or more of the above and shall include successors and assigns;

(d) the table of contents, headings or sub-headings in this Agreement are for convenience of reference only and shall not be used in, and shall not affect, the construction or interpretation of this Agreement;

(e) the words "include" and "including" are to be construed without limitation and shall be deemed to be followed by "without limitation" or "but not limited to" whether or not they are followed by such phrases;

(f) references to "construction" or "building" include, unless the context otherwise requires, survey, soil & material investigation, design, developing, engineering, procurement, supply of plant, materials, equipment, labour, delivery, transportation, installation, processing, fabrication, testing, and commissioning of the Project Highway, including maintenance during the Construction Period, removing of defects, if any, and other activities incidental

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to the construction and "construct" or "build" shall be construed accordingly;

(g) references to "development" include, unless the context otherwise requires, construction, rehabilitation, renovation, refurbishing, augmentation, up-gradation and other activities incidental thereto during the Construction Period, and "develop" shall be construed accordingly;

(h) any reference to any period of time shall mean a reference to that according to Indian standard time;

(i) any reference to day shall mean a reference to a calendar day;

(j) references to a "business day" shall be construed as a reference to a day (other than a Sunday) on which banks in Delhi are generally open for business;

(k) any reference to month shall mean a reference to a calendar month as per the Gregorian calendar;

(l) references to any date, period or Project Milestone shall mean and include such date, period or Project Milestone as may be extended pursuant to this Agreement;

(m) any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include both such days or dates; provided that if the last day of any period computed under this Agreement is not a business day, then the period shall run until the end of the next business day;

(n) the words importing singular shall include plural and vice versa;

(o) references to any gender shall include the other and the neutral gender;

(p) "lakh" means a hundred thousand (100,000) and "crore" means ten million (10,000,000);

(q) "indebtedness" shall be construed so as to include any obligation (whether incurred as principal or surety) for the payment or repayment of money, whether present or future, actual or contingent;

(r) references to the "winding-up", "dissolution", "insolvency", or "reorganisation" of a company or corporation shall be construed so as to include any equivalent or analogous proceedings under the laws of the jurisdiction in which such company or corporation is incorporated or any jurisdiction in which such company or corporation carries on business including the initiation of corporate insolvency resolution process, liquidation, winding-up, reorganisation, dissolution, arrangement or proceedings for the protection or relief of creditors;

(s) save and except as otherwise provided in this Agreement, any reference, at any time, to any agreement, deed, instrument, licence or document of any description shall be construed as reference to that agreement, deed, instrument, licence or other document as amended, varied, supplemented, modified or suspended at the time of such reference; provided that this Clause

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shall not operate so as to increase liabilities or obligations of the Authority hereunder or pursuant hereto in any manner whatsoever;

(t) any agreement, consent, approval, authorisation, notice, communication, information, report or any other correspondence required under or pursuant to this Agreement from or by any Party or the Authority Engineer shall be valid and effective only if it is routed through [Data Lake] (unless the law requires to send such notice, communication, etc., through physical/ any other specified mode only) under the hand of a duly authorised representative of such Party or the Authority Engineer, as the case may be, in this behalf and not otherwise;

(u) the Schedules and Recitals to this Agreement form an integral part of this Agreement and will be in full force and effect as though they were expressly set out in the body of this Agreement;

(v) references to Recitals, Articles, Clauses, Sub-clauses or Schedules in this Agreement shall, except where the context otherwise requires, mean references to Recitals, Articles, Clauses, Sub-clauses and Schedules of or to this Agreement, and references to a Paragraph shall, subject to any contrary indication, be construed as a reference to a Paragraph of this Agreement or of the Schedule in which such reference appears;

(w) the damages payable by either Party to the other under this Agreement, whether on per diem basis or otherwise, are mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Party entitled to receive the same and are not by way of penalty or liquidated damages (the "Damages"); and

(x) time shall be of the essence in the performance of the Parties' respective obligations. If any time period specified herein is extended for the reasons specified in the Agreement, such extended time shall also be of the essence.

(ii) Unless expressly provided otherwise in this Agreement, any Documentation required to be provided or furnished by the Contractor to the Authority shall be provided free of cost in such manner and format as may be specified by the Authority.

(iii) The Contractor acknowledges and agrees that it has been duly advised and guided by its professional advisors and legal counsel to understand the full extent, scope and implications of this Agreement, and accordingly, the rule of contra proferentem shall not apply.

(iv) Any word or expression used in this Agreement shall, unless otherwise defined or construed in this Agreement, bear its ordinary English meaning and, for these purposes, the General Clauses Act, 1897 shall not apply.

1.3 Measurements and arithmetic conventions

All measurements and calculations shall be in the metric system and calculations done to 2 (two) decimal places, with the third digit of 5 (five) or above being rounded

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up and below 5 (five) being rounded down.

1.4 Priority of agreements and errors/discrepancies

(i) This Agreement, and all other agreements and documents forming part of or referred to herein are to be taken as mutually explanatory and, unless otherwise expressly provided elsewhere in this Agreement, the priority of this Agreement and other documents and agreements forming part hereof or referred to herein shall, in the event of any conflict between them, be in the following order:

(a) this Agreement; and

(b) all other agreements and documents forming part hereof or referred to herein; i.e. this Agreement at (a) above shall prevail over the agreements and documents at (b).

(ii) Subject to the provisions of Clause 1.4 (i), in case of any ambiguity or discrepancy within this Agreement, the following shall apply:

(a) between two or more Clauses of this Agreement, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in other Clauses;

(b) between the Clauses of this Agreement and the Schedules, the Clauses shall prevail and between Schedules and Annexes, the Schedules shall prevail;

(c) between any two Schedules, the Schedule relevant to the issue shall prevail;

(d) between the written description on the Drawings and the Specifications and Standards, the Specifications and Standards shall prevail;

(e) between the dimension scaled from the Drawing and its specific written dimension, the specific written dimension shall prevail; and

(f) between any value written in numerals and that in words, the value written in words shall prevail.

For the avoidance of doubt, it is clarified that replies to pre-bid queries issued by the Authority are solely for the purpose of clarification / interpretation and in case of any ambiguity or discrepancy between the replies to the pre-bid queries and this Agreement, the provisions of this Agreement shall prevail unless explicitly modified through an addendum/corrigendum by the Authority

1.5 Joint and several liability[γ]

(i) Where the Contractor is a Joint Venture comprising two or more persons constituted for the purpose of implementing the Project:

[γ] This Clause 1.5 may be omitted if the Contractor is not a Joint Venture. Even if the Contractor is a Joint Venture, the Authority may, at its discretion, delete this provision.

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(a) the members of such Joint Venture shall, without prejudice to the provisions of this Agreement or of any other agreement, be deemed to be jointly and severally liable to the Authority for the performance of this Agreement; and

(b) the Contractor shall ensure that no change in the constitution or composition of the Joint Venture is effected without the prior written consent of the Authority.

(ii) Without prejudice to the joint and several liability of all members of the Joint Venture, the Lead Member shall represent all members of the Joint Venture and shall at all times remain liable and responsible for discharging the functions and obligations of the Contractor under this Agreement. The Contractor shall ensure that each member of the Joint Venture shall be bound by any decision, communication, notice, action or inaction of the Lead Member on any matter related to this Agreement and the Authority shall be entitled to rely upon any such action, decision or communication of the Lead Member.

(iii) The Contractor shall ensure that the Joint Venture is duly registered under the Income-Tax Act and all other Applicable Laws, and shall compulsorily obtain and maintain a valid Permanent Account Number (PAN), Tax Deduction and Collection Account Number (TAN), Goods and Services Tax (GST) registration, and all other registrations, licences and permits required under Applicable Laws. The Contractor shall further ensure that a Bank account is opened and maintained in the name of the Joint Venture, and all payments due from the Authority to the Contractor shall be credited solely to such account. The Authority shall not, in any manner, be responsible or be held liable for the inter se allocation, apportionment or distribution of any payments among the members of the Joint Venture.

(iv) Within 90 (ninety) days from the date of execution of this Agreement, the Contractor shall submit to the Authority a Joint Venture Undertaking duly executed by all members of the Joint Venture. This Joint Venture Undertaking shall include:

(a) a commitment from each member confirming that they shall be jointly and severally liable to the Authority for the due and proper performance of all obligations of the Contractor under this Agreement; and

(b) a clear identification of the specific scope and portion of the Works, as defined in Schedule-B and Schedule-C, to be executed by each member of the Joint Venture, provided that each member's share shall remain consistent with that specified in the Joint Bidding Agreement submitted as part of the Bid.

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Part II

Scope of Projec

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Article 2

Scope of the Project

2.1 Scope of the Project

Under this Agreement, the scope of the Project (the **"Scope of the Project"**) shall mean and include:

(a) design the Project Highway in accordance with the Specifications and Standards set forth in Schedule D;

(b) construction of the Project Highway on the Site set forth in Schedule- A and as specified in Schedule-B together with provision of Project Facilities as specified in Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D;

(c) maintenance of the Project Highway in accordance with the provisions of this Agreement and in conformity with the requirements set forth in Schedule-E; and

(d) performance and fulfilment of all other obligations of the Contractor in accordance with the provisions of this Agreement in a timely, efficient and diligent manner and matters incidental thereto or necessary for the performance of any or all of the obligations of the Contractor under this Agreement.

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Article 3

Obligations of the Authority

3.1 Obligations of the Authority

(i) The Authority shall, at its own cost and expense, undertake, comply with and perform all its obligations set out in this Agreement or arising hereunder.

(ii) The Authority, upon submission of the Performance Security as per the RFP by the Contractor, shall provide to the Contractor:

(a) Not less than 90% (ninety per cent) of the required Right of Way of the Construction Zone of total length of the Project Highway on the Appointed Date, in accordance with the provisions of Clause 8.2;

(b) approval of the general arrangement drawings (the "**GAD**") from Railways and/ or Inland Waterways and/ or Irrigation and/or **** (to be specified) authorities to enable the Contractor to construct road over- bridges/ under-bridges/ bridges across waterways and river/ canal distributaries (excluding minor channels as the case may be) on the Project Highway in accordance with the Specifications and Standards, and subject to the terms and conditions specified in such approval before the Appointed Date;[6]

(c) all environmental clearances as required under Clause 3.3.[7]

(d) [forest and wildlife clearance for and in respect of land forming part of the Right of Way under Clause 8.3, including permission for cutting of trees]; and

(e) Appointment of the Authority Engineer in accordance with the provisions of Clause 18.1.

(iii) Delay in providing the Right of Way in accordance with the provisions of Clause 3.1 (ii)(a) shall entitle the Contractor to Damages in a sum calculated in accordance with the provisions of Clause 3.4 of this Agreement.

(iv) Deleted

(v) The Authority agrees to provide support to the Contractor subject to and in accordance with the provisions of this Agreement and the Applicable Laws, the following:

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[6] Clause (b) may be omitted if the Project does not include a road over-bridge/under-bridge.

[7] Clause 3.1 (ii) (c) may be suitably modified in the event that all the environmental clearances for the Project Highway have been received or are not required. It should be clearly stated that all the environmental clearances for the Project Highway have been received; or such environmental clearances for the Project Highway are not required.

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(a) upon written request from the Contractor, and subject to the Contractor complying with Applicable Laws, provide reasonable support to the Contractor in procuring Applicable Permits required from any Government Instrumentality for implementation of the Project;

(b) upon written request from the Contractor, provide reasonable assistance to the Contractor in obtaining access to all necessary infrastructure facilities and utilities, including water and electricity;

(c) deleted;

(d) deleted;

(e) support, cooperate with and facilitate the Contractor in the implementation of the Project in accordance with the provisions of this Agreement; and

(f) deleted.

3.2 Maintenance obligations prior to the Appointed Date

The Authority shall, prior to the Appointed Date, maintain the Project Highway, at its own cost and expense, so that its traffic worthiness and safety are at no time materially inferior as compared to its condition as on the date of this Agreement, and in the event of any material deterioration or damage other than normal wear and tear, undertake repair thereof. For the avoidance of doubt, the Authority shall undertake only routine maintenance prior to the Appointed Date, and it shall undertake special repairs only in the event of excessive deterioration or damage caused due to unforeseen events such as floods or earthquake.

3.3 Environmental, forest and wild life clearances

The Authority represents and warrants that the environmental, forest and wild life clearances required for construction of the Project shall be procured by the Authority prior to the date of issue of LOA.

3.4 Deemed Termination upon delay

Without prejudice to the provisions of Clauses 8.3, and subject to the provisions of Clause 7.3, the Parties expressly agree that in the event the Appointed Date does not occur, for reasons attributable to the Authority, within 365 (three hundred sixty five) days of signing of the Agreement and submission of the full Performance Security by the Contractor, the Agreement shall be deemed to have been terminated. The Authority shall pay damages to the Contractor equivalent to 1% of the Contract Price (3% in case of standalone bridge projects). All other rights, privileges, claims and entitlements of the Contractor under or arising out of this Agreement shall be deemed to have been waived by, and to have ceased on payment of Damages. The Contractor shall hand over all information in relation to the Highway, including but not limited to any data, designs, drawings, structures, information, plans, etc. prepared by them for the Highway, to the Authority.

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Article 4

Obligations of the Contractor

4.1 Obligations of the Contractor

(i) Subject to and on the terms and conditions of this Agreement, the Contractor shall undertake the survey, investigation, design, engineering, procurement, construction, and maintenance of the Project Highway and observe, fulfil, comply with and perform all its obligations set out in this Agreement or arising hereunder.

(ii) The Contractor shall comply with all Applicable Laws and Applicable Permits (including renewals as required) in the performance of its obligations under this Agreement.

(iii) Subject to the provisions of Clauses 4.1 (i) and 4.1 (ii), the Contractor shall discharge its obligations in accordance with Good Industry Practice and as a reasonable and prudent person.

(iv) The Contractor shall remedy any and all loss, defects, or damage to the Project Highway from the Appointed Date until the end of the Construction Period at the Contractor's cost.

(v) The Contractor shall remedy any and all loss, defect or damage to the Project Highway during the Maintenance Period and Defects Liability Period at the Contractor's cost including those stated in Clause 14.1 (ii) to the extent that such loss, defect or damage shall have arisen out of the reasons specified in Clause 17.3, save and except to the extent that any such loss or damage shall have arisen on account of a Force Majeure Event.

(vi) Deleted.

(vii) The Contractor shall, at its own cost and expense, in addition to and not in derogation of its obligations elsewhere set out in this Agreement:

(a) dispose of the surplus materials arising from excavation, hill cutting, dismantling of pavements and/or structures and any other construction activities at the designated dumping sites identified by the Authority at [****]. in accordance with the Construction and Demolition Waste Management Rules, 2016 and other Applicable Laws;

(b) make, or cause to be made, necessary applications to the relevant Government Instrumentalities with such particulars and details as may be required for obtaining Applicable Permits set forth in Schedule-F and obtain and keep in force and effect such Applicable Permits in conformity with the Applicable Laws;

(c) procure, as required, the appropriate proprietary rights, licences, agreements and permissions for Materials, methods, processes and systems used or

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incorporated into the Project Highway;

(d) make reasonable efforts to maintain harmony and good industrial relations among the personnel employed byit or its Sub-contractors in connection with the performance of its obligations under this Agreement;

(e) ensure and procure that its Sub-contractors comply with all Applicable Permits and Applicable Laws in the performance by them of any of the Contractor's obligations under this Agreement;

(f) not do or omit to do any act, deed or thing which may in any manner violate any provisions of this Agreement;

(g) support, cooperate with and facilitate the Authority in the implementation and operation of the Project in accordance with the provisions of this Agreement;

(h) ensure that the Contractor and its Sub-contractors comply with the safety and welfare measures for labour in accordance with the Applicable Laws and Good Industry Practice;

(i) keep, on Site, a copy of this Agreement, publications named in this Agreement, the Drawings, Documents relating to the Project, and Change of Scope orders and other communications given under this Agreement. The Authority Engineer and its authorised personnel shall have the right of access to all these documents at all reasonable times;

(j) cooperate with other contractors employed by the Authority and personnel of any public authority; and

(k) not interfere unnecessarily or improperly with the convenience of the public, or the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Authority or of others.

(viii) The Contractor shall undertake all necessary superintendence to plan, arrange, direct, manage, inspect and test the Works. The Contractor shall provide all necessary superintendence of the Works for the proper fulfilling of the Contractor's obligations under the Agreement. Such superintendence shall be given by competent person having adequate knowledge of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents) for the satisfactory and safe execution of the Works.

(ix) The Contractor shall obtain and maintain a project related Bank account operational at site where all transactions related to the payment of work will be done. Where the Contractors is the Joint Venture, such project related Bank account shall opened in the name of the Joint Venture and all payments from the Authority to the Contractor shall be credited to this account. The Contractor shall, at its own cost, provide its consent and procure from its Bank a secure online facility through which the Authority may, at all times during the Contract Period, view and download the statements of the project related Bank account specified in this Clause. Such access shall be restricted to a read-

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only mode and shall be limited solely to information pertaining to the Project. The Contractor shall submit a monthly account statement and a detailed report on utilization of funds transferred to this project related Bank account to Authority Engineer. Notwithstanding anything contrary to this agreement, the Authority, in the interest and to ensure timely completion of the work, reserves the right to audit such Bank accounts to ensure that there is no diversion of funds from this project specific account to any other project being implemented by the Contractor.

(x) The Contractor shall provide the documents of the Contractor specified in the Agreement, and all Contractors' personnel; Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for the execution, completion of Works and remedying defects.

(xi) The Contractor shall perform the Works in conformity with the Project requirements and other requirements and standards prescribed under or pursuant to the Agreement.

(xii) The Contractor shall carry out such work incidental and contingent to the original Scope of the Project to comply with Good Industry Practices.

(xiii) The Contractor shall maintain required staff and necessary Contractor's equipment and materials within the reach of the Site during the Defects Liability Period so that any defects arising are promptly attended.

(xiv) The Contractor shall submit a Joint Venture Undertaking within the time specified in Clause 1.5(iv).

4.2 Obligations relating to sub-contracts and any other agreements

(i) The Contractor, whether Joint Venture or sole, shall not sub-contract any Works in more than **30% (thirty per cent)** of the Contract Price and shall carry out Works directly under its own supervision and through its own personnel and equipment in **at least 70% (seventy per cent)** of the Contract Price. Further, in case the Contractor is a Joint Venture, then the Lead Member shall carry out Works directly through its own resources (men, material and machines etc.) in **at least 51% (fifty one per cent)** of total length of the Project Highway, and such portion shall correspond to not less than 51% (fifty-one percent) of the Contract Price. Provided, however, that in respect of the Works carried out directly by the Contractor, it may enter into contracts for the supply and installation of Materials, Plant, equipment, road furniture, safety devices and labour, as the case may be, for such Works. For the avoidance of doubt, the Parties agree that the Contractor may sub-divide the aforesaid length of **51% (fifty one per cent)** in no more than 5 (five) sections of the Project Highway. The Parties further agree that all obligations and liabilities under this Agreement for the entire Project Highway shall at all times remain with the Contractor. Notwithstanding anything contained herein, no subcontractor shall be permitted to further subcontract any part of the Works.

(ii) In the event any sub-contract for Works, or the aggregate of such sub-contracts with

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any Sub-contractor, exceeds 5% (five percent) of the Contract Price, the Contractor shall communicate the name and particulars, including the relevant experience of the Sub-contractor, to the Authority prior to entering into any such sub-contract. The Authority shall examine the particulars of the Sub- contractor from the national security and public interest perspective and may require the Contractor, no later than 15 (fifteen) business days from the date of receiving the communication from the Contractor, not to proceed with the sub-contract, and the Contractor shall comply therewith.

(iii) In the event any sub-contract referred to in Clause 4.2 (ii) relates to a Sub- contractor who has, over the preceding 3 (three) years, not undertaken at least one work of a similar nature with a contract value exceeding 40% (forty per cent) of the value of the sub-contract to be awarded hereunder, and received payments in respect thereof for an amount equal to at least such 40% (forty per cent), the Authority may, no later than 15 (fifteen) business days from the date of receiving the communication from the Contractor, require the Contractor not to proceed with such sub-contract, and the Contractor shall comply therewith without delay or demur.

(iv) It is expressly agreed that the Contractor shall, at all times, be responsible and liable for all its obligations under this Agreement. Notwithstanding anything contained in the agreements with its Sub-contractors or any other agreement that may be entered into by the Contractor, no default under any such agreement shall excuse the Contractor from its obligations or liability under this Agreement. Provided, however, in case of non-compliance of the Contractor towards his obligations for payments to the approved Sub-contractor(s), which is likely to affect the progress of works, the authority reserves the right to intervene and direct the Contractor to release such outstanding payments to approved Sub-contractor(s) out of the payments due for the completed Works in the interest of work.

(v) Evidence of Payments

Prior to issuing any Interim/Final Payment Certificate that includes amounts payable to approved Subcontractors, the Authority Engineer may require the Contractor to provide reasonable evidence that such parties have received all payments due under previous Interim Payment Certificates, after applicable deductions (including retention).

Such evidence may include bank statements, GST returns, TDS returns, Form 26AS, or similar documents

If and only if the Contractor fails to:

(a) submit the required evidence to the Authority Engineer; or

(b) (i) demonstrate in writing that it is reasonably entitled to withhold or refuse such payments, and

(ii) provide evidence that the concerned Subcontractor, vendor, or entity has

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been notified of such entitlement,

then the Authority may, at its sole discretion and in consultation with the banker maintaining the project related Bank account, make direct payment to the approved Subcontractor for part or all of the certified amounts (after applicable deductions) that remain unpaid by the Contractor.

Following such payment, the Authority Engineer shall notify the Contractor of the amount paid directly, and the same shall be deducted in the next Interim Payment Certificate (IPC) in accordance with Clause 19.5.

4.3 Employment of foreign nationals

The Contractor acknowledges, agrees and undertakes that employment of foreign personnel by the Contractor and/or its Sub-contractors shall be subject to grant of requisite regulatory permits and approvals including employment/ residential visas and work permits, if any required, and the obligation to apply for and obtain the approval for the same shall always rest with the Contractor. Notwithstanding anything to the contrary contained in this Agreement, refusal of or inability to obtain any such permits and approvals by the Contractor or any of its Sub-contractors or their sub-contractors shall not constitute a Force Majeure Event, and shall not in any manner excuse the Contractor from the performance and discharge it of its obligations and liabilities under this Agreement, and the Contractor's liabilities hereunder shall remain unaffected by such failure, refusal or inability.

4.4 Contractor's personnel

(i) The Contractor shall ensure that the personnel engaged by it or by its Sub-contractors in the performance of its obligations under this Agreement are at all times appropriately and adequately qualified, skilled and experienced in their respective functions in conformity with Good Industry Practice. The qualifications of respective personnels considering Good Industry Practice are prescribed at Schedule S.

(ii) The Authority Engineer may, for reasons to be specified in writing, direct the Contractor to remove any member of the Contractor's or Sub-contractor's personnel. Provided that any such direction issued by the Authority Engineer shall specify the reasons for the removal of such person.

(iii) The Contractor shall on receiving such a direction from the Authority Engineer order for the removal of such person or persons with immediate effect. It shall be the duty of the Contractor to ensure that such persons are evicted from the Site within 10 (ten) days of any such direction being issued in pursuance of Clause 4.4 (ii). The Contractor shall further ensure that such persons have no further connection with the Works or Maintenance under this Agreement. The Contractor shall then appoint (or cause to be appointed) a replacement.

4.5 Advertisement on Project Highway

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The Project Highway or any part thereof shall not be used in any manner to advertise any commercial product or services.

4.6 Contractor's care of the Works

The Contractor shall bear full risk in, and take full responsibility for, the care of the Works, and of the Materials, goods and equipment for incorporation therein, from the Appointed Date until the date of Completion Certificate, save and except to the extent that any such loss or damage shall have arisen from any wilful default or gross neglect of the Authority.

4.7 Electricity, water and other services

The Contractor shall be responsible for procuring of all utilities as may be required, including without limitation, adequate power, water and other services.

4.8 Skill development

The Contractor shall organize and conduct training programmes at the Project Site(s) for trainees, as required, in accordance with a training schedule finalized in consultation with the Authority. The Authority shall pay a stipend to each trainee, calculated on the basis of the applicable minimum wages, to compensate for any loss of income during the training period, subject to a maximum of Rs. 15,000 (Rupees fifteen thousand) per trainee per month. Notwithstanding the foregoing, the Contractor shall be solely responsible for arranging and bearing the costs of boarding and lodging for all trainees throughout the training period.

4.9 Co-ordination of the Works

(i) The Contractor acknowledges that in addition to the Agreement, it is also aware of terms of the other Project contracts and other agreements the Authority has negotiated and entered into for performance of its obligations under the Agreement (copies of other contracts and other agreements are made available to the Contractor from time to time) and that the Contractor is fully aware of the consequences to the Authority which would or are likely to result from a breach by the Contractor of its obligations under the Agreement. In the event the actions of the Contractor result in the breach by the Authority of any or all of the other Project contracts and such breach imposes any liability on the Authority, the Contractor shall: (a) undertake all steps as may be possible to mitigate or neutralize the liability that has arisen, and (b) indemnify the Authority against any such liability and compensate the Authority to that extent.

(ii) The Contractor shall be responsible for the co-ordination and proper provision of the Works, including co-ordination of other Contractors or Sub-contractors for the Project. The Contractor shall co-operate with the Authority in the co- ordination of the Works with the works under the other Project contracts. The Contractor shall provide all reasonable support for carrying out their work to:

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(a) any other contractors employed by the Authority;

(b) the workmen of the Authority;

(c) the workmen of any Governmental Instrumentality who may be employed in the execution of work on or near the Site; and

(d) such other persons as is required in the opinion of the Authority for successful completion of the Project.

4.10 Environmental Measures

(i) The Contractor agrees to conduct its activities in connection with the Agreement in such a manner so as to comply with the environmental requirements which includes, *inter alia*, all the conditions required to be satisfied under the environmental clearances and applicable law, and assumes full responsibility for measures which are required to be taken to ensure such compliance.

(ii) The Contractor shall, at its cost, transport and dispose off the surplus materials arising from excavation, hill cutting, dismantling of pavements and/or structures and any other construction activities at the designated dumping sites identified by the Authority at [****]. in accordance with the Construction and Demolition Waste Management Rules, 2016 and other Applicable Laws.

4.11 Site Data

(i) The Contractor shall be deemed to have inspected and examined the Site and its surroundings and to have satisfied himself before entering into the Agreement in all material respects including but not limited to:

(a) the form and nature of the Site (including, inter-alia, the surface and sub-surface conditions and geo-technical factors);

(b) the hydrological and climatic conditions;

(c) the extent and nature of the works already completed and Materials necessary for the execution and completion of the Works and the remedying of any defects that includes already executed part also.

(d) the suitability and the adequacy of the Site for the execution of the Works;

(e) the means of access to the Site and the accommodation the Contractor may require;

(f) arranging permits as required as per provisions of the Agreement.

(g) the requirements of operation and maintenance; and

(h) all other factors and circumstances affecting the Contractor's rights and obligations under the Agreement, the Contract Price and Time for Completion.

4.12 Sufficiency of Contract Price

The Contractor shall have satisfied itself as to the correctness and sufficiency of the

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Contract Price. The Contract Price shall cover all its obligations under the Agreement, in addition to all risks the Contractor has agreed to undertake under the Agreement, including those associated with the performance of its obligations under the Agreement and all things necessary for the provision of the Works in a manner satisfactory to the Authority and in accordance with this Agreement.

4.13 Clearance of the Site

During the provision of the Works, and as a pre-condition to the issue of the Taking-Over Certificate, the Contractor shall clear away and remove from the Site, all Contractor's equipment, surplus material, wreckage, rubbish and temporary Works, and shall keep the Site free from all unnecessary obstructions, and shall not store or dispose of any Contractor's equipment or surplus materials on the Site. The Contractor shall promptly clear away and remove from the Site any wreckage, rubbish or temporary Works no longer required and leave the Site and the Works in a clean and safe condition to the sole satisfaction of the Authority. Disposal of surplus materials, wreckage, rubbish or temporary Works no longer required must be carried out in accordance with the Construction and Demolition Waste Management Rules, 2016 and other Applicable Laws.

4.14 Obligations relating to Local Content

The Contractor [Class I Local Supplier/ Class II Local Supplier/ Non Local Supplier] undertakes to ensure minimum Local Content in the Project Highway of at least [50% / 20%] duly complying with the provisions of Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India Order No. P-45021/2/2017-PP (BE- II) dated September 16, 2020, as amended or modified till Bid Due Date and the provisions under Rule 144(xi) of GFR, 2017.

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Article 5

Representations and Warranties

5.1 Representations and warranties of the Contractor

(i) The Contractor represents and warrants to the Authority that:

(a) it is duly organised and validly existing under the laws of India, and has full power and authority to execute and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;

(b) it has taken all necessary corporate and/or other actions under Applicable Laws to authorise the execution and delivery of this Agreement and to validly exercise its rights and perform its obligations under this Agreement;

(c) this Agreement constitutes its legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, and its obligations under this Agreement will be legally valid, binding and enforceable against it in accordance with the terms hereof;

(d) it is subject to the laws of India, and hereby expressly and irrevocably waives any immunity in any jurisdiction in respect of this Agreement or matters arising thereunder including any obligation, liability or responsibility hereunder;

(e) the information furnished in the Bid, Request for Proposals or otherwise and as updated on or before the date of this Agreement is true and accurate in all respects;

(f) the execution, delivery and performance of this Agreement will not conflict with, or result in the breach of, or constitute a default under, or accelerate performance required by any of the terms of its memorandum and articles of association or any Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;

(g) there are no actions, suits, proceedings, or investigations pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the breach of this Agreement or which individually or in the aggregate may result in any material impairment of its ability to perform any of its obligations under this Agreement;

(h) it has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any Government Instrumentality which may result in any material adverse effect on its ability to perform its obligations under this Agreement and no fact or circumstance exists which may give rise to such proceedings that would

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adversely affect the performance of its obligations under this Agreement;

(i) it has complied with Applicable Laws in all material respects and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have a material adverse effect on its ability to perform its obligations under this Agreement;

(j) no representation or warranty by it contained herein or in any other document furnished by it to the Authority or to any Government Instrumentality in relation to Applicable Permits contains or will contain any untrue or misleading statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading;

(k) no sums, in cash or kind, have been paid or will be paid, by it or on its behalf, to any person by way of fees, commission or otherwise for securing the contract or entering into this Agreement or for influencing or attempting to influence any officer or employee of the Authority in connection therewith;

(l) nothing contained in this Agreement shall create any contractual relationship or obligation between the Authority and any Sub- contractors, designers, consultants or agents of the Contractor;

(m) it is adequately financed has the requisite knowledge, expertise, technical know-how, experience, resources, infrastructure, licenses, patents, copy rights, for designing, supplying/ procuring the goods and materials, and for providing the installation and construction services required for completing the construction of the Project Facilities; and

(n) all undertakings and obligations of the Contractor arising from the Request for Proposals, including the integrity pact or otherwise, shall be binding on the Contractor as if they form part of this Agreement

(ii) it represents the Authority that:

(a) it owns or has the right to use all **"Intellectual Property"** necessary to perform the contractual obligations and to carry on the Works without conflict with the right of others;

(b) All intellectual property rights necessary to perform the contractual obligations and to carry on the Works are in full force and effect and are vested in, and beneficially owned by the Contractor, and are free from encumbrances.

(c) None of the intellectual property rights is being used, claimed, or posed or attacked by any other person, nor does the use of such intellectual property rights or any part of them infringe the intellectual property rights owned or enjoyed by any third party.

(d) None of the intellectual property rights owned or used by the Contractor is the subject of any claim, opposition, attack, assertion or other arrangement of whatsoever nature which does or may impinge upon their use, validity,

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enforceability or ownership by the Parties, and there are no grounds or other circumstances which may give rise to the same.

(e) No licenses or registered user or other rights have been granted or agreed to be granted to any third party in respect of such intellectual property rights.

(f) No act has been done or has been omitted to be done to entitle any authority or person to cancel, forfeit or modify any intellectual property rights.

(g) The Contractor shall notify the Authority of any adverse use of the intellectual property rights or confusingly or deceptively similar to the intellectual property rights.

(h) The Contractor shall recognize the Authority's ownership and title to the intellectual property rights and shall not at any time, either directly or indirectly, put to issue the validity or ownership of the intellectual property rights and it will not do any act or thing, either directly or indirectly, which in anyway impairs the validity and ownership of the intellectual property rights.

(i) The Contractor shall, promptly execute, acknowledge and deliver all documents which are requested by Authority to record with appropriate governmental agencies and authorities the fact that the Authority has the right to the use of the said intellectual property rights.

(j) The Contractor shall not, for any reason, object to, or interfere in any way with the ownership, registration or use of the intellectual property rights by the Authority (or its licensee or assigns) for any purpose whatsoever.

(iii) The Contractor is fully aware that the Agreement is inter linked with the other Project contracts and the non-performance or deficient performance or default by the Contractor and/or any of the Contractor's personnel or Subcontractors under one among the said contracts will have bearing on the other contracts and the evaluation of the Contractor's performance under the Agreement and the Project itself.

(iv) If at any time during the Defects Liability Period any item of the Works or Project Facilities or any part thereof, do not conform to the Authority requirements and Specifications and Standards, on being so notified by the Authority, the Contractor shall promptly rectify/remedy such nonconformity to the satisfaction of the Authority solely at the Contractor's expense; failing which the Authority may reject or revoke Taking-Over Certificate, and the Authority may proceed to correct the Contractor's nonconforming Work by the most expeditious means available, the costs of which shall be to the Contractor's account; or the Authority may retain the non-conforming Work and an equitable adjustment reducing the total Contract Price to reflect the diminished value of such non-conforming Work will be made by written amendment.

(v) In addition to the other warranties, the Contractor represents and warrants as follows:

(a) The Contractor has (or, if the technology does not currently exist, will have granted at the time of passing to The Employer) in and to the technology used in the equipment, materials, goods, Works, Contractor's documents, Drawings

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and Manuals ("**Technology**") -

i. all right, title and interest free of any lien, claim or restriction; and

ii. right to grant to the Authority the right to use the Technology for the purpose of this contract, free of any lien, claim or restriction and on the terms of license as required.

(b) The Contractor has granted (or, if the technology does not currently exist, will grant at the time of passing to the Authority the property and title in and to the equipment, materials, goods, Works, spares, Contractor's documents, Drawings and Manuals in which it is used) to the Authority the right to use the Technology, free of any lien, claim or restriction.

(vi) In addition to the other Warranties, the Contractor represents and warrants as follows:

(a) No Technology contains any worm (i.e., a program that travels from one computer to another computer but does not attach itself to the operating system of the computer it enters), virus (i.e., a program that travels from one computer to another computer that attaches itself to the operating system it enters) or self-destruct capability.

(b) The Technology will not abnormally end or provide invalid or incorrect results as a result of date-dependent data.

(c) The Technology can accurately recognize, manage, accommodate, and manipulate date-dependent data, including single and multi-century formulas and leap years.

(vii) No criminal proceedings instituted against any of the employees or Directors of the Contractor.

(viii) Till date the services of the Contractor has not been terminated by any person for any breach or non-performance or negligence by the Contractor.

5.2 Representations and warranties of the Authority

The Authority represents and warrants to the Contractor that:

(a) it has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated herein and that it has taken all actions necessary to execute this Agreement, exercise its rights and perform its obligations, under this Agreement;

(b) it has taken all necessary actions under the Applicable Laws to authorise the execution, delivery and performance of this Agreement;

(c) it has the financial standing and capacity to perform its obligations under this Agreement;

(d) this Agreement constitutes a legal, valid and binding obligation enforceable

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against it in accordance with the terms hereof;

(e) it has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Government Instrumentality which may result in any material adverse effect on the Authority's ability to perform its obligations under this Agreement;

(f) it has complied with Applicable Laws in all material respects;

(g) it has good and valid right to the Site and has the power and authority to grant the Right of Way in respect thereof to the Contractor; and

(h) it has procured Right of Way and environment clearances such that the Contractor can commence construction forthwith on 90% (ninety per cent) of the total length of the Project Highway.

5.3 Disclosure

In the event that any occurrence or circumstance comes to the attention of either Party that renders any of its aforesaid representations or warranties untrue or incorrect, such Party shall immediately notify the other Party of the same. Such notification shall not have the effect of remedying any breach of the representation or warranty that has been found to be untrue or incorrect nor shall it adversely affect or waive any obligation of either Party under this Agreement.

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Article 6

Disclaimer

6.1 Disclaimer

(i) The Contractor acknowledges that prior to the execution of this Agreement, the Contractor has, after a complete and careful examination, made an independent evaluation of the Request for Proposal, Scope of the Project, Specifications and Standards of design, construction and maintenance, Site, local conditions, physical qualities of ground, subsoil and geology, traffic volumes, suitability and availability of access routes to the Site and all information provided by the Authority or obtained, procured or gathered otherwise, and has determined to its satisfaction the accuracy or otherwise thereof and the nature and extent of difficulties, risks and hazards as are likely to arise or may be faced by it in the course of performance of its obligations hereunder. Save as provided in Clause 3.1 and Clause 5.2, the Authority makes no representation or warrantee whatsoever, express, implicit or otherwise, regarding the accuracy, adequacy, correctness, reliability and/or completeness of any assessment, assumptions, statement or information provided by it and the Contractor confirms that it shall have no claim whatsoever against the Authority in this regard.

(ii) The Contractor acknowledges and hereby accepts to have satisfied itself as to the correctness and sufficiency of the Contract Price.

(iii) The Contractor acknowledges and hereby accepts the risk of inadequacy, mistake or error in or relating to any of the matters set forth in Clause 6.1 (i) above and hereby acknowledges and agrees that the Authority shall not be liable for the same in any manner whatsoever to the Contractor, or any person claiming through or under any of them, and shall not lead to any adjustment of Contract Price or Scheduled Completion Date.

(iv) The Parties agree that any mistake or error in or relating to any of the matters set forth in Clause 6.1 (i) above shall not vitiate this Agreement, or render it voidable.

(v) In the event that either Party becomes aware of any mistake or error relating to any of the matters set forth in Clause 6.1 (i) above, that Party shall immediately notify the other Party, specifying the mistake or error.

(vi) Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Contractor; and the Authority shall not be liable in any manner for such risks or the consequences thereof.

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Part III

Construction and Maintenance

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Article 7

Performance Security

7.1 Performance Security

(i) (A) Within 30 (thirty) days of receipt of Letter of Acceptance, the selected bidder shall furnish to the Authority in the form of an irrevocable and unconditional electronic Bank Guarantee (e-BG) [8] from a Bank in the form set forth in Annex-I of Schedule-G or an irrevocable and unconditional Insurance Surety Bond in the form set forth in Annex-II of Schedule-G (the "**Performance Security**") for an amount equal to [**% (**percent)][δ] of its Contract Price. The selected bidder, along with the Performance Security, shall also furnish to the Authority in the form of an irrevocable and unconditional electronic Bank Guarantee (e-BG)[9] from a Bank in the same form given at Annex-I of Schedule-G towards an Additional Performance Security (the "**Additional Performance Security**") for an amount calculated in accordance with the provisions of RFP and as specified in the LOA:

(B) The Performance Security and Additional Performance Security shall be valid until 60(sixty) days after the Maintenance Period or Defects Liability Period, whichever is later under this Agreement.

(ii) Deleted.

(iii) In the event the selected bidder fails to provide the Performance Security and Additional Performance Security, if any, as prescribed herein, it may seek extension of time for a further period upto 60 days by paying the Damages upfront along with the request letter seeking the extension. The Damages shall be the sum calculated at the rate of 0.01% (zero point zero one per cent) of the Contract Price offered by the selected bidder for each day until the Performance Security and Additional Performance Security, if any, is provided in full as prescribed herein. The damages at full rate as given above shall be applicable even if a part of the Performance Security and the Additional Performance Security is provided.

(iv) For avoidance of any doubt, in case of failure of submission of Performance Security and Additional Performance Security, if any, within the additional 60 days' time

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[8] Physical Bank Guarantee may be allowed by the Authority for projects under bidding upto 100 Crore.

[δ] The percentage of Performance Security shall be determined based on the rating of the selected bidder or, the Lead Member in the case of a Joint Venture and shall be as follows:

- **3%** of the Contract Price if the rating is above 80%;
- **4%** of the Contract Price if the rating is above 70% but up to 80%; and
- **5%** of the Contract Price if the rating is 70% or below.

[9] Physical Bank Guarantee may be kept by the Authority for projects under bidding upto 100 Crore.

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period, the award shall be deemed to be cancelled/ withdrawn without any further notice and the Bid Security shall be encashed and the proceeds thereof appropriated by the Authority. Thereupon all rights, privileges, claims and entitlements of the Contractor under or arising out of the Award shall be deemed to have been waived by, and to have ceased with the concurrence of the Contractor, and the Award shall be deemed to have been withdrawn by the Authority

7.2 Extension of Performance Security and Additional Performance Security

The Contractor may initially provide the Performance Security and Additional Performance Security, if any,for a period of 2 (two) years; provided that it shall procure the extension of the validity of the Performance Security and Additional Performance Security, if any, as required, at least 2 (two) months prior to their respective expiry dates. If the Contractor fails to provide required extension at least 30 (thirty) days before the expiry of the relevant security, the Authority shall have the right to encash the Performance Security and Additional Performance Security, if any. Upon the Contractor providing an extended Performance Security and Additional Performance Security, if any, the previous Performance Security and Additional Performance Security, if any shall be deemed to be released and the Authority shall return the same to the Contractor within a period of 7 (seven) business days from the date of submission of the extended Performance Security and Additional Performance Security, if any.

7.3 Appropriation of Performance Security

(i) Upon occurrence of a Contractor's Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to encash and appropriate the relevant amounts from the Performance Security and Additional Performance Security, if any, as Damages for such Contractor's Default.

(ii) Upon such encashment and appropriation from the Performance Security and Additional Performance Security, if any, the Contractor shall, within 30 (thirty) days thereof, replenish, in case of partial appropriation, to its original level the Performance Security and Additional Performance Security, if any, and in case of appropriation of the entire Performance Security and Additional Performance Security, if any, provide a fresh Performance Security and Additional Performance Security, if any, as the case may be, and the Contractor shall, within the time so granted, replenish or furnish fresh Performance Security and Additional Performance Security, if any, as aforesaid failing which the Authority shall be entitled to terminate the Agreement in accordance with Article 23. Upon replenishment or furnishing of a fresh Performance Security and Additional Performance Security, if any, as the case may be, as aforesaid, the Contractor shall be entitled to an additional Cure Period of 30 (thirty) days for remedying the Contractor's Default, and in the event of the Contractor not curing its default within such Cure Period, the Authority shall be entitled to encash and appropriate such Performance Security and Additional Performance Security, if any, as Damages, and to terminate this Agreement in

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accordance with Article 23.

7.4 Release of Performance Security

(i) The Authority shall return the Performance Security to the Contractor within 60 (sixty) days of the expiry of the Maintenance Period or the Defects Liability Period including any extension thereof, whichever is later, under this Agreement and the Authority Engineer has certified that all Defects notified by the Authority Engineer to the Contractor before the end of this period has been corrected. Notwithstanding the aforesaid, the Parties agree that the Authority shall not be obliged to release the Performance Security until all Defects identified during the Defects Liability Period have been rectified.

(ii) The Authority shall return the Additional Performance Security to the Contractor conditionally as under:

(a) 25% after issuance of Completion Certificate, provided the project is completed as per the Scheduled Completion Date, including grace period (if any) without any extension of time; failing which this 25% shall be released along with (b).

(b) 25% one year after issuance of Completion Certificate, provided the stretch meets the Pavement Quality Index (PQI) / International Roughness Index (IRI) norms in the independent NSV survey of the Ministry.

(c) Remaining 50% after successful completion of the Defects Liability Period.

(d) Non-refundable penalty @ 5% of the Additional Performance Security shall be levied for each biannual failure to meet the PQI / IRI norms (assessed from the date of Completion Certificate).

(iii) The Authority shall be liable to pay interest @ 9% (nine per cent) per annum for any delay in the return of Performance Security and Additional Performance Security, if any, beyond the period prescribed above for the period of delay.

7.5 Retention Money

(i) From every payment for Works due to the Contractor in accordance with the provisions of Clause 19.5, the Authority shall deduct 6% (six per cent) thereof as guarantee money for performance of the obligations of the Contractor during the Construction Period (the "**Retention Money**") subject to the condition that the maximum amount of Retention Money shall not exceed 5% (five per cent) of the Contract Price.

(ii) The Contractor may, upon furnishing an irrevocable and unconditional e-bank guarantee substantially in the form provided at Annex-IV of Schedule-G, request the Authority to refund the Retention Money deducted by the Authority under the provisions of Clause 7.5(i). Provided that the refund hereunder shall be made in tranches of not less than 1% (one per cent) of the Contract Price.

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(iii) The timing of the refund of Retention Money shall depend on the rating of the selected bidder or, the Lead Member in the case of a Joint Venture, as follows:

(a) **Rating above 80%:** The Authority shall refund the balance of Retention Money remaining after adjusting any amounts appropriated under Clause 7.5(iv) within 28 (twenty-eight) days from the date of issue of the Completion Certificate.

(b) **Rating above 70% and up to 80%:**

- Fifty per cent (50%) of the total Retention Money shall be released within 28 (twenty-eight) days of issuance of the Completion Certificate.
- The remaining balance, after adjusting amounts appropriated under Clause 7.5(iv), shall be released within 60 (sixty) days following the first anniversary of the Completion Certificate.

(c) Rating up to 70%:

- Fifty per cent (50%) of the total Retention Money shall be released within 28 (twenty-eight) days of issuance of the Completion Certificate.
- The remaining balance, after adjusting amounts appropriated under Clause 7.5(iv), shall be released within 60 (sixty) days after the expiry of the Maintenance Period or the Defects Liability Period, whichever is later, provided that the Authority Engineer has certified that all defects notified prior to the end of this period have been rectified.
- Notwithstanding the above, the Authority shall not be obliged to release any Retention Money until all defects identified during the Defects Liability Period have been corrected.

(iv) Upon occurrence of a Contractor's Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to appropriate the relevant amounts from the Retention Money as Damages for such Contractor's Default.

(v) The Parties agree that in the event of Termination of this Agreement, the Retention Money specified in this Clause 7.5 shall be treated as if they are Performance Security and shall be reckoned as such for the purposes of Termination Payment under Clause 23.6.

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Article 8

Right of Way

8.1 The Site

The site of the Project Highway (the "**Site**") shall comprise the land, buildings, road works and other structures appurtenant thereto, described in Schedule-A in respect of which the Right of Way shall be provided by the Authority to the Contractor. The Authority shall be responsible for:

(a) acquiring and providing Right of Way on the Site in accordance with the alignment finalised by the Authority, free from all encroachments and encumbrances, and free access thereto for the execution of this Agreement; and

(b) obtaining licences and permits for environment clearance for the Project Highway.

8.2 Procurement of the Site

(i) The Authority Representative, the Contractor and Authority Engineer shall, within 30 (thirty) days of the date of this Agreement, inspect the Site and prepare a detailed memorandum containing an inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on or attached to the Site duly supported by moving images and videos captured using drones or any other mechanism acceptable to the Authority (hereinafter referred to as the "**Memorandum**"). The Memorandum shall include only the Site for which Right of Way is granted to the Contractor, upon possession by the Authority. Subject to the provisions of Clause 8.2 (iii), the Memorandum shall have appended thereto an appendix (the "**Appendix**") specifying in reasonable detail those parts of the Site in respect of which Right of Way has not been given to the Contractor along with details of hindrances in the Construction Zone. For sake of clarity the Memorandum shall clearly specify the parts of Site where work can be executed. Signing of the Memorandum, in three counterparts (each of which shall constitute an original), by the authorized representatives of the Authority, Contractor and Authority Engineer shall be deemed to constitute a valid evidence of giving the Right of Way to the Contractor for discharging its obligations under and in accordance with the provisions of this Agreement and for no other purpose whatsoever.

(ii) Whenever the Authority is ready to hand over any part or parts of the Site included in the Appendix, it shall inform the Contractor, by notice, of the proposed date and time such of hand over. The Authority Representative and the Contractor shall, on the date so notified, inspect the specified parts of the Site, and prepare a memorandum containing an inventory of the vacant and unencumbered land, buildings, structures, road works, trees and any other immovable property on or attached to the Site so handed over. The signing of the memorandum, in three (3) counterparts (each of which shall constitute an original), by the authorised representatives of the Parties

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shall be deemed to constitute a valid evidence of giving the relevant Right of Way to the Contractor.

If the contractor fails to join for site inspection or disputes the parts of the site available for work, the Authority Engineer shall decide the parts of the site where work can be executed and notify to both the parties within 3 days of the proposed date of inspection. The parties agree that such notification of the Authority Engineer as mentioned hereinabove shall be final and binding on the parties.

(iii) The Authority shall provide the Right of Way to the Contractor in respect of all land included in the Appendix by the date specified in Schedule-A for those parts of the Site referred to therein, and in the event of delay for any reason other than Force Majeure or breach of this Agreement by the Contractor, it shall pay to the Contractor, Damages in a sum calculated in accordance with Clause 8.3. The Contractor agrees that it shall not be entitled to claim any other damages on account of any such delay by the Authority.

(iv) Notwithstanding anything to the contrary contained in this Clause 8.2, the Authority shall specify the parts of the Site, if any, for which Right of Way shall be provided to the Contractor on the dates specified in Schedule-A. Such parts shall also be included in the Appendix prepared in pursuance of Clause 8.2 (i).

(v) The Authority further acknowledges and agrees that prior to the Appointed Date, it shall have procured issuance of the statutory notification under Applicable Laws for vesting of all the land comprising the Project in the Authority and has taken possession of area for Construction Zone for at least [90% (ninety per cent)]][10] of the total length of the Project Highway. The Parties also acknowledge and agree that the conditions specified in this Clause 8.2 (v) shall not be modified or waived by either Party.

(vi) For the avoidance of doubt, the Parties expressly agree that the Appendix shall in no event contain sections of the Project Highway the cumulative length of which exceeds 10% (ten percent) of the total length of the Project Highway.

(vii) Pursuant to signing of Memorandum under clause 8.2 (i), the Authority Representative, the Contractor and the Authority Engineer shall inspect the Site and prepare a monthly land possession report till expiry of 270 (two hundred and seventy) days from Appointed Date, in respect of those parts of the site to which right of way was not given to the contractor by the Appointed Date and included in Appendix to the memorandum signed under clause 8.2 (i), duly specifying the part of the site, if any, for which the right of way is yet to be handed over. In the event of delay for any reason beyond 270 days, the works corresponding to Right of Way in

[10] This shall be replaced by 100% in case of greenfield stretches/standalone Bypass projects/Bridges/ tunnels as per instructions issued by the MoRTH vide Circular no. NH-24028/02/2024-H dated 06.05.2025.

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the Appendix not granted shall be deemed to be removed from the Scope of the Project and the same shall be dealt in accordance with Clause 8.3(iv).

8.3 Damages for delay in handing over the Site

(i) In the event the Right of Way to any part of the Site is not provided by the Authority on or before the date(s) specified in Clause 8.2 for any reason other than Force Majeure or breach of this Agreement by the Contractor, the Authority shall pay Damages to the Contractor a sum calculated in accordance with the following formula for and in respect of those parts of the Site to which the Right of Way has not been provided:

Amount of Damages in Rs. per day per metre = $0.05 \times C \times \frac{1}{L} \times \frac{1}{N}$

Where,

C = the Contract Price;

L = length of the Project Highway in metres; and

N = Completion period in days (Appointed Date to Scheduled Completion Date)

In the event that any Damages are due and payable to the Contractor under the provisions of this Clause 8.3 (i) for delay in providing the Right of Way, the Contractor shall, subject to the provisions of Clause 10.5, be entitled to Time Extension equal to the period for which the Damages have become due and payable under this Clause 8.3 (i), save and except that:

(a) if any delays involve time overlaps, the overlaps shall not be additive; and

(b) such Time Extension shall be restricted only to the Works which are affected by the delay in providing the Right of Way.

For the avoidance of doubt, the Parties expressly agree that the Damages specified hereunder and the Time Extension specified in Clause 10.5 shall be restricted only to failure of the Authority to provide the Right of Way for and in respect of the Construction Zone.

(ii) Notwithstanding anything to the contrary contained in this Agreement, the Contractor expressly agrees that Works on all parts of the Site for which Right of Way of Construction Zone is granted on the Appointed Date, or with respect to the parts of the Site provided in Schedule-A, no later than the date(s) specified therein, as the case may be, shall be completed before the Scheduled Completion Date and shall not qualify for any Time Extension under the provisions of Clause 8.3 (iii).

(iii) (a) Notwithstanding anything to the contrary contained in this Agreement, unless covered under the deemed de-scoping in terms of sub-clause 8.3 (iii) (b), the Authority may at any time withdraw any Works forming part of this Agreement, subject to such Works not exceeding an aggregate value, such value to be determined

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in accordance with Schedule-H, equal to 10 (ten) percent of the Contract Price.

(b) Provided that if any Works cannot be undertaken within the municipal limits of a town or within any area falling in a reserved forest or wildlife sanctuary or the stretches where Right of Way could not be handed over, as the case may be, because the requisite clearances or approvals or affected land parcels for commencing construction of Works therein have not been given within 270 (two hundred and seventy) days of the Appointed date, the affected Works shall be deemed to be withdrawn under the provisions of this Clause 8.3(iii). Such Works shall not be computed for the purposes of the aforesaid ceiling of 10% (ten per cent) hereunder.

(c) Provided further that in case such stretches (as mentioned in Sub-Clause (b) above) can be handed over to the Contractor before the expiry of the original Scheduled Construction Period of the Project Highway, and the Contractor agrees to take up the work, the same may be allowed to be executed by him with corresponding Extension of Time, subject to the condition that the Contractor shall not be entitled to raise any claims on account of prolongation costs in this behalf.

(iv) In the event of withdrawal of Works under Clause 8.3 (iii) (a), the Contract Price shall be reduced by an amount equal to the per cent of the value of the Works withdrawn as mentioned in the Table below and the Contractor shall not be entitled to any other compensation or Damages for the withdrawal of Works.

Value of the Works withdrawn	**Percentage of value of works to be reduced from Contract Price**
upto Rs. 100 Crore	90%
More than Rs. 100 Crore	Rs. 90 Crore plus 95% of the amount greater than Rs. 100 Crore

Provided that if any Works are withdrawn after commencement of the Construction of such works, the Authority shall pay to the Contractor 110% (one hundred and ten per cent) of the fair value of the work done, as assessed by the Authority' Engineer.

The parties expressly agree that the value of the Works withdrawn shall be determined from the details available in Schedule-H. In the event that it is impossible to determine the value from Schedule-H, then the value shall be determined in accordance with the provisions of Clause 13.2 (iv).

8.4 Site to be free from Encumbrances

Subject to the provisions of Clause 8.2, the Site shall be made available by the Authority to the Contractor pursuant hereto free from all Encumbrances and occupations and without the Contractor being required to make any payment to the Authority because of any costs, compensation, expenses and charges for the

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acquisition and use of such Site for the duration of the Project Completion Schedule. For the avoidance of doubt, it is agreed that the existing rights of way, easements, privileges, liberties and appurtenances to the Site shall not be deemed to be Encumbrances. It is further agreed that, unless otherwise specified in this Agreement, the Contractor accepts and undertakes to bear any and all risks arising out of the inadequacy or physical condition of the Site.

8.5 Protection of Site from encroachments

On and after signing the memorandum and/or subsequent memorandum referred to in Clause 8.2, and until the issue of the Completion Certificate, the Contractor shall maintain a round-the-clock vigil over the Site and shall ensure and procure that no encroachment takes place thereon. During the Construction Period, the Contractor shall protect the Site from any and all occupations, encroachments or Encumbrances, and shall not place or create nor permit any Sub-contractor or other person claiming through or under the Agreement to place or create any Encumbrance or security threat over all or any part of the Site or the Project Assets, or on any rights of the Contractor therein or under this Agreement, save and except as otherwise expressly set forth in this Agreement. In the event of any encroachment or occupation on any part of the Site, the Contractor shall report such encroachment or occupation forthwith to the Authority and undertake its removal at its own cost and expenses.

8.6 Special/ temporary Right of Way

The Contractor shall bear all costs and charges for any special or temporary right of way required by it in connection with access to the Site. The Contractor shall obtain at its cost such facilities on or outside the Site as may be required by it for the purposes of the Project Highway and the performance of its obligations under this Agreement.

8.7 Access to the Authority and the Authority Engineer

(i) The Right of Way given to the Contractor hereunder shall always be subject to the right of access of the Authority and the Authority Engineer and their employees and agents for inspection, viewing and exercise of their rights and performance of their obligations under this Agreement.

(ii) The Contractor shall ensure, subject to all relevant safety procedures, that the Authority has un-restricted access to the Site during any emergency situation, as decided by the Authority Engineer.

8.8 Geological and archaeological finds

It is expressly agreed that mining, geological or archaeological rights do not form part of this Agreement with the Contractor for the Works, and the Contractor hereby acknowledges that it shall not have any mining rights or interest in the underlying minerals, fossils, antiquities, structures or other remnants or things either of particular geological or archaeological interest and that such rights, interest and property on or under the Site shall vest in and belong to the Authority or the concerned Government

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Instrumentality. The Contractor shall take all reasonable precautions to prevent its workmen or any other person from removing or damaging such interest or property and shall inform the Authority forthwith of the discovery thereof and comply with such instructions as the concerned Government Instrumentality may reasonably give for the removal of such property. For the avoidance of doubt, it is agreed that any reasonable expenses incurred by the Contractor hereunder shall be reimbursed by the Authority. It is also agreed that the Authority shall procure that the instructions hereunder are issued by the concerned Government Instrumentality within a reasonable period.

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Article 9

Utilities and Trees

9.1 Existing utilities and roads

Notwithstanding anything to the contrary contained herein, it shall be the responsibility of the Contractor to ensure that the respective entities owning the existing roads, right of way, level crossings, structures, or utilities on, under or above the Site are enabled by it to keep them in continuous satisfactory use, if necessary, by providing suitable temporary or permanent diversions with the authority of the controlling body of that road, right of way or utility.

9.2 Shifting of obstructing utilities

(i) The Contractor shall, subject to Applicable Laws and with the facilitation of the Authority, undertake shifting of any utility (including electric lines, water pipes and telephone cables), to an appropriate location or alignment, if such utility or obstruction adversely affects the execution of Works or Maintenance of the Project Highway in accordance with this Agreement, as per the scope specified in Schedule B and in accordance with the applicable standards and specifications of concerned utility owning agency.

The cost of shifting of such utilities, indicated in Schedule-B, shall be payable by the Authority to the Contractor as per Schedule H. The Contractor shall execute such utility shifting works under the supervision of the concerned utility owning agency and the Authority Engineer (AE) in accordance with the provisions of this Agreement. The supervision charges only shall be paid by the Authority to the utility owning entity. The Authority shall also pay the shutdown charges, as provided by the utility owning agency, for electrical transmissions systems of voltage 400kV and above, for the period specified by the utility owning entity, provided that such charges shall not be payable in respect of any period attributable to delay on the part of the Contractor.

For the avoidance of doubt, it is clarified that the Contractor shall be responsible for shifting of the utilities falling within its scope under this Agreement and ensure that the same shall be completed before the expiry of Project Milestone-II defined in Schedule J. In the event of any delay in shifting thereof, the Contractor shall be responsible for any resulting failure to perform any of its obligations hereunder unless such failure is a direct consequence of delay on the part of the utility owning agency, and duly recorded by the Authority Engineer

The Contractor shall, within 60 (sixty) days from the Appointed Date, identify any existing utilities not included in Schedule B, if any, and notify the Authority forthwith and the cost of shifting of such utilities, shall be treated as Change of Scope. The Authority shall provide necessary assistance to the Contractor for obtaining the

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estimates for shifting of such utilities from the entity owning such utility.

The work of shifting of Utilities may be commenced by the Contractor any time after signing of the Agreement. The dismantled material/scrap of existing Utility to be shifted/dismantled shall belong to the Contractor who would be free to dispose-off the dismantled material as deemed fit by them.

(ii) In the event this Agreement is terminated prior to the Appointed Date, the Authority shall reimburse the Contractor the cost incurred towards shifting of utilities, including compensation cost as per guidelines for payment of compensation towards damages (without acquisition) in regard to right of way of transmission lines issued by Ministry of Power, Govt. of India, undertaken during the Development Period, subject to acceptance of work by concerned utility owning agency and certification by the Authority Engineer. Such reimbursement shall be limited to the actual work executed at the Site and shall be payable at the rates specified in the approved estimates of the concerned utility owning agency, provided that such shifting of utilities has been undertaken in accordance with Clause 9.2(i)

9.3 New utilities

(i) The Contractor shall, subject to the permission from the Authority and such conditions as the Authority may specify, allow access to, and use of the Site for laying telephone lines, water pipes, electricity lines/ cables or other public utilities after issue of Completion Certificate. Where such access or use causes any financial loss to the Contractor, it may require the user of the Site to pay compensation or damages in accordance with the policies of the Authority issued from time to time for laying of utilities. For the avoidance of doubt, it is clarified that use of the Site shall not in any manner relieve the Contractor of its obligation to construct and maintain the Project Highway in accordance with this Agreement and any damage caused due to such use shall be restored by the Contractor forthwith.

(ii) Deleted.

(iii) Deleted.

(iv) In the event construction of any Works is affected by a new utility or works undertaken in accordance with this Clause 9.3, the Contractor shall be entitled to a reasonable Time Extension as determined by the Authority Engineer.

9.4 Felling of trees

The Authority shall obtain the Applicable Permits for felling of trees by the Contractor if, and only if, such trees cause a Material Adverse Effect on the construction or maintenance of the Project Highway. The Contractor shall fell these trees as per the Permits obtained. The cost of such felling shall be borne by the Authority and in the event of any delay in felling thereof for reasons beyond the control of the Contractor; it shall be excused for failure to perform any of its obligations hereunder if such failure is a direct consequence of delay in the felling of trees. The Parties hereto agree that

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the felled trees shall be deemed to be owned by the Authority and shall be disposed in such manner and subject to such conditions as the Authority may in its sole discretion deem appropriate. For the avoidance of doubt, the Parties agree that if any felling of trees hereunder is in a forest area, the Applicable Permit thereof shall be procured by the Authority within the time specified in the Agreement.

9.5 Dismantling of structures

The Contractor shall at its own cost dismantle the structures in the acquired lands including those on patta lands, abadi lands, assigned lands, or any other category of land for which possession has been handed over by the Authority. The Contractor shall, at its own cost, dispose of the dismantled material in its sole discretion as deemed appropriate, subject to compliance with Applicable Laws, including all environmental guidelines and regulations and clear the Site for undertaking construction in accordance with this Agreement.

9.6 Development Period

The Contractor may commence pre-construction activities like utility shifting, boundary wall construction or any other activity assigned to the Contractor by the Authority to enable construction of the Project Highway immediately after signing of the Agreement, to the extent that such work is ready for execution. The Parties agree that these works may be taken up and completed to the extent feasible by the Contractor, before declaration of the Appointed Date, but no claim against the Authority for delay shall survive during this period and that the undertaking of these works by the Contractor shall not count towards the Scheduled Construction Period of the project which starts counting only from the Appointed Date. No construction activity of the Project Highway shall be undertaken during the development period.

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Article 10

Design and Construction of the Project Highway

10.1 Obligations prior to commencement of Works

(i) Within 30 (thirty) days of signing of the Agreement, the Contractor shall:

(a) appoint its representative, duly authorised to deal with the Authority in respect of all matters under or arising out of or relating to this Agreement;

(b) appoint a design director (the "**Design Director**") who will head the Contractor's design unit and shall be responsible for surveys, investigations, collection of data, and preparation of preliminary and detailed designs;

(c) undertake and perform all such acts, deeds and things as may be necessary or required before commencement of Works under and in accordance with this Agreement, the Applicable Laws and Applicable Permits; and

(d) make its own arrangements for quarrying of materials needed for the Project Highway under and in accordance with the Applicable Laws and Applicable Permits.

(ii) The Authority shall, appoint an engineer (the **"Authority Engineer"**) before the Appointed Date to discharge the functions and duties specified in this Agreement, and shall notify to the Contractor the name, address and the date of appointment of the Authority Engineer forthwith.

(iii) Within 30 (thirty) days of signing of the Agreement, the Contractor shall submit to the Authority and the Authority Engineer a programme (the **"Programme"**) for the Works, developed using networking techniques, for review and consent of the Engineer, giving the following details:

(a) Part I : Contractor's organisation for the Project, the general methods and arrangements for design and construction, environmental management plan, Quality Assurance Plan including design quality plan, traffic management and safety plan covering safety of users and workers during construction (including use of 'ROBOTS' for diversion and control of traffic), Contractor's key personnel and equipment.

(b) Part II : Programme for completion of all stages of construction given in Schedule-H and Project Milestones of the Works as specified in Project Completion Schedule set forth in Schedule-J. The Programme shall include:

i. the order in which the Contractor intends to carry out the Works, including the anticipated timing of design and stages of Works;

ii. the periods for reviews under Clause 10.2;

iii. the sequence and timing of inspections and tests specified in this

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Agreement; and

iv. the particulars for the pre-construction reviews and for any other submissions, approvals and consents specified in the Agreement.

The Contractor shall submit a revised Programme whenever the previous Programme is inconsistent with the actual progress or with the Contractor's obligations.

(c) Part III : Monthly cash flow forecast.

(iv) The Contractor shall compute, on the basis of the Drawings prepared in accordance with Clause 10.2 (iv), and provide to the Authority Engineer, the length, area and numbers, as the case may be, in respect of the various items of work specified in Schedule-H and comprising the Scope of the Project. The Parties expressly agree that these details shall form the basis for estimating the interim payments for the Works in accordance with the provisions of Clause 19.3. For the avoidance of doubt, the sum of payments to be computed in respect of all the items of work shall not exceed the Contract Price, as may be adjusted in accordance with the provisions of this Agreement.

(v) The Contractor shall appoint a safety consultant (the **"Safety Consultant"**) to carry out a safety audit at the design stage of the Project Highway in accordance with the Applicable Laws and Good Industry Practice. The Safety Consultant shall be appointed after proposing to the Authority a panel of three (3) names of qualified and experienced firms from which the Authority may choose one (1) to be the Safety Consultant. Provided, however, that if the panel is not acceptable to the Authority and the reasons for the same are furnished to the Contractor, the Contractor shall propose to the Authority a revised panel of three (3) names from the firms empanelled as safety consultants by the [Ministry of Road Transport and Highways/ National Highways Authority of India] for obtaining the consent of the Authority. The Contractor shall also obtain the consent of the Authority for the key personnel of the Safety Consultant who shall have adequate experience and qualifications in safety audit of the highway projects. The Authority shall, within 15 (fifteen) days of receiving a proposal from the Contractor hereunder, convey its decision, with reasons, to the Contractor, and if no such decision is conveyed within the said period, the Contractor may proceed with engaging of the Safety Consultant.

(vi) The safety audit pursuant to Clause 10.1 (v) shall be carried out by the Safety Consultant in respect of all such design details that have a bearing on safety of Users as well as pedestrians and animals involved in or associated with accidents. The recommendations of the Safety Consultant shall be incorporated in the design of the Project Highway and the Contractor shall forward to the Authority Engineer a certificate to this effect together with the recommendations of the Safety Consultant. In the event that any works required by the Safety Consultant shall fall beyond the scope of Schedule-B, Schedule-C or Schedule-D, the Contractor shall make a report thereon and seek the instructions of the Authority for Change in Scope. For the avoidance of doubt, the Safety Consultant to be engaged by the Contractor shall be

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independent of the design and implementation team of the Contractor.

10.2 Design and Drawings

(i) Design and Drawings shall be developed in conformity with the Specifications and Standards set forth in Schedule-D. In the event, the Contractor requires any relaxation in design standards due to restricted Right of Way in any section, the alternative design criteria for such section shall be provided for review and approval of the Authority Engineer.

(ii) The Contractor shall appoint a proof check consultant (the "**Proof Consultant**") after proposing to the Authority a panel of three (3) names of qualified and experienced firms from whom the Authority may choose one (1) to be the Proof Consultant. Provided, however, that if the panel is not acceptable to the Authority and the reasons for the same are furnished to the Contractor, the Contractor shall propose to the Authority a revised panel of three (3) names from the firms empanelled as proof consultants by the [Ministry of Road Transport and Highways/National Highways Authority of India] for obtaining the consent of the Authority. The Contractor shall also obtain the consent of the Authority for two (2) key personnel of the Proof Consultant who shall have adequate experience and qualifications in highways and bridges respectively. The Authority shall, within 15 (fifteen) days of receiving a proposal from the Contractor hereunder, convey its decision, with reasons, to the Contractor, and if no such decision is conveyed within the said period, the Contractor may proceed with engaging of the Proof Consultant.

(iii) The Proof Consultant shall:

(a) evolve a systems approach with the Design Director so as to minimise the time required for final designs and construction drawings; and

(b) proof check the detailed calculations, drawings and designs, which have been approved by the Design Director.

(iv) In respect of the Contractor's obligations with respect to the design and Drawings of the Project Highway as set forth in Schedule-I, the following shall apply:

(a) The Contractor shall prepare and submit, with reasonable promptness and in such sequence as is consistent with the Project Completion Schedule, three (3) copies each of the design and Drawings, duly certified by the Proof Consultant, to the Authority Engineer for its approval. Provided, however, that in respect of Major Bridges and Structures, the Authority Engineer may require additional drawings for approval in accordance with Good Industry Practice.

(b) by submitting the Drawings for review and approval to the Authority Engineer, the Contractor shall be deemed to have represented that it has determined and verified that the design and engineering, including field construction criteria related thereto, are in conformity with the Scope of the Project, the Specifications and Standards and the Applicable Laws;

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(c) within 15 (fifteen) days of the receipt of the Drawings, the Authority Engineer shall review the same and convey its approval/observations to the Contractor with particular reference to their conformity or otherwise with the Scope of the Project and the Specifications and Standards. Provided, however that in case of a major bridge or structure, the aforesaid period of 15 (fifteen) days may be extended up to 30 (thirty) days;

(d) if the aforesaid observations of the Authority Engineer indicate that the Drawings are not in conformity with the Scope of the Project or the Specifications and Standards, such Drawings shall be revised by the Contractor in conformity with the provisions of this Agreement and resubmitted to the Authority Engineer for review and approval. The Authority Engineer shall give its observations, if any, within 10 (ten) days of receipt of the revised Drawings. In the event the Contractor fails to revise and resubmit such Drawings to the Authority Engineer for review/approval as aforesaid, the Authority Engineer may withhold the payment for the affected works in accordance with the provisions of Clause 19.5 (iv). If the Contractor disputes any decision, direction or determination of the Authority Engineer hereunder, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure;

(e) no review/approval and/or observation of the Authority Engineer and/or its failure to review/approval and/or convey its observations on any Drawings shall relieve the Contractor of its obligations and liabilities under this Agreement in any manner nor shall the Authority Engineer or the Authority be liable for the same in any manner; and if errors, omissions, ambiguities, inconsistencies, inadequacies or other Defects are found in the Drawings, they and the construction works shall be corrected at the Contractor's cost, notwithstanding any approval under this Article 10;

(f) the Contractor shall be responsible for delays in submitting the Drawing as set forth in Schedule-I caused by reason of delays in surveys and field investigations, and shall not be entitled to seek any relief in that regard from the Authority; and

(g) the Contractor warrants that its designers, including any third parties engaged by it, shall have the required experience and capability in accordance with Good Industry Practice and it shall indemnify the Authority against any damage, expense, liability, loss or claim, which the Authority might incur, sustain or be subject to arising from any breach of the Contractor's design responsibility and/or warranty set out in this Clause.

(h) the Contractor shall ensure that all the designs and drawings shall be approved from the Authority Engineer within 90 days (ninety) from the Appointed Date.

(v) Any cost or delay in construction arising from review/approval by the Authority Engineer shall be borne by the Contractor.

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(vi) Works shall be executed in accordance with the Drawings provided by the Contractor in accordance with the provisions of this Clause 10.2 and the approval of the Authority Engineer thereon as communicated pursuant to the provisions of sub-Clause (c) & (d) of Clause 10.2 (iv). Such Drawings shall not be amended or altered without prior written notice to the Authority Engineer. If a Party becomes aware of an error or defect of a technical nature in the design or Drawings, that Party shall promptly give notice to the other Party of such error or defect.

(vii) Within 90 (ninety) days of the Project Completion Date, the Contractor shall furnish to the Authority and the Authority Engineer a complete set of as- built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities.

10.3 Construction of the Project Highway

(i) The Contractor shall construct the Project Highway as specified in Schedule- B and Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works. The [**th (***) day] from the Appointed Date shall be the scheduled completion date (the **"Scheduled Completion Date"**) and the Contractor agrees and undertakes that the construction shall be completed on or before the Scheduled Completion Date, including any extension thereof.

(ii) The Contractor shall construct the Project Highway in accordance with the Project Completion Schedule set forth in Schedule-J. In the event that the Contractor fails to achieve any Project Milestone or the Scheduled Completion Date within a period of 30 (thirty) days from the date set forth in Schedule-J, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, it shall pay Damages to the Authority of a sum calculated at the rate of 0.25% (zero point two five percent) of the amount of Performance Security for delay of each day reckoned from the date specified in Schedule –J and until such Project Milestone is achieved or the Project Highway is completed; provided that if the period for any or all Project Milestones or the Scheduled Completion Date is extended in accordance with the provisions of this Agreement, the dates set forth in Schedule-J shall be deemed to be modified accordingly and the provisions of this Agreement shall apply as if Schedule-J has been amended as above; provided further that in the event the Project Highway is completed within or before the Scheduled Completion Date including any Time Extension, applicable for that work or section, the Damages paid under this Clause 10.3 (ii) shall be refunded by the Authority to the Contractor, but without any interest thereon.

The Parties agree that for determining achievement or delays in completion of the Project Milestones or the Project on the due date, the works affected due to delay in

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providing the site for which time extension has been granted beyond the Scheduled Completion Date will be excluded. For example on the due date to achieve the Project Milestone-I (i.e., Stage Payments of 10% (ten percent) of Contract Price on 270th (two hundred and seventy) day from the Appointed Date), if 5% (five percent) of the project length corresponding to the Project Milestone-I is not handed over or lately handed over resulting in the extension of completion of this 5% (five percent) length beyond Scheduled Completion Date, Stage Payment of 10% X 0.95 = 9.5% only is to be achieved by 270th (two hundred and seventy) day.

For the avoidance of doubt, it is agreed that recovery of Damages under this Clause 10.3 (ii) shall be without prejudice to the rights of the Authority under this Agreement including the right of Termination thereof. The Parties further agree that Time Extension hereunder shall only be reckoned for and in respect of the affected Works as specified in Clause 10.5 (ii).

(iii) The Authority shall notify the Contractor of its decision to impose Damages in pursuance with the provisions of this Clause 10.3. Provided that no deduction on account of Damages shall be effected by the Authority without notifying the Contractor of its decision to impose the Damages, and taking into consideration the representation, if any, made by the Contractor within 20 (twenty) days of such notice. The Parties expressly agree that the total amount of Damages under Clause 10.3 (ii) shall not exceed 10% (ten percent) of the Contract Price. If the damages exceed 10% (ten percent) of the Contract Price, the Contractor shall be deemed to be in default of this agreement having no cure and the Authority shall be entitled to terminate this Agreement by issuing a Termination Notice in accordance with the provisions of Clause 23.1 (ii).

(iv) Deleted.

10.4 Maintenance during Construction Period

(i) During the Construction Period, the Contractor shall maintain, at its cost, the existing lane(s) of the Project Highway in a pothole free condition and ensure that the quality of service, the traffic worthiness and safety standards are maintained and are at no time materially inferior as compared to the condition prevailing on the date of signing of this Agreement and in any event, conform at all times to the minimum safety, serviceability and maintenance standards prescribed and Good Industry Practice and shall undertake the necessary repair and maintenance works for this purpose; provided that the Contractor may, at its cost, interrupt and divert the flow of traffic if such interruption and diversion is necessary for the efficient progress of Works and conforms to Good Industry Practice; provided further that such interruption and diversion shall be undertaken by the Contractor only with the prior written approval of the Authority Engineer which approval shall not be unreasonably withheld. For the avoidance of doubt, it is agreed that the Contractor shall at all times be responsible for ensuring safe operation of the Project Highway. Prior to diversion of traffic, the Contractor shall strengthen/construct the service /diversion road to cater for the traffic in accordance with the Specifications & Standards and additional application

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standards issued by the Ministry/Authority. It is further agreed that where the Project includes construction of a bypass, tunnel, elevated corridor or realignment of the existing carriageway, the Contractor shall continue to maintain the existing highway and/or construct and maintain the diversion roads, service roads or slip roads, as applicable, so that the traffic worthiness, lane configuration and safety thereof in such sections are at no time materially inferior as compared to their condition on the date of signing of this Agreement, until the new Works are open to traffic.

(ii) In the event of a default by the Contractor in discharging its obligations under Clause 10.4 (i) above, the Authority shall be entitled to levy and recover Damages at the rate of 0.2% (zero point two per cent) of the Performance Security for each day of default hereunder.

Notwithstanding anything to the contrary contained in this Agreement, if such defaultcontinues for a continuous period exceeding 60 (sixty) days, the Authority, in addition to levying the aforesaid Damages, be entitled to cause the maintenance works to be executed in the manner recommended by the Authority Engineer, at the risk and cost of the Contractor, in order to avoid public inconvenience and to ensure that the road is maintained in traffic worthy condition. If the damages exceed 5% (five percent) of the Contract Price, the Contractor shall be deemed to be in default of this agreement having no cure and the Authority shall be entitled to terminate this Agreement by issuing a Termination Notice in accordance with the provisions of Clause 23.1 (ii).

(iii) The Parties expressly agree that the Contractor shall, within 7 (seven) days of the signing of this Agreement and with prior notice to the Authority, undertake a video recording of the condition and status of the Project Highway, from an altitude sufficient to capture both ends of the Right of Way or through such other mechanism as may be acceptable to the Authority, in the presence of the Authority Representative. Such recording shall be compiled into a digital video disc or any substitute thereof, and shall provide copy of such recording to the Authority within 2 (two) days of the recording. The Authority may, at its discretion, undertake a separate video recording of the Project Highway in the presence of the Contractor's representative, within 7 (seven) days from the date of submission of video recording by the Contractor, and substitute its video recording for that which was undertaken by the Contractor, by providing a copy of such recording to the Contractor within 7 (seven) days of such recording. The Parties further agree that the final video recording, whether undertaken by the Contractor or substituted by the Authority, shall serve as conclusive evidence of the status and condition of the Project Highway as on the date of such recording.

10.5 Extension of time for completion

(i) Without prejudice to any other provision of this Agreement for and in respect of extension of time, the Contractor shall be entitled to extension of time in the Project Completion Schedule (the **"Time Extension"**) to the extent that completion of any

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Project Milestone is or will be delayed by any of the following, namely:

(a) delay in providing the Right of Way of Construction Zone, forest clearances or approval of design of ROBs/RUBs by the railway authorities beyond Project Milestone-II;

(b) deleted;

(c) occurrence of a Force Majeure Event;

(d) any delay, impediment or prevention caused by or attributable to the Authority, the Authority's personnel or the Authority's other contractors on the Site; and

(e) any other cause or delay which entitles the Contractor to Time Extension in accordance with the provisions of this Agreement.

(ii) The Contractor shall, no later than 15 (fifteen) business days from the occurrence of an event or circumstance specified in Clause 10.5 (i), inform the Authority Engineer by notice in writing, with a copy to the Authority, stating in reasonable detail with supporting particulars, the event or circumstances giving rise to the claim for Time Extension in accordance with the provisions of this Agreement. Provided that the period of 15 (fifteen) business days shall be calculated from the date on which the Contractor became aware, or should have become aware, of the occurrence of such an event or circumstance.

Provided further that notwithstanding anything to the contrary contained in this Agreement, Time Extension shall be due and applicable only for the Works which are affected by the aforesaid events or circumstances and shall not in any manner affect the Project Completion Schedule for and in respect of the Works which are not affected hereunder.

(iii) On the failure of the Contractor to issue to the Authority Engineer a notice in accordance with the provisions of Clause 10.5 (ii) within the time specified therein, the Contractor shall not be entitled to any Time Extension and shall forfeit its right for any such claims in future. For the avoidance of doubt, in the event of failure of the Contractor to issue notice as specified in this clause 10.5 (iii), the Authority shall be discharged from all liability in connection with the claim.

(iv) The Authority Engineer shall, on receipt of the claim in accordance with the provisions of Clause 10.5 (ii), examine the claim expeditiously within the time frame specified herein. In the event the Authority Engineer requires any clarifications to examine the claim, the Authority Engineer shall seek the same within 15 (fifteen) days from the date of receiving the claim. The Contractor shall, on receipt of the communication of the Authority Engineer requesting for clarification, furnish the same to the Authority Engineer within 10 (ten) days thereof. The Authority Engineer shall, within a period of 30 (thirty) days from the date of receipt of such clarifications, forward in writing to the Contractor its determination of Time Extension.

Provided that when determining each extension of time under this Clause 10.5, the

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Authority Engineer shall review previous determinations and may increase, but shall not decrease, the total Time Extension.

(v) If the event or circumstance giving rise to the notice has a continuing effect:

(a) a fully detailed claim shall be considered as interim;

(b) the Contractor shall, no later than 10 (ten) days after the close of each month, send further interim claims specifying the accumulated delay, the extension of time claimed, and such further particulars as the Authority Engineer may reasonably require; and

(c) the Contractor shall send a final claim within 30 (thirty) days after the effect of the event or the circumstance ceases.

Upon receipt of the claim hereunder, the Authority Engineer shall examine the same in accordance with the provisions of Clause 10.5 (iv) within a period of 30 (thirty) days of the receipt thereof.

(vi) In case of grant of Extension of Time in the Project Completion Schedule for the events specified in Clause 10.5(i) above, the Contractor shall be entitled for compensation for prolonged stay at Site, which is to be worked out as under:

Amount of Damages = 0.08 x C x N' x 1/N

Where,

C = the Contract Price of the delayed works determined as per Schedule H.

N = Completion period in days for the delayed works as per approved Programme as referred in Clause 10.1(iii).

N' = Extension in days beyond the Schedule Completion Date.

For the avoidance of doubt, the Parties expressly agree that the aforesaid compensation is inclusive of the Damages determined and payable under Clause 8.3(i) and fully covers compensation for loss of head office overheads, profits, site overheads (including idling costs of manpower, machinery, and materials), loss of opportunity, and all other establishment and operational expenses incurred at the site and at the Contractor's head office.

The Parties further agree that the aggregate compensation payable under Clause 10.5(vi) shall not exceed 10% (ten percent) of the Contract Price. In the event that such compensation exceeds 10% (ten percent) of the Contract Price, the Contract shall be foreclosed by mutual consent in accordance with Clause 23.9.

10.6 Incomplete Works

In the event the Contractor fails to complete the Works in accordance with the Project Completion Schedule, including any Time Extension granted under this Agreement,

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the Contractor shall endeavour to complete the balance work expeditiously and shall pay Damages to the Authority in accordance with the provisions of Clause 10.3 (ii) for delay of each day until the Works are completed in accordance with the provisions of this Agreement. Recovery of Damages under this Clause shall be without prejudice to the rights of the Authority under this Agreement including the right to termination under Clause 23.1.

10.7 Maintenance Manual

No later than 60 (sixty) days prior to the Project Completion Date, the Contractor shall, in consultation with the Authority Engineer, evolve a maintenance manual (the **"Maintenance Manual"**) for the regular and preventive maintenance of the Project Highway in conformity with the Specifications and Standards, safety requirements and Good Industry Practice, and shall provide 5 (five) copies thereof to the Authority Engineer. The Authority Engineer shall review the Maintenance Manual within 15 (fifteen) days of its receipt and communicate its comments to the Contractor for necessary modifications, if any.

10.8 As-Built Records

The Contractor shall prepare, and keep up-to-date, a complete set of as built records of the execution of the Works, showing the exact as built locations, sizes and details on the Works as executed with cross references to all relevant specifications and data sheets. These records shall be kept on the Site and shall be used exclusively for the purpose of this Sub-Clause 10.8. The Contractor shall provide 2 (two) copies of as built records to the Authority prior to the commencement of the Tests on Completion.

10.9 Contractor's Use of Authority's Documents

Intellectual property in the Authority's requirements and Specifications and Standards and all other documents and materials issued by the Authority or the Authority Representative to the Contractor shall (as between the parties) remain the property of the Authority. The Contractor may, at its cost, copy, use and communicate any such documents for the purposes of the Contract. They shall not, without the consent of the Authority, be used, copied or communicated to a third party by the Contractor, except as necessary for the purposes of the Works under the Agreement.

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Article 11

Quality Assurance, Monitoring and Supervision

11.1 Quality of Materials and workmanship

The Contractor shall ensure that the Construction, Materials and workmanship are in accordance with the requirements specified in this Agreement, Specifications and Standards and Good Industry Practice.

11.2 Quality control system

(i) The Contractor shall establish a quality control mechanism to ensure compliance with the provisions of this Agreement (the **"Quality Assurance Plan"** or **"QAP"**).

(ii) The Contractor shall, within 30 (thirty) days of the Appointed Date, submit to the Authority Engineer its Quality Assurance Plan which shall include the following:

(a) an organisation chart of the quality control system, clearly indicating all personnel involved along with their respective duties and responsibilities, the procedures and performas to be adopted for quality control documentation, and the prescribed frequency of inspections;

(b) quality control mechanism including sampling and testing of Materials, test frequencies, standards, acceptance criteria, testing facilities, reporting, recording and interpretation of test results, approvals, check list for site activities, and proforma for testing and calibration in accordance with the Specifications for Road and Bridge Works issued by MORTH, relevant IRC specifications and Good Industry Practice; and

(c) internal quality audit system.

The Authority Engineer shall convey its approval to the Contractor within a period of 21 (twenty-one) days of receipt of the QAP stating the modifications, if any, required, and the Contractor shall incorporate those in the QAP to the extent required for conforming with the provisions of this Clause 11.2.

(iii) The Contractor shall procure all documents, apparatus and instruments, fuel, consumables, water, electricity, labour, Materials, samples, and qualified personnel as are necessary for examining and testing the Project Assets and workmanship in accordance with the Quality Assurance Plan.

(iv) The cost of testing of Construction, Materials and workmanship under this Article 11 shall be borne by the Contractor.

11.3 Methodology

The Contractor shall, at least 15 (fifteen) days prior to the commencement of the construction, submit to the Authority Engineer for review and consent the methodology proposed to be adopted for executing the Works, giving

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details of equipment to be deployed, traffic management and measures for ensuring safety. The Authority Engineer shall complete the review and convey its consent to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

11.4 Inspection and technical audit by the Authority

The Authority or any representative authorised by the Authority in this behalf may inspect and review the progress and quality of the construction of Project Highway and issue appropriate directions to the Authority Engineer and the Contractor for taking remedial action in the event the Works are not in accordance with the provisions of this Agreement.

11.5 External technical audit

(i) At any time during construction, the Authority may appoint an external technical auditor to conduct an audit of the quality of the Works. The Auditor in the presence of the representatives of the Contractor and the Authority Engineer shall carry out the tests and/ or collect samples for testing in the laboratory. The timing, the testing equipment and the sample size of this audit shall be as decided by the Authority. The findings of the audit, to the extent accepted by the Authority, shall be notified to the Contractor and the Authority Engineer for taking remedial action in accordance with this Agreement.

(ii) After completion of the remedial measures by the Contractor, the Auditor shall undertake a closure audit and this process will continue till the remedial measures have brought the works into compliance with the Specifications and Standards. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in this Clause 11.5, the external technical audit shall not affect any obligations of the Contractor or the Authority Engineer under this Agreement.

11.6 Inspection of construction records

The Authority shall have the right to inspect the records of the Contractor relating to the Works.

11.7 Monthly progress reports

During the Construction Period, the Contractor shall, no later than 10 (ten) days after the close of each month, furnish to the Authority and the Authority Engineer and upload on the Authority's designated portal/website, a monthly report on progress of the Works and shall promptly give such other relevant information including invoices of materials (i.e. steel, cement, bitumen and aggregates) as may be required by the Authority Engineer. The Contractor shall ensure that a functional location tracking system is installed in each construction vehicle and shall provide the Authority, through its central server, a detailed report (along with each monthly report), real-time records indicating the locations and movements of all such vehicles, which shall

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include the following information:

(i). Real- time location data of each construction vehicle.

(ii). Timestamps indicating the start and end times of vehicle movements.

(iii). Mileage covered by each vehicle.

The Contractor shall be responsible for ensuring the accuracy and integrity of the GPS tracking data

The Contractor agrees that reporting under this Clause 11.7 shall continue until the date of the completion of the Works. Each report shall include:

(a) an executive summary;

(b) charts showing the status of Contractor's documents, construction and manufacturing and environmental works;

(c) details of work subcontracted and the performance of Sub-contractors;

(d) for the construction of each main part of the Works, the extent of progress (both quantity and percentage of the whole), the actual or expected dates of commencement, anticipated completion date of the activity, Contractor's inspections and tests;

(e) records of manpower and Contractor's equipment on the Site;

(f) copies for that month of quality assurance documents, test results and certificates;

(g) safety statistics, accident data collection including details of any hazardous incidents and activities relating to environmental aspects and public relations;

(h) comparisons of actual and planned progress, with details of any aspects which may jeopardise the completion in accordance with the Agreement, and the measures being (or to be) adopted to overcome such aspects;

(i) details of any unresolved disputes or claims, in relation to the Project;

(j) details of any revision to the cash flow estimate, together with a copy of the revised cash flow estimate;

(k) status of various Applicable Permits and compliance of conditions therein;

(l) details of various royalty payment and insurances required to be taken by the Contractor; and

(m) such other reports as may be required by the Authority for enabling the Authority to comply with its obligations under the other Project contracts.

(n) details of defects by the Authority;

(o) change in emission of any sewage or effluent of any nature whatsoever, whether qualitatively or quantitatively;

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(p) any Material Adverse Effect;

(q) declaration towards compliance with Applicable Laws including but not limited to environmental and labour legislations;

(r) declaration specifying compliance with all Manuals provided to the Contractor; and

(s) any change in the flow of traffic in the existing Project Highway.

11.8 Inspection

(i) The Authority Engineer and its authorised representative shall at all reasonable times:

(a) have full access to all parts of the Site and to all places from which natural Materials are being obtained for use in the Works; and

(b) during production, manufacture and construction at the Site and at the place of production, be entitled to examine, inspect, measure and test the Materials and workmanship, and to check the progress of manufacture of Materials.

(ii) The Contractor shall give the Authority Engineer and its authorised agents access, facilities and safety equipment for carrying out their obligations under this Agreement.

(iii) The Authority Engineer shall inspect every kilometre of the Project Highway at least once a month duly supported by video recording captured using a drone or such other mechanism acceptable to the Authority and shall submit a monthly inspection report (the "**Inspection Report**") to the Authority and the Contractor bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. For the avoidance of doubt, such inspection or submission of Inspection Report or video recording or lack thereof by the Authority Engineer shall not relieve or absolve the Contractor of its obligations and liabilities under this Agreement in any manner whatsoever. The Authority reserves the right to host the video on its website for public viewing.

11.9 Samples

The Contractor shall submit the following samples of Materials and relevant information to the Authority Engineer for pre-construction review:

(a) manufacturer's test reports and standard samples of manufactured Materials; and

(b) samples of such other Materials as the Authority Engineer may require.

11.10 Tests

(i) For determining that the Works conform to the Specifications and Standards, the Authority Engineer shall require the Contractor to carry out or cause to be carried out

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tests, at such location, time and frequency and in such manner as specified in this Agreement, and in accordance with Good Industry Practice for quality assurance. The test checks by the Authority Engineer shall comprise at least 50% (fifty percent) of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.

(ii) In the event that results of any tests conducted under this Clause 11.10 establish any Defects or deficiencies in the Works, the Contractor shall carry out remedial measures and furnish a report to the Authority Engineer in this behalf. The Authority Engineer shall require the Contractor to carry out or cause to be carried out tests to determine that such remedial measures have brought the Works into compliance with the Specifications and Standards, and the procedure shall be repeated until such Works conform to the Specifications and Standards. For the avoidance of doubt, the cost of such tests and remedial measures in pursuance thereof shall be solely borne by the Contractor.

11.11 Examination of work before covering up

In respect of the work which the Authority Engineer is entitled to examine, inspect, measure and/or test before it is covered up or put out of view or any part of the work is placed thereon, the Contractor shall give notice to the Authority Engineer whenever any such work is ready and before it is covered up. The Authority Engineer shall then either carry out the examination, inspection or testing without unreasonable delay, or promptly give notice to the Contractor that the Authority Engineer does not require to do so. Provided, however, that if any work is of a continuous nature where it is not possible or prudent to keep it uncovered or incomplete, the Contractor shall notify the schedule of carrying out such work to give sufficient opportunity, not being less than 3 (three) business days' notice, to the Authority Engineer to conduct its inspection, measurement or test while the work is continuing. Provided further that in the event the Contractor receives no response from the Authority Engineer within a period of 3 (three) business days from the date on which the Contractor's notice hereunder is delivered to the Authority Engineer, the Contractor shall be entitled to assume that the Authority Engineer would not undertake the said inspection.

11.12 Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials, design or workmanship is found to be defective or otherwise not in accordance with the provisions of this Agreement, the Authority Engineer shall reject the Plant, Materials, design or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the Defect and ensure that the rejected item complies with the requirements of this Agreement.

If the Authority Engineer requires the Plant, Materials, design or workmanship to be retested, the tests shall be repeated under the same terms and conditions, as applicable in each case. If the rejection and retesting cause the Authority to incur any additional costs, such cost shall be recoverable by the Authority from the Contractor;

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and may be deducted by the Authority from any monies due to be paid to the Contractor.

11.13 Remedial work

(i) Notwithstanding any previous test or certification, the Authority Engineer may instruct the Contractor to:

(a) remove from the Site and replace any Plant or Materials which are not in accordance with the provisions of this Agreement;

(b) remove and re-execute any work which is not in accordance with the provisions of this Agreement and the Specification and Standards; and

(c) execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.

(ii) If the Contractor fails to comply with the instructions issued by the Authority Engineer under Clause 11.13 (i), within the time specified in the Authority Engineer's notice or as mutually agreed, the Authority Engineer may advise the Authority to have the work executed by another agency. The cost so incurred by the Authority for undertaking such work shall, without prejudice to the rights of the Authority to recover Damages in accordance with the provisions of this Agreement, be recoverable from the Contractor and may be deducted by the Authority from any monies due to be paid to the Contractor.

11.14 Delays during construction

Without prejudice to the provisions of Clause 10.3 (ii), in the event the Contractor does not achieve any of the Project Milestones or the Authority Engineer shall have reasonably determined that the rate of progress of Works is such that Completion of the Project Highway is not likely to be achieved by the end of the Scheduled Completion Date, it shall notify the same to the Contractor, and the Contractor shall, within 15 (fifteen) days of such notice inform the Authority Engineer in reasonable detail about the steps it proposes to take to expedite progress and submit a revised schedule as provided in accordance with Clause 10.1 for achieving the Project Milestones or Project Completion Date, as the case may be.

For the avoidance of doubt, submission of such revised schedule shall not be construed as approval thereof by the Authority or the Authority Engineer, nor shall it relieve the Contractor of its obligation to achieve the Project Milestones and the Scheduled Completion Date in accordance with this Agreement.

Further, if the Authority Engineer reports that the progress achieved by the Contractor over any continuous period of three months is less than 75% of the revised schedule, the Authority may, without prejudice to the rights of the Authority

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under this Agreement, invoke termination as per Clause 23.1(i)(s) of this Agreement.

Notwithstanding anything contrary contained hereinabove, in the event that the Contractor fails to achieve the Project Completion within a period of [*** (***)][11] days from the Schedule Completion Date set forth in Schedule-J, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, the Authority may, without prejudice to the rights of the Authority under this Agreement, invoke termination as per Clause 23.1(i)(s) of this Agreement and declare the contractor (including each partner of the Joint Venture) as non-performer and ineligible for bidding in any future projects of the Authority, both as the sole party or as one of the parties of Joint Venture/ Consortium, for a period of 2 (two) years from the date of termination.

11.15 Quality control records and Documents

The Contractor shall hand over a copy of all its quality control records and documents to the Authority Engineer before the Completion Certificate is issued pursuant to Clause 12.4. The Contractor shall submit Road Signage Plans to the Authority Engineer for approval at least 6 (six) months prior to expected completion of Project Highway.

11.16 Video recording

During the Construction Period, the Contractor shall provide to the Authority for every calendar month, a video recording through drone or such other mechanism as may be acceptable to the Authority, capturing the status and progress of Construction Work for that month from an altitude sufficient to capture both ends of the Right of Way and compile the said recording into digital video disc, or such other digital format as may be specified by the Authority. The first such video recording shall be provided to the Authority within 7 (seven) days of the Appointed Date and thereafter, no later than 15 (fifteen) days following the end of each month.

Such video recording shall be carried out in accordance with the standard operating procedure or guidelines of the Authority from time to time, and shall also be uploaded by the Contractor on the Authority's designated portal/website. The Authority Engineer shall ensure that the features and quality of the video recording conform to the standard operating procedure or guidelines of the Authority and the video is not distorted/tampered with. The Authority Engineer shall also review and analyse each of the said video recordings and incorporate its observations, if any, in the Inspection Report. The Contractor shall be responsible for ensuring the accuracy, completeness, and integrity of the video recording. The Authority reserves the right to host such video recordings on its website for public viewing.

Notwithstanding anything to the contrary contained in this Agreement, in case of any discrepancy in information/data captured through video recording under this Clause

[11] 50% of the period specified in Clause 10.3(i).

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11.16 or location tracking system under Clause 11.7, the information/data captured through video recording under this Clause shall prevail.

11.17 Suspension of unsafe Construction Works

(i) Upon recommendation of the Authority Engineer to this effect, the Authority may by notice require the Contractor to suspend forthwith the whole or any part of the Works if, in the reasonable opinion of the Authority Engineer, such work threatens the safety of the Users and pedestrians.

(ii) The Contractor shall, pursuant to the notice under Clause 11.17 (i), suspend the Works or any part thereof for such time and in such manner as may be specified by the Authority and thereupon carry out remedial measures to secure the safety of suspended works, the Users and pedestrians. The Contractor may by notice require the Authority Engineer to inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked. Upon receiving the recommendations of the Authority Engineer, the Authority shall either revoke such suspension or instruct the Contractor to carry out such other and further remedial measures as may be necessary in the reasonable opinion of the Authority, and the procedure set forth in this Clause 11.17 shall be repeated until the suspension hereunder is revoked. For the avoidance of doubt, it agreed that any such remedial measures undertaken shall not in any manner relieve the Contractor of its obligations under this Agreement.

(iii) Subject to the provisions of Clause 21.6, all reasonable costs incurred for maintaining and protecting the Works or part thereof during the period of suspension (the "**Preservation Costs**"), shall be borne by the Contractor; provided that if the suspension has occurred as a result of any breach of this Agreement by the Authority, the Preservation Costs shall be borne by the Authority.

(iv) If suspension of Works is for reasons not attributable to the Contractor, the Authority Engineer shall, after due consideration of the comments of the Authority, determine any Time Extension to which the Contractor is reasonably entitled.

11.18 Staff and Labour

(i) Engagement of Staff and Labour

(a) The Contractor shall make its own arrangements for the engagement of all personnel and labour, local or otherwise, and for their payment, housing, feeding and transport.

(b) The Contractor has verified/ shall verify the identity and address of all its employees and officials related to the Works by collecting necessary documentary proof.

(c) The Contractor shall seek a self-declaration from its employees that they have not been convicted of any criminal offence by any court and if any criminal proceedings/charge-sheets have been pending/filed against them. The

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Contractor shall not employ persons with criminal track record on the project. In cases where it comes to notice later that the employee concerned has concealed any such fact in his self-declaration or commits a criminal offence during the course of his employment, the Contractor shall remove such person from the project

(d) Deleted.

(e) The employees and personnel of the Contractor shall work under the supervision, control and direction of the Contractor and the Contractor shall be solely responsible for all negotiations with its employees and personnel relating to their salaries and benefits, and shall be responsible for assessments and monitoring of performance and for all disciplinary matters. All employees / personnel, executives engaged by the Contractor shall be in sole employment of the Contractor and the Contractor shall be solely responsible for their salaries, wages, statutory payments, etc and under no circumstances the personnel shall be deemed to be the employees of the Authority. Under no circumstances the Authority shall be liable for any payment or claim or compensation of any nature to the employees and personnel of the Contractor.

(ii) Returns of Labour

(a) The Contractor shall deliver to the Authority a detailed return in such form and at such intervals as the Authority may prescribe, showing the details including names, payment details and terms of appointment of the several classes of labour employed by the Contractor from time to time for the Works. The Contractor shall, in its returns certify that all dues of the workers or labour have been fully paid.

(b) The Authority is entitled to witness labour payments made or to be made by the Contractor. If the Contractor defaults in its obligations for making any payments under the labour laws, the Employer may make the relevant payments. Any sum equal to any amount paid by the Employer under this Sub-Clause 11.18(ii) shall be immediately due as a debt from the Contractor to the Employer and until payment/ set off shall carry interest at 18% per annum. For this purpose, it is agreed between the parties that debt due aforesaid shall be set off immediately from the running account bills of the Contractor under this Agreement.

(iii) Persons in the Service of Others

The Contractor shall not recruit, or attempt to recruit from amongst persons in the service of the Authority.

(iv) Labour Laws

(a) The Contractor shall obtain all relevant labour registrations and comply with all relevant labour laws applying to its employees, and shall duly pay them

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and afford to them all their legal rights.

(b) The Contractor shall make all deductions of tax at source and all contributions to the Payment of Gratuity, Provident Fund (including Employees' contribution) and Employees' State Insurance Scheme as may be required by Applicable Laws and deposit the aforesaid contributed amount with the appropriate authority/(s).

(c) The Contractor shall require all personnel engaged in the Works to obey all Applicable Laws and regulations. The Contractor shall permit Authority to witness labour payments for the Contractors direct labour, or the Subcontractors labour. The Contractor shall ensure that all its Subcontractors strictly comply with all labour laws.

(d) Documentary evidence confirming compliance with Clause 12.4, as may be required from time to time, shall be provided to the Employer's Representative.

(e) The Employer shall not be liable for any delay/default of the Contractor in compliance of the labour laws.

(v) Facilities for Staff and Labour

The Contractor shall provide and maintain all necessary accommodation and welfare facilities for personnel engaged for the Works. The Contractor shall not permit any personnel engaged for the Works to maintain any temporary or permanent living quarters within the structures forming part of the Works.

(vi) Health And Safety

All necessary precautions shall be taken by the Contractor to ensure the health and safety of staff and labour engaged for the Works. The Contractor shall, in collaboration with and to the requirements of the local health authorities, ensure that para-medical staff, first aid facilities, ambulance service are available on the Site at all times, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. The Contractor shall appoint a safety officer to be responsible for the safety of personnel on the Site. This safety officer shall be qualified for his work and shall have the authority to issue instructions concerning safety and take protective measures to prevent accidents. The Contractor shall maintain records and make reports concerning health, safety and welfare of personnel, and damage to property, in such manner as the Authority may reasonably require.

(vii) Contractor's Personnel

The Contractor shall employ only personnel who are appropriately qualified, skilled and experienced in their respective trades or occupations. The Authority may require the Contractor to remove any personnel engaged for the Works, who in the opinion of the Authority:

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(a) has engaged in any misconduct;

(b) is incompetent or negligent in the performance of his duties;

(c) fails to conform with any provisions of the Contract;

(d) engages in any conduct which is prejudicial to safety, health, or the protection of the environment; or

(e) makes errors in the discharge of his functions.

If appropriate and required by the Employer, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

(viii) Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst its personnel, and to preserve peace and protection of people and property in the neighbourhood of the Works.

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Article 12

Completion Certificate

12.1 Tests on Completion

(i) At least 30 (thirty) days prior to the likely completion of the Project Highway, or a Section thereof, the Contractor shall notify the Authority Engineer and the Authority of its intent to subject the Project Highway or a Section thereof, to Tests. The date and time of each of the Tests shall be determined by the Authority Engineer in consultation with the Contractor, and notified to the Authority who may designate its representative to witness the Tests. The Contractor shall either conduct the Tests as directed by the Authority Engineer or provide such assistance as the Authority Engineer may reasonably require for conducting the Tests. In the event of the Contractor and the Authority Engineer failing to mutually agree on the dates for conducting the Tests, the Contractor shall inform the Authority, and the Authority shall fix the dates by giving not less than 10 (ten) days' notice to the Authority Engineer.

(ii) All Tests shall be conducted in accordance with Schedule-K duly supported by video recording. The Authority Engineer shall conduct, observe, monitor and review the Tests conducted by the Contractor, as the case may be, and the Authority Representative shall also witness the Tests. The Authority Engineer shall review the results of the Tests to determine compliance of the Project Highway or a Section thereof, with Specifications and Standards and if it is reasonably anticipated or determined by the Authority Engineer during the course of any Test that the performance of the Project Highway or Section or any part thereof, does not meet the Specifications and Standards, it shall have the right to suspend or delay such Test and require the Contractor to remedy and rectify the Defect or deficiencies. Upon completion of each Test, the Authority Engineer shall provide to the Contractor and the Authority copies of all Test data including detailed Test results. For the avoidance of doubt, it is expressly agreed that the Authority Engineer may require the Contractor to carry out or cause to be carried out additional Tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway or Section thereof with the Specifications and Standards.

(iii) Notwithstanding the above, the Authority reserves the right to require certain tests to be undertaken by an independent agency, at its own cost and expenses at any time prior to the issue of Provisional Certificate or Completion Certificate, as the case may be; and in the event of any discrepancy, the results obtained from such independent agency shall be final and binding on the Parties. The Authority reserves the right to host video recording of the tests on its website for public viewing.

12.2 Provisional Certificate

(i) Subject to the provisions of Clause 12.2 (v), upon completion of all Works forming part of the Project Highway, save and except the Works for which Time Extension has been granted under Clause 10.5, the Authority Engineer shall, at

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the request of the Contractor, issue a provisional certificate of completion substantially in the form set forth in Schedule-L (the "**Provisional Certificate**") if the Tests for and in respect of the completed Works are successful. The Provisional Certificate shall have appended thereto a list of outstanding items of work (the "**Punch List**") that need to be completed in accordance with the provisions of this Agreement. The Contractor undertakes to complete the outstanding items of works in the Punch List in respect of those Sections of the Project Highway for which the Provisional Certificate has been issued, within a period of 90 (ninety) days of the date of Provisional Certificate, provided such works do not materially affect the use of the completed Sections for their intended purpose. The Parties further agree that Provisional Certificate shall not be issued if the completed Works cannot be safely and reliably placed in service of the Users thereof.

For the avoidance of doubt, the Parties agree that such parts of the Works as have not been completed, and which are consequently not reckoned in the Provisional Certificate, and in respect of which a Time Extension has been granted, shall not form part of the Punch List. The completion date for such items of work shall correspond to the period for which such time extension was granted. In the event the completion of such items of work extends beyond the third anniversary of the date of issuance of the Provisional Certificate, the said items shall stand withdrawn in accordance with the provisions of Clause 8.3(iv), and the Authority Engineer shall thereafter issue the Completion Certificate.

Notwithstanding the above, Major Bridges, Road Over Bridges (ROBs), and any other structures or works that materially affect the safety, integrity, or operational reliability of the Project Highway, and which cannot be safely and reliably placed into service shall be completed prior to the issuance of the Provisional Certificate.

(ii) Upon issue of Provisional Certificate, the provisions of Articles 14 and 17 shall apply to the completed parts of the Project Highway and the property and ownership of all such completed Works shall vest in the Authority.

(iii) If the Authority determines, on conduct of tests under Clause 12.1(iii) or otherwise, that the Project Highway or any completed part thereof does not conform to the provisions of this Agreement and cannot be safely and reliably placed in operation, it shall forthwith make a report in this behalf and send copies thereof to the Authority Engineer and the Contractor and withhold issuance of the Provisional Certificate until the Defects or deficiencies are rectified by the Contractor and Tests are successful in accordance with this Article 12.

(iv) The Authority may, at any time after receiving a report from the Authority Engineer under Clause 12.2(iii), direct the Authority Engineer to issue a Provisional Certificate under Clause 12.2 (i) and such direction shall be complied forthwith.

(v) No Provisional Certificate shall be issued under the provisions of this Clause 12.2 until the Contractor has

(a) completed Works in atleast 98% (ninety eight per cent) of the length of the Project Highway after reducing the length which have been withdrawn

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under the provisions of Clause 8.3 (iii) and
(b) submitted valid claims for payment of at least 90% (ninety per cent) of the amount arrived at after reducing the lump sum price specified in Clause 19.1 (i) by the amount attributable to works which have been withdrawn under the provisions of Clause 8.3 (iii).

For the avoidance of doubt and by way of illustration, the Parties agree that where the total length of the Project Highway is 102 km and the Contract Price specified under Clause 19.1(i) is Rs. 102 crore (Rupees one hundred and two crore only), and where works covering a length of 2 km with a corresponding value of Rs. 2 crore (Rupees two crore only) are withdrawn under Clause 8.3(iii), no Provisional Certificate shall be issued unless and until the Contractor has completed works for at least 98 km of the Project Highway and has submitted valid claims for payment amounting to Rs. 90 crore (Rupees ninety crore only) in accordance with the provisions of this Agreement. It is further clarified that any price adjustments made in pursuance of Clause 19.10 shall be excluded while computing the value of payment claims for the purpose of this Clause 12.2 (v).

12.3 Completion of remaining Works

(i) All items in the Punch List shall be completed by the Contractor in accordance with the provisions of this Agreement. For any delay in their completion other than for the reasons solely attributable to the Authority or due to Force Majeure, the Authority shall be entitled to recover Damages from the Contractor to be calculated and paid for each day of delay until all items are completed, at the lower of

(a) 0.1% (zero point one per cent) of the Performance Security, and

(b) 2% (two per cent) of the cost of completing such items as estimated by the Authority Engineer.

Subject to payment of such Damages, the Contractor shall be entitled to a further period not exceeding 120 (one hundred twenty) days for completion of the Punch List items. Upon completion of all Punch List items, the Authority Engineer shall issue the Completion Certificate.

(ii) If the Contractor fails to complete any of the Punch List items within the time period specified under Clause 12.3(i), for reasons other than Force Majeure or causes solely attributable to the Authority, the Authority shall, at its discretion, be entitled to have such Punch List items completed at its own cost and recover from the Contractor an amount equal to 120% (one hundred and twenty per cent) of the actual cost of completion of such works incurred by the Authority as damages in addition to the cost of completion of such works estimated by the Authority Engineer under Clause 12.3(i) above.

(iii) For the avoidance of doubt, the Parties agree that where completion of any Punch List item is delayed due to reasons solely attributable to the Authority or on account of Force Majeure, the completion date for such item shall be determined by the

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Authority Engineer in accordance with Good Industry Practice. Further, if completion of the Punch List items extends beyond the third anniversary of the issuance of the Provisional Certificate, such Punch List items shall be withdrawn in accordance with the provisions of Clause 8.3(iv), and the Authority Engineer shall thereafter issue the Completion Certificate.

12.4 Completion Certificate

(i) Upon completion of all Works forming part of the Project Highway, and the Authority Engineer determining the Tests to be successful and after the receipt of notarized true copies of the certificate(s) of insurance, copies of insurance policies and premium payment receipts in respect of the insurance defined in Article 20 and Schedule P of this Agreement, it shall, at the request of the Contractor forthwith issue to the Contractor and the Authority a certificate substantially in the form set forth in Schedule-L (the "**Completion Certificate**").

(ii) Upon receiving the Completion Certificate, the Contractor shall remove its equipment, materials, debris and temporary works from the Site within a period of 30 (thirty) days thereof, failing which the Authority may remove or cause to be removed, such equipment, materials, debris and temporary works and recover from the Contractor an amount equal to 120% (one hundred and twenty per cent) of the actual cost of removal incurred by the Authority.

(iii) Without prejudice to the obligations of the Contractor specified in Articles 14 and 17, the property and ownership of all the completed Works forming part of the Project Highway shall vest in the Authority.

12.5 Rescheduling of Tests

If the Authority Engineer certifies to the Authority and the Contractor that it is unable to issue the Completion Certificate or Provisional Certificate, as the case may be, because of events or circumstances on account of which the Tests could not be held or had to be suspended, the Contractor shall be entitled to re-schedule the Tests and hold the same as soon as reasonably practicable.

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Article 13

Change of Scope

13.1 Change of Scope

(i) The Authority may, notwithstanding anything to the contrary contained in this Agreement, require the Contractor to carry out additional works and services not included in the Scope of the Project as contemplated by this Agreement or to make modifications/ alterations to the Works ("**Change of Scope**") within a period of 9 (nine) months counted from the Appointed Date. Upon the Authority making its intention known to the Contractor for the specific Change of Scope, be it positive or negative, the Contractor shall submit his proposal for the said Change of Scope involving additional cost or reduction in cost. Any such Change of Scope shall be made and valued in accordance with the provisions of this Article 13. For the avoidance of doubt, any modification or alteration to the Works arising from the Contractor's design responsibility for the Project Highway, shall not constitute a Change of Scope.

(ii) Deleted.

(iii) The Change of Scope shall mean the following:

(a) any change in the specifications of any item of Works except where such change arises from or falls within the design responsibility of the Contractor;

(b) omission of any work from the Scope of the Project except under Clause 8.3 (iii);and / or

(c) any additional Work, Plant, Materials or services which are not included in the Scope of the Project, including any associated Tests on completion of construction.

13.2 Procedure for Change of Scope

(i) In the event of the Authority determining that a Change of Scope is necessary, it may direct the Authority Engineer to issue to the Contractor a notice specifying in reasonable detail the Works and services contemplated thereunder (the "**Change of Scope Notice**"). The Contractor shall submit a detailed proposal as per Clause 13.2 (iii) within 15 days from the receipt of Change of Scope Notice.

(ii) If the Contractor determines, not later than 90 days from the Appointed Date, that a Change of Scope to the Works is required, it shall prepare a proposal with relevant details as per Clause 13.2 (iii) at its own cost and shall submit to the Authority to consider such Change of Scope (the "**Change of Scope Request**").

(iii) Upon receipt of a Change of Scope Notice, the Contractor shall, with due diligence, provide to the Authority and the Authority Engineer such information as is necessary, together with detailed proposal in support of:

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(a) the impact, if any, which the Change of Scope is likely to have on the Project Completion Schedule if the works or services are required to be carried out during the Construction Period; and

(b) the options for implementing the proposed Change of Scope and the effect, if any, each such option would have on the costs and time thereof, including the following details:

i. break-up of the quantities, unit rates and cost for different items of work;

ii. proposed design for the Change of Scope; and

iii. proposed modifications, if any, to the Project Completion Schedule of the Project Highway.

For the avoidance of doubt, the Parties expressly agree that, subject to the provisions of Clause 13.4 (ii), the Contract Price shall be increased or decreased, as the case may be, on account of any such Change of Scope.

(iv) The parties agree that costs and time for implementation of the proposed Change of Scope shall be determined as per the following:

(a) For items of works for which rates specifically provided in Schedule B, such rates shall be used for determining the costs.

(b) For items of works not covered under Clause 13.2(iv)(a) and where the schedule of rates of the concerned circle of State's Public Works Department (NH) prevailing as on the date of Change of Scope Order is available, such rates shall be adopted for determining the costs. In the event the schedule of rates prevailing as on the date of the Change of Scope Order is not available, the applicable rates from the latest available schedule shall be adopted for determining the costs.

(c) For items of work not covered under the above-mentioned schedule of rates, the cost shall be determined based on the MORTH Standard Data Book. In the event that the MORTH Standard Data Book does not contain the necessary specifications for any particular item, the Authority Engineer shall determine the cost based on the prevailing market rates in accordance with Good Industry Practice.

(d) in the event of alteration/modification in the Scope of the Project, the cost of existing items of work, that are being altered or modified, shall also be determined in accordance with the provisions of Clause 13.2.(iv)(b), and the cost of such Change of Scope shall be determined after reducing the cost of the existing items of work that are being altered/modified

(e) design charges shall be determined @ 1% (one per cent) of cost of Change of Scope. For the avoidance of doubt, it is clarified that in the event of alteration/modification in the Scope of the Project, design charges shall be determined at the rate of 1% (one percent) of the cost of the Change of Scope

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without reducing the cost of the existing works being altered/modified; and.

(f) the reasonable time for completion of works under Change of Scope shall be determined by the Authority Engineer in accordance with Good Industry Practice and if such time exceeds the Scheduled Completion Date, the issue of Completion Certificate shall not be affected or delayed on account of construction of Change of Scope items/ works remaining incomplete on the date of Tests.

(v) Upon receipt of information set forth in Clause 13.2, if the Authority decides to proceed with the Change of Scope, it shall convey its preferred option to the Contractor, and the Parties shall, with assistance of the Authority Engineer, thereupon make efforts in good faith to agree upon the time and costs for implementation thereof. Upon reaching an agreement, the Authority shall issue an order (the **"Change of Scope Order"**) requiring the Contractor to proceed with the performance thereof.

In the event that the Parties are unable to agree, the Authority may, by issuing a Change of Scope Order, require the Contractor to proceed with the performance thereof at the rates and conditions approved by the Authority, pending resolution of the Dispute, or carry out the works in accordance with Clause 13.5. The Contractor shall not suspend or delay the execution of such works on account of such disagreement.

(vi) The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply *mutatis mutandis* to the Works undertaken by the Contractor under this Article 13.

13.3 Payment for Change of Scope

Within 30 (thirty) days of issuing a Change of Scope Order, the Authority shall make an advance payment to the Contractor in a sum equal to 10% (ten per cent) of the cost of Change of Scope as agreed hereunder, and in the event of a Dispute, 10% (ten per cent) of the cost assessed by the Authority Engineer. The Contractor shall, after commencement of work, present to the Authority bills for payment on monthly basis in respect of the works in progress on reaching of a stage, if any, specified in the Change of Scope Order, or for completed works, as the case may be, supported by such Documentation as is reasonably sufficient for the Authority to determine the accuracy thereof. Within 30 (thirty) days of receipt of such bills, the Authority shall disburse to the Contractor such amounts as are certified by the Authority Engineer as reasonable and after making a proportionate deduction for the advance payment made hereunder, and in the event of any Dispute, final adjustments thereto shall be made under and in accordance with the Dispute Resolution Procedure.

The provisions of this Agreement, insofar as they relate to Price Adjustments shall apply mutatis *mutandis* to the Works undertaken by the Contractor under this Article 13. Notwithstanding the foregoing, where the cost of a proposed Change of Scope Order is determined in accordance with Clause 13.2(iv)(b), the provisions relating to Price Adjustment shall apply with the Base Date reckoned from the date of issuance of

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the relevant Change of Scope Order.

13.4 Restrictions on Change of Scope

(i) No Change of Scope shall be executed unless the Authority has issued the Change of Scope Order save and except any Works necessary for meeting any Emergency.

(ii) The total value of all Change of Scope Orders shall not exceed 20% (twenty per cent) of the Contract Price.

(iii) Notwithstanding anything to the contrary in this Article 13, if any change is necessitated because of any default of the Contractor in the performance of its obligations under this Agreement, the same shall not be deemed to be Change of Scope, and shall not result in any adjustment of the Contract Price or the Project Completion Schedule.

13.5 Power of the Authority to undertake Works

(i) In the event the Parties are unable to agree to the proposed Change of Scope Orders in accordance with Clause 13.2, the Authority may, after giving notice to the Contractor and considering its reply thereto, award such Works or services to any person or agency following due process. It is also agreed that the Contractor shall provide assistance and cooperation to the person or agency who undertakes the works or services hereunder. The Contractor shall not be responsible for rectification of any Defects, but the Contractor shall carry out maintenance of such works after completion of Defect Liability Period of work by other person or agency during the remaining period of this agreement without any extra payment.

(ii) The Works undertaken in accordance with this Clause 13.5 shall conform to the Specifications and Standards and shall be carried out in a manner that minimises the disruption in operation of the Project Highway. The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply *mutatis mutandis* to the Works carried out under this Clause 13.5.

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Article 14

Maintenance

14.1 Maintenance obligations of the Contractor

(i) The Contractor shall maintain the Project Highway for a period of [3(three)/ 5 (five) / 10 (ten)][12] years, corresponding to the Defects Liability Period, commencing from the date of the Provisional Certificate or Completion Certificate, as the case may be (the "**Maintenance Period**"). For the performance of its Maintenance obligations, the Contractor shall be paid:

(a) [For flexible or rigid pavement with 5 years Maintenance Period including structures: no maintenance charges shall be paid for the first year; 0.50%of the Contract Price each for the second, third and fourth year; and 1% of the Contract Price for the fifth year.

(b) Deleted.

(c) For flexible perpetual pavement with 10 years maintenance period including structures: no maintenance charges shall be paid for the first year; 0.5% of the Contract Price each for the second, third and fourth year; 0.75% of the Contract Price each for the subsequent years till laying of the renewal layer or end of maintenance period, whichever is earlier. The requirement for the renewal layer shall be worked out based on the survey and investigation of the existing pavement after the 6th (sixth) anniversary of the issuance of Provisional Certificate or Completion Certificate, as the case may be, and the cost of such renewal works shall be paid separately to the Contractor based on the principles defined under clause 13.2(iii) and 13.2(iv). After laying of the renewal layer, the Contractor shall be paid @ 0.5% of the original Contract Price each for the remaining years till the end of maintenance period.

(d) For stand-alone Major Bridge/ Tunnel works: the contractor shall be paid @ 0.25% of the Contract Price each for the first five years and @ 0.50% of the Contract Price each for the remaining period of five years.

(e) For stretches requiring renewal with BC layers/ strengthening/ improvement to riding quality with 3 years Defect Liability Period: no maintenance charges shall be paid for the first year; 0.50% of the Contract Price each for the second and third year.

(f) For categories/types works other than mentioned above with 5 years Maintenance Period: no maintenance charges shall be paid for the first year;

[12] Mention any one based on the project requirement.

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0.50%of the Contract Price each for the second, third and fourth year; and 1% of the Contract Price for the fifth year.][13]

Where the Defects Liability Period is extended pursuant to Clause 17.5, the Contractor shall be compensated for carrying out its Maintenance obligations during such extended period at the rate of 0.50% (zero point five percent) of the Contract Price per annum, calculated on a pro-rata basis from the date of extension until the date on which all identified defects and deficiencies are remedied or rectified and certified by the Authority Engineer.

Above amount for the performance of Contractors' Maintenance obligations shall be, inclusive of all taxes (except GST which shall be payable at applicable rates). The amount payable for maintenance shall be adjusted to reflect any increase or decrease arising out of variation in WPI to be determined in accordance with the provisions of Clause 19.12. It is further agreed that the Contract Price hereunder shall be reckoned with reference to the amount specified in Clause 19.1 (i), which shall be adjusted to the extent of Change of Scope and the works withdrawn under the provisions of Clause 8.3 (iii), but shall not include any price adjustments in pursuance of Clause 19.10.

(ii) The obligations of the Contractor, during the Maintenance Period, hereunder shall include:

(a) ensuring safe, smooth and uninterrupted flow of traffic on the Project Highway;

(b) undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs and other traffic control devices. For the avoidance of doubt, the electricity charges for operation of electrical infrastructure installed along the project length, except the infrastructure being used by the Contractor for its own use, shall be borne by the Authority;

(c) undertaking repairs to structures;

(d) informing the Authority of any unauthorised use of the Project Highway;

(e) informing the Authority immediately of any encroachments on the entire Project Highway Right of Way;

(f) operation and maintenance of all communication, patrolling, and administrative systems necessary for the efficient maintenance of the Project Highway in accordance with the provisions of thisAgreement.

(g) undertake maintenance in respect of the issues and defects identified through NSV survey conducted by the Authority from time to time; and

[13] Keep only one out of the options (a) to (f) mentioned above and strikeout other options, whichever is not applicable.

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(h) maintain an incident management system for responding to any accident or incidents, regardless of cause, that may impede flow of traffic on the Project Highway, within such timeframes as may be specified by the Authority.

(iii) In respect of any Defect or deficiency not specified in Schedule-E, the Contractor shall, at its own cost, undertake repair or rectification in accordance with Good Industry Practice, save and except to the extent that such Defect or deficiency shall have arisen on account of any wilful default or neglect of the Authority or a Force Majeure Event.

(iv) The Contractor shall remove promptly from the Project Highway any waste materials (including hazardous materials and waste water), rubbish and other debris (including, without limitation, accident debris) and keep the Project Highway in a clean, tidy and orderly condition, and in conformity with the Applicable Laws, Applicable Permits and Good Industry Practice.

(v) During the Maintenance Period, the Contractor shall provide to the Authority, for each quarter, a video recording through drone or such other mechanism as may be acceptable to the Authority, capturing the status of Maintenance of the Project Highway for that quarter from an altitude sufficient to identify both ends of the Right of Way and compile the said recording into a compact disc or digital video disc, as the case may be. The first such video recording shall be provided to the Authority within 15 (fifteen) days of the close of first quarter of the Maintenance Period and thereafter, no later than 15 (fifteen days) following the end of each quarter. Such video recording, shall be carried out in accordance with the standard operating procedure or guidelines issued by the Authority from time to time and shall also be uploaded by the Contractor on the Authority's designated portal/website. The Authority Engineer shall ensure that the features and quality of video recording conforms to the standard operating feature or guidelines and the video is not distorted/tampered with. The Authority Engineer shall also review and analyse each of the said video recordings and incorporate its observation if any, in the Maintenance Inspection Report. The Contractor shall be responsible for ensuring the accuracy, completeness and integrity of the video recording. The Authority reserves the right to host such video recording on its website for public viewing.

14.2 Maintenance Requirements

The Contractor shall ensure and procure that at all times during the Maintenance Period, the Project Highway conforms to the maintenance requirements set forth in Schedule-E (the "**Maintenance Requirements**").

14.3 Maintenance Programme

(i) The Contractor shall prepare a monthly maintenance programme (the "**Maintenance Programme**") in consultation with the Authority Engineer and submit the same to the Authority Engineer not later than 10 (ten) days prior to the commencement of the month in which the Maintenance is to be carried out. For this purpose a joint monthly inspection by the Contractor and the Authority Engineer shall be undertaken. The Contractor shall also upload the Maintenance Programme on the

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Authority's designated portal/website and ensure that it is readily accessible to the public. The Maintenance Programme shall contain the following:

(a) The condition of the road in the format prescribed by the Authority Engineer;

(b) the proposed maintenance Works; and

(c) deployment of resources for maintenance Works.

(ii) The Contractor shall publish the scheduled dates for major or periodic maintenance on the Authority's designated portal/website at least 3 (three) days prior to the date on which such maintenance is scheduled and ensure that such information shall be updated regularly.

14.4 Safety, vehicle breakdowns and accidents

(i) The Contractor shall ensure safe conditions for the Users, and in the event of unsafe conditions, lane closures, diversions, vehicle breakdowns and accidents, it shall follow the relevant operating procedures for removal of obstruction and debris without delay. Such procedures shall conform to the provisions of this Agreement, Applicable Laws, Applicable Permits and Good Industry Practice.

(ii) The Contractor shall maintain and operate a round-the-clock vehicle rescue post with at least 1 (one) mobile crane having the capacity to lift a truck with a Gross Vehicle Weight of 30,000 (thirty thousand) kilograms. The Contractor shall promptly remove any damaged vehicles and debris from the Project Highway to enable safe movement of traffic and shall report all accidents to the police forthwith.

(iii) In the event of any accident involving a motor vehicle occurring on the Project Highway, the Contractor shall, through a qualified safety auditor with demonstrable experience in crash investigation, undertake an in-depth study on the causes and analysis of such accident as intended under Section 135 of the Motor Vehicle Act, 1988. The Contractor shall provide such analysis to the Authority within a period of 15 (fifteen) days from the date of such accident and such analysis shall be hosted on the Authority's designated portal/website for public viewing. The Contractor shall promptly undertake either short term or long term remedial measures, as the case may be, to prevent recurrence of accidents including improvement in road design, installing safety features and other traffic management measures in accordance with the instructions/guidelines issued by the MoRTH/IRC. The determination of the Authority as to whether the measures required are short term or long term shall be final and binding and shall be in conformity with guidelines on road safety measures issued by the MoRTH from time to time.

Notwithstanding anything contrary contained in this Agreement, the analysis and the short-term remedial measures undertaken by the Contractor pursuant to this Clause 14.4(iii) shall not be considered a Change of Scope and shall be deemed to be part of the Contractor's obligations under this Agreement. However, the long-term remedial measures undertaken by the Contractor pursuant to this Clause 14.4(iii) shall constitute the Change of Scope and cost of such works undertaken by the Contractor

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shall be paid as per procedures defined under Clause 13.2. For the avoidance of doubt, the Parties agree that in case such remedial measures are warranted on account of design deficiencies, the Authority shall recover from the Contractor an amount equal to 2% of the cost of such remedial measures as damages.

(iv) (a) In the event another (i.e., second) accident occurs within one year of the previous accident or the date of completion of the remedial action based on the crash investigation taken by the Contractor as reported by the Authority Engineer, whichever is later, and is within a distance of 500 (five hundred) metres of the location of the first accident resulting in a fatality or grievous injury of the Project Highway, and it is indicated in the crash investigation conducted in accordance with Clause 14.4(iii) that such accident was caused by any defect or deficiency in the Project, the Contractor shall be liable to pay [Rs. 25 lakh (Rupees twenty-five lakh)] for each fatality in such accident and [Rs. 10 lakh (Rupees ten lakh)] for each grievous injury in such accident to the Authority.

(b) In the event third or subsequent accident occurs within one year of the second accident as specified hereinabove and the third or subsequent accident has occurred within a 500 (five hundred) metre stretch involving both earlier accidents and such accident results in a fatality or grievous injury, and it is indicated in the Crash Investigation conducted in accordance with Clause 14.4(iii) that such accident was caused by any defect or deficiency in the Project, the Contractor shall be liable to pay [Rs. 50 lakh (Rupees fifty lakh)] for each fatality in such accident and [Rs. 25 lakh (Rupees twenty-five lakh)] for each grievous injury in such accident to the Authority.

(c) The liabilities set forth above shall be without prejudice to any other rights or remedies available to the Authority under this Agreement or under Applicable Laws.

(v) The Contractor shall, (a) identify and coordinate with vehicle repair and service station providers located in proximity to the Project Highway, for the purpose of offering assistance to Users in the event of vehicle breakdowns; (b) publish the details of the vehicle repair and service stations providers, including their locations, services offered, service charges payable by the Users and contact information, on the Authority's specified mobile application.

14.5 Lane closure

(i) The Contractor shall not close any lane of the Project Highway for undertaking maintenance works except with the prior written approval of the Authority Engineer. Such approval shall be sought by the Contractor through a written request to be made at least 7 (seven) days before the proposed closure of lane and shall be accompanied by particulars thereof. Within 3 (three) business days of receiving such request, the Authority Engineer shall grant permission with such modifications as it may deem necessary and a copy of such permission shall be sent to the Authority and the local police. Upon obtaining permission, the Contractor shall at its own cost comply with the measures for management of traffic as directed by the Authority and/or the local police, if any, and shall also publish the details of scheduled lane closure on

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Authority's designated portal/website and update the status thereof on regular basis.

(ii) Upon receiving the permission pursuant to Clause 14.5 (i), the Contractor shall be entitled to close the designated lane for the period specified therein, and for all lane closures extending a continuous period of 48 (forty-eight) hours, the Contractor shall, in the event of any delay in re-opening such lane, for every stretch of 250 (two hundred and fifty) metres, or part thereof, pay Damages to the Authority calculated at the rate of 0.1% (zero point one per cent) of the monthly maintenance payment for each day of delay until the lane has been re-opened for traffic. In the event of any delay in re-opening such lanes or in the event of emergency decommissioning and closure to traffic of the whole or any part of the Project Highway due to failure of the Contractor, the Contractor shall pay damages to the Authority at double the above rate, without prejudice to the rights of the Authority under this Agreement including Termination thereof.

14.6 Reduction of payment for non-performance of Maintenance obligations

(i) In the event that the Contractor fails to repair or rectify any Defect or deficiency set forth in Schedule-E within the period specified therein, it shall be deemed as failure of performance of Maintenance obligations by the Contractor and the Authority shall be entitled to effect reduction in monthly lump sum payment for maintenance in accordance with Clause 19.7 and Schedule-M, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.

(ii) If the nature and extent of any Defect justifies more time for its repair or rectification than the time specified in Schedule-E, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority Engineer and conveyed to the Contractor and the Authority with reasons thereof.

14.7 Authority's right to take remedial measures

In the event the Contractor does not maintain and/or repair the Project Highway or any part thereof in conformity with the Maintenance Requirements, the Maintenance Manual or the Maintenance Programme, as the case may be, and fails to commence remedial works within 15 (fifteen) days of receipt of the Maintenance Inspection Report under Clause 15.2 or a notice in this behalf from the Authority or the Authority Engineer, as the case may be, the Authority shall, without prejudice to its rights under this Agreement including Termination thereof, be entitled to undertake such remedial measures at the cost of the Contractor, and to recover its cost from the Contractor. In addition to recovery of the aforesaid cost, a sum equal to 20% (twenty per cent) of such cost shall be paid by the Contractor to the Authority as Damages.

14.8 Restoration of loss or damage to Project Highway

Save and except as otherwise expressly provided in this Agreement, in the event that the Project Highway or any part thereof suffers any loss or damage during the Maintenance from any cause attributable to the Contractor, the Contractor shall, at its

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cost and expense, rectify and remedy such loss or damage forthwith so that the Project Highway conforms to the provisions of this Agreement.

14.9 Overriding powers of the Authority

(i) If in the reasonable opinion of the Authority, the Contractor is in material breach of its obligations under this Agreement and, in particular, the Maintenance Requirements, and such breach is causing or likely to cause material hardship or danger to the Users and pedestrians, the Authority may, without prejudice to any of its rights under this Agreement including Termination thereof, by notice require the Contractor to take reasonable measures immediately for rectifying or removing such hardship or danger, as the case may be.

(ii) In the event that the Contractor, upon notice under Clause 14.9 (i), fails to rectify or remove any hardship or danger within a reasonable period, the Authority may exercise overriding powers under this Clause 14.9 (ii) and take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it for rectifying or removing such hardship or danger; provided that the exercise of such overriding powers by the Authority shall be of no greater scope and of no longer duration than is reasonably required hereunder; provided further that any costs and expenses incurred by the Authority in discharge of its obligations hereunder shall be recovered by the Authority from the Contractor, and the Authority shall be entitled to deduct any such costs and expenses incurred from the payments due to the Contractor under Clause 19.7 for the performance of its Maintenance obligations.

(iii) In the event of a national emergency, civil commotion or any other circumstances specified in Clause 21.3, the Authority may take over the performance of any or all the obligations of the Contractor to the extent deemed necessary by it, and exercise such control over the Project Highway or give such directions to the Contractor as may be deemed necessary; provided that the exercise of such overriding powers by the Authority shall be of no greater scope and of no longer duration than is reasonably required in the circumstances which caused the exercise of such overriding power by the Authority. For the avoidance of doubt, it is agreed that the consequences of such action shall be dealt in accordance with the provisions of Article 21. It is also agreed that the Contractor shall comply with such instructions as the Authority may issue in pursuance of the provisions of this Clause 14.9 (iii), and shall provide assistance and cooperation to the Authority, on a best effort basis, for performance of its obligations hereunder.

14.10 Taking over Certificate

The Authority shall conduct an inspection of the Project Highway at any time between 3 (three) months to 6 (six) months prior to the expiry of the Maintenance Period, as specified under Clause 14.1, and shall notify the Contractor, with a copy to the Authority Engineer, of any defects or deficiencies identified in the Project Highway in accordance with the Schedule-E. Following such notification, the Contractor shall undertake all necessary remedial measures and request the Authority Engineer to

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carry out the Tests on Completion of Maintenance Requirements as set forth in Schedule-E.

For the purpose of determining compliance with the Maintenance Requirements, the Authority may undertake a Network Survey Vehicle (NSV) survey or any other assessment considered appropriate. The results of such survey or assessment shall be used for evaluating the condition of the Project Highway. In the event of any discrepancy, variation, or difference in interpretation between the findings of the Contractor and those of the Authority, the determination of the Authority, based on the NSV survey and/or assessment conducted by or on behalf of the Authority, shall be final and binding.

Upon due completion of the Maintenance Requirements set forth in Schedule-E, Maintenance Period as set forth in Clause 14.1 (i) having been expired and Authority Engineer determining the Tests on Completion of Maintenance to be successful in accordance with Schedule-Q, the Authority will issue Taking Over Certificate to the Contractor substantially in the format set forth in Schedule-R.

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Article 15

Supervision and Monitoring during Maintenance

15.1 Inspection by the Contractor

(i) The Authority Engineer shall undertake regular inspections to evaluate continuously the compliance with the Maintenance Requirements.

(ii) The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts and drainage system in accordance with the guidelines contained in IRC: SP35. Report of this inspection together with details of proposed maintenance works as required shall be conveyed to the Authority Engineer forthwith. The Contractor shall complete the proposed maintenance works before the onset of the monsoon and send a compliance report to the Authority Engineer. Post monsoon inspection shall be undertaken by the Contractor and the inspection report together with details of any damages observed and proposed action to remedy the same shall be conveyed to the Authority Engineer forthwith.

15.2 Inspection and payments

(i) The Authority Engineer may inspect any section of the Project Highway at any time, but at least once every month, to ensure compliance with the Maintenance Requirements. It shall make a report of such inspection (**"Maintenance Inspection Report"**) stating in reasonable detail the Defects or deficiencies, if any, with particular reference to the Maintenance Requirements, the Maintenance Manual, and the Maintenance Programme, and send a copy thereof to the Authority and the Contractor within 10 (ten) days of such inspection along with a video recording of such inspection captured through drone or such other mechanism as may be acceptable to the Authority. The Authority Engineer shall also upload such video recording on the Authority's designated portal/website promptly.

(ii) After the Contractor submits to the Authority Engineer the Monthly Maintenance Statement for the Project Highway pursuant to Clause 19.6, the Authority Engineer shall carry out an inspection within 10 (ten) days to certify the amount payable to the Contractor. The Authority Engineer shall inform the Contractor of its intention to carry out the inspection at least 3 (three) business days in advance of such inspection. The Contractor shall assist the Authority Engineer in verifying compliance with the Maintenance Requirements.

(iii) For each case of non-compliance of Maintenance Requirements as specified in the inspection report of the Authority Engineer, the Authority Engineer shall calculate the amount of reduction in payment in accordance with the formula specified in Schedule-M.

(iv) Any deduction made on account of non-compliance will not be paid subsequently even after establishing the compliance thereof. Such deductions will continue to be

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made every month until the compliance is procured.

15.3 Tests

For determining that the Project Highway conforms to the Maintenance Requirements, the Authority Engineer shall require the Contractor to carry out, or cause to be carried out, Tests specified by it in accordance with Good Industry Practice. The Contractor shall, with due diligence, carry out or cause to be carried out all such Tests, at its own cost, in accordance with the instructions of the Authority Engineer and furnish the results of such Tests forthwith to the Authority' Engineer and the Authority. Provided, however, that the Authority reserves the right to require certain tests to be undertaken by an independent agency, at its own cost, for the purpose of authenticating the results of the tests carried out or caused to be carried out by the Contractor; and in the event of any discrepancy, the results obtained from such independent agency shall be final and binding on the Parties.

At any time during Maintenance Period, the Authority may appoint an external technical auditor to conduct an audit of the quality of the Works. The Auditor in the presence of the representatives of the Contractor and the Authority Engineer shall carry out the Tests and/ or collect samples for testing in the laboratory. The timing, the testing equipment and the sample size of this audit shall be as decided by the Authority. The findings of the audit, to the extent accepted by the Authority, shall be notified to the Contractor and the Authority Engineer for taking remedial measures. After completion of the remedial measures by the Contractor, the auditor shall undertake a closure audit and this process will continue till the remedial measures have brought the maintenance works into compliance with the Specifications and Standards. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in this Clause 15.3, the external technical audit shall not affect any obligations of the Contractor or the Authority Engineer under this Agreement.

15.4 Reports of unusual occurrence

The Contractor shall, during the Maintenance Period, prior to the close of each day, send to the Authority and the Authority Engineer, by e- mail, a report stating accidents and unusual occurrences on the Project Highway relating to the safety and security of the Users and Project Highway. A monthly summary of such reports shall also be sent within 3 (three) business days of the closing of month. For the purposes of this Clause 15.4, accidents and unusual occurrences on the Project Highway shall include:

(a) accident, death or severe injury to any person;

(b) damaged or dislodged fixed equipment;

(c) flooding of Project Highway; and

(d) any other unusual occurrence.

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Article 16

Traffic Regulation

16.1 Traffic regulation by the Contractor

(i) The Contractor shall take all the required measures and make arrangements for the safety of Users during the Construction and Maintenance of the Project Highway or a Section thereof in accordance with the provisions of Standards and Specifications. It shall provide, erect and maintain all such barricades, signs, markings, flags, and lights as may be required by Good Industry Practice for the safety of the traffic passing through the Section under construction or maintenance.

(ii) All works shall be carried out in a manner creating least interference to traffic passing through the Project Highway or a Section thereof. In sections where construction or maintenance Works on the carriageway are taken up, the Contractor shall ensure that proper passage is provided for the traffic. Where it is not possible or safe to allow traffic on part width of the carriageway, a temporary diversion of proper specifications shall be constructed by the Contractor at its own cost. The Contractor shall take prior approval of the Authority Engineer for any proposed arrangement for traffic regulation during Construction and Maintenance, which approval shall not be unreasonably withheld.

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Article 17

Defects Liability

17.1 Defects Liability Period

(i) The Contractor shall be responsible for all the Defects and deficiencies, except usual wear and tear in the Project Highway or any Section thereof, till the expiry of a period commencing from the date of Provisional Certificate or Completion Certificate, as the case may be, (the "**Defects Liability Period**") as specified below:

(a) [5 (five) years from the date of Provisional Certificate in case of a road being constructed with flexible or rigid pavement;

(b) deleted;

(c) 10 (ten) years from the date of Provisional Certificate in case of road being constructed with flexible pavement using perpetual design;

(d) 10 (ten) years from the date of Provisional Certificate in case of all stand-alone Major Bridges/ Tunnels;

(e) 3 (three) years from the date of completion for stretches requiring improvement to riding quality;

(f) 5 years from the date of Provisional Certificate for categories/types works other than mentioned above] [14]

The Defects Liability Period shall commence from the date of the Provisional Certificate or Completion Certificate, as the case may be. For the avoidance of any doubt, any repairs or restoration because of usual wear or tear in the Project Highway or any Section thereof shall form a part of the Maintenance obligations of the Contractor as specified in Article 14.

17.2 Remedying Defects

Save and except as provided in Clause 14.1 (iii), the Contractor shall repair or rectify all Defects and deficiencies observed by the Authority or Authority Engineer during the Defects Liability Period within a period of 15 (fifteen) days from the date of notice issued by the Authority or Authority Engineer in this behalf, or within such reasonable period as may be determined by the Authority or Authority Engineer at the request of the Contractor, in accordance with Good Industry Practice.

17.3 Cost of remedying Defects

Any repair or rectification undertaken in accordance with the provisions of Clause 17.2, including any additional testing, shall be carried out by the Contractor at its own risk and cost, to the extent that such rectification or repair is attributable to:

[14] Keep only one out of the options (a) to (f) mentioned above and strikeout other options, whichever is not applicable.

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(a) the design of the Project;

(b) Plant, Materials or workmanship not being in accordance with this Agreement and the Specifications and Standards;

(c) improper maintenance during construction of the Project Highway by the Contractor; and/ or

(d) failure by the Contractor to comply with any other obligation under this Agreement.

17.4 Contractor's failure to rectify Defects

If the Contractor fails to repair or rectify such Defect or deficiency within the period specified in Clause 17.2, the Authority shall be entitled to get the same repaired, rectified or remedied at the Contractor's cost to make the Project Highway conform to the Specifications and Standards and the provisions of this Agreement. All costs consequent thereon shall, after due consultation with the Authority and the Contractor, be determined by the Authority Engineer. The cost so determined and an amount equal to 20% (twenty percent) of the cost as Damages shall be recoverable by the Authority from the Contractor and may be deducted by the Authority from any monies due to the Contractor.

17.5 Extension of Defects Liability Period

The Defects Liability Period shall be deemed to be extended till the identified Defects under Clause 17.2 have been remedied or rectified.

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Article 18

Authority Engineer

18.1 Appointment of the Authority Engineer

(i) The Authority shall appoint a firm of Consulting Engineers or a Project Management Consultant (PMC) substantially in accordance with the selection criteria set forth in Schedule-N, to be the engineer under this Agreement (the "**Authority Engineer**"). In unavoidable circumstances, Authority may appoint an officer or an interim Authority Engineer from another project within the State or a neighbouring state of the Project to act as Authority Engineer until appointment of a Consulting Engineering firm/ Supervision Consultant/ PMC.

(ii) The officer in-charge of the Authority (e.g. PD/ RO/ CGM/ Member in the case of NHAI; RO/CE/ADG in the case of MoRTH projects executed through the State PWDs; and PD/ED/Director in the case of NHIDCL) is responsible for the overall supervision and monitoring of the execution of project as the representative of the owner of the project. The Authority Engineer is appointed to assist the Authority for carrying out the functions as detailed under clause 18.2. As such, an officer of the Authority is vested with all such powers and responsibilities as are enjoined upon the Authority Engineer and is fully competent to issue any instructions for proper monitoring and supervision of the project, either by himself or through the Authority Engineer. Instructions issued by the concerned officer of the Authority shall have the same effect as that of the Authority Engineer in terms of this Agreement. Wherever such concerned officer issues any instructions or notice to the Contractor, he shall endorse a copy thereof to the Authority Engineer.

(iii) The Authority Engineer should be appointed before declaration of Appointed Date. The Authority shall notify the appointment or replacement of the Authority Engineer to the Contractor.

(iv) The staff of the Authority Engineer shall include suitably qualified engineers and other professionals who are competent to assist the Authority Engineer to carry out its duties.

18.2 Duties and authority of the Authority Engineer

(i) The Authority Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement and substantially in accordance with the terms of reference ("**Terms of Reference" or "TOR")** set forth in Annexure-I of Schedule N, but subject to obtaining prior written approval of the Authority before determining:

(a) any Time Extension;

(b) any additional cost to be paid by the Authority to the Contractor;

(c) the Termination Payment;

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(d) issuance of Provisional Certificate or Completion Certificate, as the case may be; or

(e) any other matter which is not specified in (a), (b), (c) or (d) above and which creates financial liability on either Party.

(ii) No decision or communication of the Authority Engineer shall be effective or valid unless it is accompanied by a letter confirming the approval of the Authority for and in respect of any matter specified in Clause 18.2 (i).

(iii) The Authority Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority Engineer within 10 (ten) days of the beginning of every month. For the avoidance of doubt, the Authority Engineer shall include in its report, compliance of the recommendations of the Safety Consultant.

(iv) The Authority Engineer shall monitor the redressal of grievances of the Users, by promptly forwarding such grievances to the Contractor for appropriate action and ensuring timely redressal by the Contractor, followed by reporting compliance to the affected Users. For the avoidance of doubt, it is clarified that responsibility for redressal of such grievances shall rest solely with the Contractor, and neither the Authority Engineer nor the Authority shall incur any liability on account therefor.

18.3 Delegation by the Authority Engineer

(i) The Authority Engineer may, by order in writing, delegate any of his duties and responsibilities to suitably qualified and experienced personnel who are accountable to Authority Engineer, or may revoke any such delegation, under intimation to the Authority and the Contractor. Provided, however, that the Authority Engineer shall be responsible and liable for all actions and omissions of such personnel.

(ii) Any failure of the Authority Engineer to disapprove any work, Plant or Materials shall not constitute approval, and shall, therefore, not prejudice the right of the Authority to reject the work, Plant or Materials, which is not in accordance with the provisions of this Agreement and the Specifications and Standards.

(iii) Notwithstanding anything stated in Clause 18.3 (i) above, the Authority Engineer shall not delegate the authority to refer any matter for the Authority's prior approval, wherever required, in accordance with the provisions of Clause 18.2.

18.4 Instructions of the Authority Engineer

(i) The Authority Engineer may issue instructions for remedying any Defect(s) to the Contractor. The Contractor shall take such instructions from the Authority Engineer, or from an assistant to whom appropriate authority has been delegated under Clause 18.3.

(ii) The instructions issued by the Authority Engineer shall be in writing. However, if the Authority Engineer issues any oral instructions to the Contractor, it shall confirm the

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oral instructions in writing within 2 (two) working days of issuing them.

(iii) In case the Contractor does not receive the confirmation of the oral instructions within the time specified in Clause 18.4 (ii), the Contractor shall seek the written confirmation of the oral instructions from the Authority Engineer. The Contractor shall obtain acknowledgement from the Authority Engineer of the communication seeking written confirmation. In case of failure of the Authority Engineer or its delegated assistant to reply to the Contractor within 2 (two) days of the receipt of the communication from the Contractor, the Contractor may not carry out the instructions.

(iv) In case of any dispute on any of the instructions issued by the delegated assistant, the Contractor may refer the dispute to the Authority Engineer, who shall then confirm, reverse or vary the instructions within 3 (three) business days of the dispute being referred.

18.5 Determination by the Authority Engineer

(i) The Authority Engineer shall consult with each Party in an endeavour to reach agreement wherever this Agreement provides for the determination of any matter by the Authority Engineer. If such agreement is not achieved, the Authority Engineer shall make a fair determination in accordance with this Agreement having due regard to all relevant circumstances. The Authority Engineer shall give notice to both the Parties of each agreement or determination, with supporting particulars.

(ii) Each Party shall give effect to each agreement or determination made by the Authority Engineer in accordance with the provisions of this Agreement. Provided, however, that if any Party disputes any instruction, decision, direction or determination of the Authority Engineer, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure.

18.6 Remuneration of the Authority Engineer

The remuneration, costs and expenses of the Authority Engineer shall be paid by the Authority.

18.7 Termination of the Authority Engineer

(i) The Authority may, in its discretion, replace the Authority Engineer at any time. However, the Authority shall ensure that alternative arrangements for appointment of another Authority Engineer or designation of its own officer as the Authority Engineer for the intervening period are made simultaneously.

(ii) If the Contractor has reasons to believe that the Authority Engineer is not discharging its duties and functions in accordance with the provisions of this Agreement, it may make a written representation to the Authority and seek termination of the appointment of the Authority Engineer. Upon receipt of such representation, the Authority shall hold a tripartite meeting with the Contractor and the Authority Engineer and make best efforts for an amicable resolution of the representation and if

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any difference or disagreement between the Authority Engineer and the Contractor remains unresolved after a period of 30 days, the Dispute shall be settled by Authority within 30 days thereafter and the decision of the Authority shall be final. In the event that the appointment of the Authority Engineer is terminated hereunder, the Authority shall appoint another Authority Engineer in accordance with Clause 18.1 and 18.7 (i).

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Part IV

Financial Covenants

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Article 19

Payments

19.1 Contract Price

(i) The Authority shall make payments to the Contractor for the Works on the basis of the lump sum price accepted by the Authority in consideration of the obligations specified in this Agreement for an amount of INR … … … … (INR … … … … … … … … …) (the "**Contract Price**"), which shall be subject to adjustments in accordance with the provisions of this Agreement. For the avoidance of doubt, the Parties expressly agree that the Contract Price shall not include the cost of Maintenance and Goods and Services Tax (GST), which shall be paid separately in accordance with the provisions of Clause 19.7 and GST shall be payable at the applicable rates respectively. The Parties further agree that save and except as provided in this Agreement, the Contract Price shall be valid and effective until issue of Completion Certificate.

(ii) The Contract Price includes all duties, taxes (excluding GST, which shall be payable at the applicable rates), royalty, cess, charges, and fees that may be levied in accordance with the laws and regulations in force as on the Base Date on the Contractor's equipment, Plant, Materials and supplies acquired for the purpose of this Agreement and on the services performed under this Agreement. Nothing in this Agreement shall relieve the Contractor from its responsibility to pay any tax including any tax that may be levied in India on profits made by it in respect of this Agreement. The Contract Price also includes the cost of shifting of obstructing Utilities (including all centages as applicable by the Utility owning department except supervision charges for shifting of obstructing Utilities and shutdown charges for electrical transmissions systems of voltage 400kV and above) as given in clause 9.2 and Schedule B.

(iii) The Contract Price shall not be adjusted for any change in costs stated in Clause 19.1 (ii) above, except as stated in Clauses 19.10 and 19.17.

(iv) The Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs, unless otherwise provided for in this Agreement.

(v) Unless otherwise stated in this Agreement, the Contract Price covers all the Contractor's obligations for the Works under this Agreement and all things necessary for the Construction and the remedying of any Defects in the Project Highway.

(vi) All payments under this Agreement shall be made in Indian Rupees.

19.2 Advance Payment

(i) The Authority shall, at the request of the Contractor, make an interest-bearing advance payment (the "**Advance Payment**") @ "average of one year MCLR of top 5 Scheduled Commercial Banks[β] plus [1.25][ι] percent per annum, compounded

[β] The Authority shall declare the list of Top 5 Scheduled Commercial Banks on 1st September

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annually", equal to 10% (ten percent) of the Contract Price, exclusively for mobilisation expenses. The Advance Payment for mobilisation expenses shall be made in two instalments each equal to 5% (five percent) of the Contract Price. The second 5% (five percent) mobilization advance would be released after submission of utilization certificate by the Contractor for the first 5% (five per cent) advance already released earlier. For the avoidance of doubt, where the amount of Additional Performance Security exceeds the amount of Performance Security referred to in Clause 7.1, the Contractor shall not be entitled for any Advance Payment under this Clause.

Provided further that in case the Contractor procures and registers under the Motor Vehicle Act 1988, after the award and within 90 days of Appointed Date, a new construction machinery/ equipment powered by alternate fuel (Electric/ Hydrogen/ Biofuel) and Automated Intelligent Construction Machinery as notified by the Authority, the rate of interest shall be reduced by 50% (fifty percent) on proportion of the advance utilised for such purpose. For the avoidance of doubt, the proof of registration shall be taken from the Vahan data base of MoRTH

(ii) Deleted

(iii) The Contractor may apply to the Authority for the first instalment of the Advance Payment at any time after the Appointed Date, along with an irrevocable and unconditional electronic Bank Guarantee (e-BG) from a Bank for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, substantially in the form provided at Annex-III of Schedule-G, to remain effective till the complete and full repayment thereof.

(iv) At any time, after 60 (sixty) days from the Appointed Date, the Contractor may apply to the Authority for the second instalment of the Advance Payment along with an irrevocable and unconditional electronic Bank Guarantee (e-BG) from a Bank for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, substantially in the form provided at Annex-III of Schedule-G, to remain effective till the complete and full repayment thereof.

The Contractor has the option of splitting the electronic Bank Guarantee (e-BG) against Advance Payment for mobilization expenses into parts, each not less than 2.75% (two point seven five per cent) of the Contract Price. Each part of the guarantee shall remain effective till full repayment of such part advance corresponding to this bank guarantee. Such part of electronic Bank Guarantee (e-BG) shall be returned to the

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every calendar year based on the balance sheet size as declared in their annual reports, The 1 year MCLR of the top 5 Scheduled commercial banks shall be taken at the start of every quarter.

[1] This percentage shall be determined based on the rating of the Selected Bidder or, the Lead Member in the case of a Joint Venture and shall be as follows:

- **0.75%**, if the rating is above 80%;
- **1.00%,** if the rating is above 70% but up to 80%; and
- **1.25%**, if the rating is 70% or below.

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Contractor on recovery under the Agreement of the full amount of such part guarantee within 30 (thirty) days of the said recovery.

(v) The Advance Payment shall be paid by the Authority to the Contractor within 15 (fifteen) days of the receipt of its respective requests in accordance with the provisions of this Clause 19.2.

(vi) The Advance Payment shall be repaid through percentage deductions from the stage payments determined by the Authority Engineer in accordance with Clause 19.5, as follows:

(a) deductions shall commence in the first Stage Payment Statement;

(b) deductions shall be made at the rate of 15% (fifteen percent) of each Stage Payment Statement until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 80% (eighty percent) of the Contract Price, as adjusted from time to time, has been released ;

(c) if total certified stage payments (excluding the Advance Payment and deductions and repayments of retention) does not exceed 20% (twenty percent) of the Contract Price within 60% of the Scheduled Construction Period from the Appointed Date then the Advance Payment including interest shall be recovered by encashment of the electronic Bank Guarantee (e-BG) for the Advance Payment.

(vii) If the Advance Payment has not been fully repaid prior to Termination under Clause 21.7 or Article 23, as the case may be, the whole of the balance then outstanding shall immediately become due and payable by the Contractor to the Authority. Without prejudice to the provisions of Clause 19.2 (vi), in the event of Termination for Contractor Default, the Advance Payment shall be deemed to carry interest @ "average of one year MCLR of top 5 Scheduled Commercial Banks[β] plus 5% (five percent) per annum, compounded annually" per annum from the date of Advance Payment to the date of recovery by encashment of the electronic Bank Guarantee (e-BG) for the Advance Payment. For the avoidance of doubt, the aforesaid interest shall be payable on the unrecovered balance.

19.3 Procedure for estimating the payment for the Works

(i) The Authority shall make interim payments to the Contractor as certified by the Authority Engineer on completion of a stage, in a length, number or area as specified and valued in accordance with the proportion of the Contract Price assigned to each item and its stage in Schedule-H.

[β] The Authority shall declare the list of Top 5 Scheduled Commercial Banks on 1st September every calendar year based on the balance sheet size as declared in their annual reports, The 1 year MCLR of the top 5 Scheduled commercial banks shall be taken at the start of every quarter.

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(ii) The Contractor shall base its claim for interim payment for the stages completed till the end of the month for which the payment is claimed, valued in accordance with Clause 19.3 (i), supported with necessary particulars and documents in accordance with this Agreement.

(iii) Any reduction in the Contract Price arising out of Change of Scope or the works withdrawn under Clause 8.3 shall not affect the amounts payable for the items or stage payments thereof which are not affected by such Change of Scope or withdrawal. For avoidance of doubt and by way of illustration, the Parties agree that if the amount assigned to Major Bridges is reduced from Rs. 100 crore to Rs. 80 crore owing to Change of Scope or withdrawal of work, the reduction in payment shall be restricted to relevant payments for Major Bridges only and the payment due in respect of all other stage payments under the item Major Bridges shall not be affected in any manner. The Parties further agree that the adjustments arising out of the aforesaid modifications shall be carried out in a manner that the impact of such modifications is restricted to the said Change of Scope or withdrawal, as the case may be, and does not alter the payments due for and in respect of items or stage payments which do not form part of such Change of Scope or withdrawal.

19.4 Stage Payment Statement for Works

The Contractor shall submit a statement (the **"Stage Payment Statement")**, in 3 (three) copies, by the 7th (seventh) day of the month to the Authority Engineer in the form set forth in Schedule-O, showing the amount calculated in accordance with Clause 19.3 to which the Contractor considers himself entitled for completed stage(s) of the Works. The Stage Payment Statement shall be accompanied with the progress reports and any other supporting documents. The Contractor shall not submit any claim for payment of incomplete stages of work.

19.5 Stage Payment for Works

(i) Within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, the Authority Engineer shall broadly determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment against the Stage Payment Statement, pending issue of the Interim Payment Certificate by the Authority Engineer. Within 10 (ten) days of the receipt of recommendation of the Authority Engineer, the Authority shall make electronic payment directly to the Contractor's bank account.

(ii) Within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, the Authority Engineer shall determine and shall deliver to the Authority and the Contractor an IPC certifying the amount due and payable to the Contractor, after adjusting the payments already released to the Contractor against the said statement. For the avoidance of doubt, the Parties agree that the IPC shall specify all the amounts that have been deducted from the Stage Payment Statement and the reasons therefor.

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(iii) In cases where there is a difference of opinion as to the value of any stage, the Authority Engineer's view shall prevail and interim payments shall be made to the Contractor on this basis; provided that the foregoing shall be without prejudice to the Contractor's right to raise a Dispute.

(iv) The Authority Engineer may, for reasons to be recorded, withhold from payment:

(a) the estimated value of work or obligation that the Contractor has failed to perform in accordance with this Agreement and the Authority Engineer had notified the Contractor; and

(b) the estimated cost of rectification of work done being not in accordance with this Agreement.

(v) Payment by the Authority shall not be deemed to indicate the Authority's acceptance, approval, consent or satisfaction with the work done.

19.6 Monthly Maintenance Statement of the Project Highway

(i) The Contractor shall submit to the Authority Engineer a monthly maintenance statement ("**Monthly Maintenance Statement")** in 3 (three) copies by the 7th (seventh) day of each month in the format set forth in Schedule-O for the Maintenance of the Project Highway during the previous month.

(ii) The monthly lump sum amount payable for Maintenance shall be 1/12th (one-twelfth) of the annual cost of Maintenance as specified in Clause 14.1 (i).

19.7 Payment for Maintenance of the Project Highway

(i) Within 10 (ten) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, the Authority Engineer shall verify the Contractor's monthly maintenance statement and certify the amount to be paid to the Contractor taking into account:

(a) Compliance with the Maintenance Requirements; and

(b) reduction for non-compliance with the Maintenance Requirement in accordance with Clause 19.7 (ii).

The Authority Engineer shall deliver to the Authority an IPC approving or amending the monthly maintenance statement to reflect the amount due to the Contractor in accordance with this Agreement.

(ii) Maintenance shall be measured in units of one kilometre each; provided, however, that payment thereof shall be made in fixed quarterly amounts in accordance with this Agreement. If the Maintenance Requirements set forth in Schedule-E are not met, reduction in payments shall be made in accordance with the provisions of Schedule-M. The reductions for non-compliance with the Maintenance Requirements shall be applied on the basis of monthly inspections by the Authority Engineer.

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(iii) The deduction made on account of non-compliance with the Maintenance Requirements shall not be subsequently considered for payment after the compliance is achieved by repair or rectification.

(iv) The Authority shall pay to the Contractor every quarter any amount due under any IPC under this Clause 19.7. The payment shall be made no later than 30 (thirty) days from the date of submission of the last IPC for the relevant quarter.

19.8 Payment of Damages

(i) The Contractor may claim Damages due and payable to it in accordance with the provisions of this Agreement.

(ii) The Authority Engineer shall issue the IPC within 15 (fifteen) days of the receipt of the claim under Clause 19.8 (i), after making adjustments in accordance with the provisions of this Agreement. The Authority shall pay to the Contractor the amount due under any IPC within a period of 30 (thirty) days from the date of the submission of the claim under this Clause 19.8. In the event of the failure of the Authority to make payment to the Contractor within the specified time, the Authority shall be liable to pay to the Contractor interest thereon and the provisions of Clause 19.9 shall apply *mutatis mutandis* thereto.

19.9 Time of payment and interest

(i) The Authority shall pay to the Contractor any amount due under any payment certificate issued by the Authority Engineer in accordance with the provisions of this Article 19, or in accordance with any other clause of this Agreement as follows:

(a) payment shall be made no later than 30 (thirty) days from the date of submission of the Stage Payment Statement by the Contractor to the Authority Engineer for certification in accordance with the provisions of Clause 19.4 for an IPC; provided that, in the event the IPC is not issued by the Authority Engineer within the aforesaid period of 30 (thirty) days, the Authority shall pay the amount shown in the Contractor's Stage Payment Statement and any discrepancy therein shall be added to, or deducted from, the next payment certificate issued to the Contractor; and

(b) payment shall be made no later than 30 (thirty) days from the date of submission of the Final Payment Certificate for Works along with the discharge submitted to the Authority Engineer in accordance with the provisions of Clause 19.15 for certification.

(ii) In the event of the failure of the Authority to make payment to the Contractor within the time period stated in this Clause 19.9, the Authority shall be liable to pay to the Contractor interest @ the average of one year MCLR of top 5 Scheduled Commercial Banks[β] plus 1.25% per annum, on all sums remaining unpaid from the date on which

[β] The Authority shall declare the list of Top 5 Scheduled Commercial Banks on 1st September every calendar year based on the balance sheet size as declared in their annual reports, The 1

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the same should have been paid, calculated in accordance with the provisions of sub-Clauses (a) and (b) of Clause 19.9 (i) and till the date of actual payment.

19.10 Price adjustment for the Works[15]

(i) The amounts payable to the Contractor for Works shall be adjusted in accordance with the provisions of this Clause 19.10

(ii) Subject to the provisions of Clause 19.10 (iii), the amounts payable to the Contractor for Works, shall be adjusted in the IPC issued by the Authority Engineer for the increase or decrease in the index cost of inputs for the Works, by the addition or subtraction of the amounts determined by the formulae prescribed in Clause 19.10 (iv).

(iii) To the extent that full compensation for any increase or decrease in costs to the Contractor is not covered by the provisions of this or other Clauses in this Agreement, the costs and prices payable under this Agreement shall be deemed to include the amounts required to cover the contingency of such other increase or decrease of costs and prices.

(iv) The Contract Price shall be adjusted for increase or decrease in rates and price of labour, cement, steel, Plant, machinery and spares, bitumen, fuel and lubricants, and other material inputs in accordance with the principles, procedures and formulae specified below:

(a) Price adjustment shall be applied on completion of the specified stage of the respective item of work in accordance with Schedule-H;

(b) Adjustment for each item of work/stage shall be made separately;

(c) The following expressions and meanings are assigned to the value of the work done:

RW= Value of work done for the completion of a stage under the following items of Schedule-H:

i. Road works; and

ii. Other works

BR = Value of work done for the completion of a stage under the items Major Bridges and Structures (Schedule-H)

(d) Price adjustment for changes in cost shall be paid in accordance with the following formulae:

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year MCLR of the top 5 Scheduled commercial banks shall be taken at the start of every quarter.

[15] This Clause shall be deleted if the Construction Period is less than or equal to 18 months.

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(i) $VRW = 0.85\ RW \times [PL \times (L_I - L_0)/L_0 + PA \times (A_I - A_0)/A_0 + PF \times (F_I - F_0)/F_0 + PB \times (B_I - B_0)/B_0 + PM \times (M_I - M_0)/M_0 + PC \times (C_I - C_0)/C_0 + PS \times (S_I - S_0)/S_0]$

(ii) $VBR = 0.85\ BR \times [PL \times (L_I - L_0)/L_0 + PA \times (A_I - A_0)/A_0 + PF \times (F_I - F_0)/F_0 + PM \times (M_I - M_0)/M_0 + PC \times (C_I - C_0)/C_0 + PS \times (S_I - S_0)/S_0]$

Where,

VRW = Increase or decrease in the cost of road works/other works during the period under consideration due to changes in the rates for relevant components as stated in sub-paragraph (e).

VBR = Increase or decrease in the cost of Major Bridges, tunnels and Structures during the period under consideration due to changes in the rates for relevant components as stated in sub-paragraph (e).

PB, PC, PL, PM, and PS are the percentages of bitumen, cement, labour, other materials, and steel/components (including strands and cables) respectively for the relevant item as stated in sub-paragraph (e).

PA is the percentage of Plant, machinery and spares component for the relevant item as stated in sub-paragraph (e).

PF is the percentage of fuel and lubricants for the relevant items as stated in sub-paragraph (e).

A_0 = The wholesale price index as published by the Ministry of Commerce & Industry, Government of India (hereinafter called "WPI") for "construction machinery" for the month of the Base Date.

A_I = The WPI for construction machinery for the month one month prior to the month to which the IPC relates.

B_0 = The official retail price of bitumen at the nearest refinery at [***] on the Base Date.

B_I = The official retail price of bitumen at nearest refinery at [***], on the first day of the month one month prior to the month to which the IPC relates.

C_0 = The WPI for Ordinary Portland Cement for the month of the Base Date.

C_I = The WPI for Ordinary Portland Cement for the month one month prior to the month to which the IPC relates.

F_0 = The official retail price of high speed diesel (HSD) oil at the existing consumer pumps of Indian Oil Corporation ("IOC") in the State of [***] on the Base Date.

F_I = The official retail price of HSD at the existing consumer pumps of IOC in the

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State of [***] on the first day of the month one month prior to the month to which the IPC relates.

L_0 = The consumer price index for industrial workers for the [circle **** in the State of ***], published by Labour Bureau, Ministry of Labour, Government of India, (hereinafter called "CPI") for the month of the Base Date.

L_I = The CPI for the month one month prior to the month to which the IPC relates.

M_0 = The WPI for all commodities for the month of the Base Date.

M_I = The WPI for all commodities for the month one month prior to the month to which the IPC relates.

S_0 = The WPI for Mild Steel –Long Products for the month of the Base Date.

S_I = The WPI for Mild Steel –Long Products for the month one month prior to the month to which the IPC relates.

For the avoidance of doubt, and by way of illustration, where an Interim Payment Certificate (IPC) submitted in the month of May pertains to the Works executed during the month of April, the Price Adjustment shall be calculated by applying the indices prevailing for the month of March.

(e) The following percentages shall govern the price adjustment of the Contract Price:

Component	**Item**				
	Road Works				**Major Bridges and Structures**
	Earthwork, Granular work, and Other works	**Bituminous work**	**Cement Concrete Pavement**	**Culverts, minor bridges and other structures**	
Labour (PL)	[20%]	[10%]	[10%]	[10%]	[10%]
Cement (PC)	[5%]	Nil	[40%]	[25%]	[25%]
Steel (PS)	Nil	Nil	[10%]	[25%]	[25%]
Bitumen (PB)	Nil	[50%]	Nil	Nil	Nil
Fuel and lubricants (PF)	[10%]	[10%]	[10%]	[10%]	[10%]
Other Materials (PM)	[50%]	[20%]	[20%]	[20%]	[20%]
Plant, machinery and spares. (PA)	[15%]	[10%]	[10%]	[10%]	[10%]
Total	100%	100%	100%	100%	100%

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19.11 Restrictions on price adjustment[16]

Price adjustment shall be due and payable only in respect of the stages of Works for which the Stage Payment Statement has been submitted by the Contractor no later than 30 (thirty) days from the date of the applicable Project Milestone or the Scheduled Completion Date, as the case may be, including any Time Extension granted therefor in accordance with the provisions of Clause 10.5 of this Agreement. For the avoidance of doubt, in the event of submission of any Stage Payment Statement after the period specified herein, price adjustment shall be applicable until the date of the respective Project Milestone or the Scheduled Completion Date, as the case may be.

Notwithstanding anything to the contrary contained herein above, if the Contractor fails to complete the Works within the Scheduled Completion Date, as the case may be, including any Time Extension granted therefor in accordance with the provisions of Clause 10.5 of this Agreement, price adjustment after Scheduled Completion Date shall be made using either:

(a) each index or price applicable on the first day of the month one month prior to the month of the Scheduled Completion Date of the Works; or

(b) the current index or price as mentioned in Clause 19.10(iv) above.

whichever is more favourable to the Authority

19.12 Price adjustment for Maintenance of Project Highway[17]

Lump sum payment for Maintenance shall be adjusted every quarter for changes in rates and prices of various inputs in accordance with the formula given below:

$$V = P \times \frac{W_I - W_0}{W_0}$$

Where

V= Increase or decrease in the quarterly lump sum payment

P= Quarterly lump sum payment due to the Contractor after adjusting any reduction in payment for non-compliance of the Maintenance Requirements

W_0= The wholesale price index (all commodities) for the month of the Base Date.

[16] This Clause shall be deleted if the Construction Period is less than or equal to 18 months.

[17] This clause shall be retained for all projects irrespective of construction period.

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W_I= The wholesale price index (all commodities) for the first day of the quarter under consideration for determining the price adjustment.

19.13 Final Payment Statement

(i) Within 60 (sixty) days after receiving the Completion Certificate under Clause 12.4, the Contractor shall submit to the Authority Engineer for consideration 6 (six) copies of a Final Payment Statement (the "**Final Payment Statement**") for Works, with supporting documents showing in detail, in the form prescribed by the Authority Engineer:

(a) the summary of Contractor's Stage Payment claims for Works as submitted in accordance with Clause 19.4;

(b) the amounts received from the Authority against each claim; and

(c) any further sums which the Contractor considers due to it from the Authority.

If the Authority Engineer disagrees with or cannot verify any part of the Final Payment Statement, the Contractor shall submit such further information as the Authority Engineer may reasonably require. The Authority Engineer shall deliver to the Authority:

i. an IPC for those parts of the Final Payment Statement which are not in dispute, along with a list of disputed items which shall then be settled in accordance with the provisions of Article 26; or

ii. a Final Payment Certificate in accordance with Clause 19.15 if there are no disputed items.

(ii) If the Authority Engineer does not prescribe the form referred to in Clause 19.13 (i) within 15 (fifteen) of the date of issue of the Completion Certificate, the Contractor shall submit the statement in such form as it deems fit.

19.14 Discharge

Upon submission of the Final Payment Statement for Works under Clause 19.13, the Contractor shall give to the Authority, with a copy to the Authority Engineer, a written discharge confirming that the total of the Final Payment Statement represents full and final settlement of all monies due to the Contractor in respect of this Agreement for all the Works arising out of this Agreement, except for any monies due to either Party on account of any Defect. Provided that such discharge shall become effective only after the payment due has been made in accordance with the Final Payment Certificate issued pursuant to Clause 19.15.

19.15 Final Payment Certificate

(i) Within 30 (thirty) days after receipt of the Final Payment Statement for Works under Clause 19.13, and the written discharge under Clause 19.14, and there being no disputed items of claim, the Authority Engineer shall deliver to the Authority, with a copy to the Contractor, a final payment certificate (the "**Final Payment Certificate")**

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stating the amount which, in the opinion of the Authority Engineer, is finally due under this Agreement or otherwise. For the avoidance of doubt, before issuing the Final Payment Certificate, the Authority Engineer shall ascertain from the Authority all amounts previously paid by the Authority and for all sums to which the Authority is entitled, the balance, if any, due from the Authority to the Contractor or from the Contractor to the Authority, as the case may be.

(ii) The Authority shall, in accordance with the provisions of Clause 19.9, pay to the Contractor the amount which is stated as being finally due in the Final Payment Certificate.

19.16 Final payment statement for Maintenance

(i) Within 30 (thirty) days after completion of the Maintenance Period, the Contractor shall submit to the Authority Engineer 6 (six) copies of the final payment statement for Maintenance of the Project Highway, with supporting documents showing the details set forth below in the form prescribed by the Authority Engineer:

(a) the total amount claimed in accordance with clause 19.7 (i) and

(b) any sums which the Contractor considers to be due to it, with supporting documents.

(ii) The Authority Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance under Clause 19.16 (i), segregating the items of amount payable from the items of amount disallowed. The Authority shall make payment on the basis of the final payment authorised by the Authority Engineer within a period of 30 (thirty) days of the receipt of the Final Payment Statement from the Authority Engineer.

(iii) If the Authority Engineer does not prescribe the form referred to in Clause 19.16(i) within 15 (fifteen) days of the date of completion of the Maintenance Period, the Contractor shall submit the statement in such form as it deems fit.

19.17 Change in law

(i) If as a result of Change in Law, the Contractor suffers any additional costs in the execution of the Works or in relation to the performance of its other obligations under this Agreement, the Contractor shall, within 15 (fifteen) days from the date it becomes reasonably aware of such addition in cost, notify the Authority with a copy to the Authority Engineer of such additional cost due to Change in Law.

(ii) If as a result of Change in Law, the Contractor benefits from any reduction in costs for the execution of this Agreement or in accordance with the provisions of this Agreement, either Party shall, within 15 (fifteen) days from the date it becomes reasonably aware of such reduction in cost, notify the other Party with a copy to the Authority Engineer of such reduction in cost due to Change in Law.

(iii) The Authority Engineer shall, within 15 (fifteen) days from the date of receipt of the

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notice from the Contractor or the Authority, determine any addition or reduction to the Contract Price, as the case may be, due to the Change in Law.

19.18 Correction of Interim Payment Certificates

The Authority Engineer, with prior approval of the Authority, may by an Interim Payment Certificate make any correction or modification in any previous Interim Payment Certificate issued by the Authority Engineer.

19.19 Authority's claims

If the Authority considers itself to be entitled to any payment from the Contractor under any Clause of this Agreement, it shall give notice and particulars to the Contractor 20 (twenty) days before making the recovery from any amount due to the Contractor, and shall take into consideration the representation, if any, made by the Contractor in this behalf, before making such recovery.

19.20 Bonus for early completion

In the event that the Project Completion Date occurs prior to the Scheduled Completion Date, the Contractor shall be entitled to receive a payment of bonus equivalent to 0.03% (zero point zero three per cent) of the Contract Price for each day by which the Project Completion Date precedes the Scheduled Completion Date, but subject to a maximum of 5% (five per cent) of the Contract Price. Provided, however, that the bonus, if any, shall become due and payable only upon expiry of the Maintenance Period or the Defects Liability Period, whichever is later, and subject to certification by the Authority Engineer and countersigned by the Authority that:

(i) The construction of the Project Highway, as specified in Schedule B and Schedule C and in conformity with the Specifications and Standards set forth in Schedule D, in respect of the stretches handed over within 270 days from the Appointed Date, has been completed within the Scheduled Completion Date, excluding any extension thereof;

(ii) All Punch List items of Works have been completed within 90 (ninety) days from the date of issuance of the Provisional Certificate;

(iii) The pavement roughness index recorded in any two consecutive bi-annual cycles using a Network Survey Vehicle (NSV) during the entire Maintenance Period or Defects Liability Period, whichever is later, does not exceed the permissible limit specified in Schedule E;

(iv) No Catastrophic Failure of any structure or the Project Highway due to construction defects has occurred during the Construction Period or the Defects Liability Period;

(v) All road signages and road markings comply with the requirements specified

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in Schedule E; and

(vi) All Defects notified by the Authority or Authority Engineer to the Contractor prior to the expiry of the applicable Maintenance Period or Defects Liability Period, as the case may be, have been duly rectified.

. For the avoidance of the doubt, the Parties agree that for the purpose of determining the bonus payable hereunder, the works shall always be deemed to be as specified in this Contract Agreement but excluding the works deemed to be deleted from the scope of work under clause 8.3 of this Contract Agreement and the Contract Price shall always be deemed to be the amount specified in Clause 19.1 (i) after excluding the Contract Price of the Works deemed to be deleted from the Scope of Work under clause 8.3 of this Contract Agreement, and shall exclude any revision thereof for any reason.

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Article 20

Insurance

20.1 Insurance for Works and Maintenance

(i) The Contractor shall effect and maintain at its own cost the insurances specified in Schedule-P and as per the requirements under the Applicable Laws.

(ii) Subject to the provisions of Clause 21.6, the Authority and the Contractor shall, in accordance with its obligations as provided for in this Agreement, be liable to bear the cost of any loss or damage that does not fall within the scope of this Article 20 or cannot be recovered from the insurers.

(iii) Subject to the exceptions specified in Clause 20.1 (iv) below, the Contractor shall, save and except as provided for in this Agreement, fully indemnify, hold harmless and defend the Authority from and against any and all losses, damages, costs, charges and/or claims with respect to:

(a) the death of or injury to any person; or

(b) the loss of or damage to any property (other than the Works);

that may arise out of or in consequence of any breach by the Contractor of this Agreement during the execution of the Works or the remedying of any Defects therein.

(iv) Notwithstanding anything stated above in Clause 20.1 (iii), the Authority shall fully indemnify the Contractor from and against any and all losses, damages, costs, charges, proceedings and/or claims arising out of or with respect to:

(a) the use or occupation of land or any part thereof by the Authority;

(b) the right of the Authority to execute the Works, or any part thereof, on, over, under, in or through any land;

(c) the damage to property which is the unavoidable result of the execution and completion of the Works, or the remedying of any Defects therein, in accordance with this Agreement; and

(d) the death of or injury to persons or loss of or damage to property resulting from any act or neglect of the Authority, its agents, servants or other contractors, not being employed by the Contractor.

Provided that, in the event of any injury or damage as a result of the contributory negligence of the Contractor, the Authority shall be liable to indemnify the Contractor from and against any and all losses, damages, costs, charges, proceedings and/or claims to the extent as may be proportionately determined to be the liability of the Authority, its servants or agents or other contractors not associated with the Contractor in such injury or damage.

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(v) Without prejudice to the obligations of the Parties as specified under Clauses 20.1 (iii) and 20.1 (iv), the Contractor shall maintain or effect such third party insurances as may be required under the Applicable Laws.

(vi) The Contractor shall provide to the Authority, within 30 days of the Appointed Date, evidence of professional liability insurance maintained by its Design Director and/or consultants to cover the risk of professional negligence in the design of Works. The professional liability coverage shall be for a sum of not less than [3% (three per cent)] of the Contract Price and shall be maintained until the end of the Defects Liability Period.

20.2 Notice to the Authority

No later than 15 (fifteen) days after the date of this Agreement, the Contractor shall, by notice or in such manner and format as the Authority may specify, furnish to the Authority, in reasonable detail, the information in respect of the insurances that it proposes to effect and maintain in accordance with this Article 20. Within 15 (fifteen) days of receipt of such notice, the Authority may require the Contractor to effect and maintain such other insurances as may be necessary pursuant hereto, and in the event of any difference or disagreement relating to any such insurance, the Dispute Resolution Procedure shall apply.

20.3 Evidence of Insurance Cover

(i) All insurances obtained by the Contractor in accordance with this Article 20 shall be maintained with insurers on terms consistent with Good Industry Practice. Within 10 (ten) days from the Appointed Date, the Contractor shall furnish to the Authority notarised true copies of the certificate(s) of insurance, copies of insurance policies and premia payment receipts in respect of such insurance, and no such insurance shall be cancelled, modified, or allowed to expire or lapse until the expiration of at least 45 (forty-five) days after notice of such proposed cancellation, modification or non-renewal has been delivered by the Contractor to the Authority. The Contractor shall act in accordance with the directions of the Authority. Provided that the Contractor shall produce to the Authority the insurance policies in force and the receipts for payment of the current premia.

(ii) The Contractor shall ensure the adequacy of the insurances at all times in accordance with the provisions of this Agreement.

20.4 Remedy for failure to insure

If the Contractor shall fail to effect and keep in force all insurances for which it is responsible pursuant hereto, the Authority shall have the option to either keep in force any such insurances, and pay such premia and recover the costs thereof from the Contractor, or in the event of computation of a Termination Payment, treat an amount equal to the Insurance Cover as deemed to have been received by the Contractor.

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20.5 Waiver of subrogation

All insurance policies in respect of the insurance obtained by the Contractor pursuant to this Article 20 shall include a waiver of any and all rights of subrogation or recovery of the insurers thereunder against, inter alia, the Authority, and its assigns, successors, undertakings and their subsidiaries, Affiliates, employees, insurers and underwriters, and of any right of the insurers to any set-off or counterclaim or any other deduction, whether by attachment or otherwise, in respect of any liability of any such person insured under any such policy or in any way connected with any loss, liability or obligation covered by such policies of insurance.

20.6 Contractor's waiver

The Contractor hereby further releases, assigns and waives any and all rights of subrogation or recovery against, inter alia, the Authority and its assigns, undertakings and their subsidiaries, Affiliates, employees, successors, insurers and underwriters, which the Contractor may otherwise have or acquire in or from or in any way connected with any loss, liability or obligation covered by policies of insurance maintained or required to be maintained by the Contractor pursuant to this Agreement (other than third party liability insurance policies) or because of deductible clauses in or inadequacy of limits of any such policies of insurance.

20.7 Cross liabilities

Any such insurance maintained or effected in pursuance of this Article 20 shall include a cross liability clause such that the insurance shall apply to the Contractor and to the Authority as separately insured.

20.8 Accident or injury to workmen

Notwithstanding anything stated in this Agreement, it is hereby expressly agreed between the Parties that the Authority shall not be liable for or in respect of any damages or compensation payable to any workman or other person in the employment of the Contractor or Sub-contractor, save and except as for death or injury resulting from any act, omission or wilful default of the Authority, its agents or servants. The Contractor shall indemnify and keep indemnified the Authority from and against all such claims, proceedings, damages, costs, charges, and expenses whatsoever in respect of the above save and except for those acts, omissions or wilful defaults for which the Authority shall be liable.

20.9 Insurance against accident to workmen

The Contractor shall effect and maintain during the Agreement such insurances as may be required to insure the Contractor's personnel and any other persons employed by it on the Project Highway from and against any liability incurred in pursuance of this Article 20. Provided that for the purposes of this Clause 20.9, the Contractor's personnel/any person employed by the Contractor shall include the Sub-contractor and its personnel. It is further provided that, in respect of any persons

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employed by any Sub-contractor, the Contractor's obligations to insure as aforesaid under this Clause 20.9 shall be discharged if the Sub-contractor shall have insured against any liability in respect of such persons in such manner that the Authority is indemnified under the policy. The Contractor shall require such Sub-contractor to produce before the Authority, when required, such policy of insurance and the receipt for payment of the current premium within 10 (ten) days of such demand being made by the Authority.

20.10 Application of insurance proceeds

The proceeds from all insurance claims, except for life and injury, shall be applied for any necessary repair, reconstruction, reinstatement, replacement, improvement, delivery or installation of the Project Highway and the provisions of this Agreement in respect of construction of works shall apply *mutatis mutandis* to the works undertaken out of the proceeds of insurance.

20.11 Compliance with policy conditions

Each Party hereby expressly agrees to fully indemnify the other Party from and against all losses and claims arising from its failure to comply with conditions imposed by the insurance policies effected in accordance with this Agreement.

20.12 General Requirements of Insurance Policies

The Contractor must:

(a) immediately deposit copies of the policies or certificates of any insurance which it is required to effect under the Contract, together with receipts for the premiums;

(b) effect all insurances for which the Contractor is responsible with an insurer approved by the Authority;

(c) make no material changes to the terms of any insurance without the Authority's approval;

(d) in all respects comply with any conditions stipulated in the insurance policies which the Contractor is required to effect under the Agreement or which the Authority has effected in relation to the Facility and notified to the Contractor; and shall provide all assistance to the Authority in the application for, and finalization of, such comprehensive insurance package;

(e) regardless of the extent of settlement of claims by the underwriters or the time taken for settlement of claims, the Contractor shall make good any loss, or damage at its own cost promptly;

(f) provide all assistance to the Authority in the application for, and finalization of, such comprehensive insurance package;

(g) pay the Contractor's share of the insurance premiums for insurance premiums allocated under such comprehensive insurance package policy to

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the insurances directly to the insurance provider promptly on demand. In case the Contractor fails to make such payment in time, the Authority may elect to pay the Contractor's share and adjust it against amounts payable to the Contractor under this Agreement;

(h) in the case of occurrence of any event leading to an insurance claim, promptly follow the procedures specified by the insurance provider, and provide full cooperation and access to the insurance provider or its representative, to settle the claim expeditiously;

(i) require all the Sub-Contractors providing equipment and materials or services to the Contractor or the Authority to obtain, maintain and keep in force during the time in which they are involved in the performance of the Works hereunder insurance coverage consistent with the Contractor's insurance obligations hereunder and the Contractor shall also be responsible for fulfillment of this requirement; and

(j) the required insurance coverage and the Contractor's obligations-referred to shall in no way affect or limit the Contractor's liability with respect to its performance of the Works. Nothing in this Section shall limit or relieve the Contractor of its liabilities and obligations under this Agreement.

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Part V

Force Majeure and Termination

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Article 21

Force Majeure

21.1 Force Majeure

As used in this Agreement, the expression "**Force Majeure**" or "**Force Majeure Event**" shall mean occurrence in India of any or all of Non-Political Event, Indirect Political Event and Political Event, as defined in Clauses 21.2, 21.3 and 21.4 respectively, if it affects the performance by the Party claiming the benefit of Force Majeure (the "**Affected Party**") of its obligations under this Agreement and which act or event (i) is beyond the reasonable control of the Affected Party, and (ii) the Affected Party could not have reasonably foreseen, prevented or overcome by exercise of due diligence and following Good Industry Practice, and (iii) has Material Adverse Effect on the Affected Party.

For the avoidance of doubt, it is clarified that (i) any ordinary commercial risks; (ii) increase in costs of labour, materials, fuel or utilities; or (iii) regular or seasonal weather conditions including annual monsoons, delays or difficulties in obtaining Applicable Permits, shall not constitute a Force Majeure Event.

21.2 Non-Political Event

A Non-Political Event shall mean one or more of the following acts or events:

(a) act of God, epidemic, extremely adverse weather conditions, lightning, earthquake, landslide, cyclone, flood, volcanic eruption, chemical or radioactive contamination or ionising radiation, fire or explosion (to the extent of contamination or radiation or fire or explosion originating from a source external to the Site) that could not have been reasonably foreseen based on data or information available for the period of 10 (ten) years prior to the Bid Due Date;

(b) strikes or boycotts (other than those involving the Contractor, Sub-contractors or their respective employees/ representatives, or attributable to any act or omission of any of them) interrupting supplies and services to the Project Highway for a continuous period of 24 (twenty-four) hours and an aggregate period exceeding 10 (ten) days in an Accounting Year, and not being an Indirect Political Event set forth in Clause 21.3;

(c) any failure or delay of a Sub-contractor but only to the extent caused by another Non-Political Event;

(d) any judgement or order of any court of competent jurisdiction or statutory authority made against the Contractor in any proceedings for reasons other than (i) failure of the Contractor or any person acting on his behalf to comply with any Applicable Law or Applicable Permit, or (ii) on account of breach of any Applicable Law or Applicable Permit or of any contract, or (iii)

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enforcement of this Agreement, or (iv) exercise of any of its rights under this Agreement by the Authority;

(e) the discovery of geological conditions, toxic contamination or archaeological remains on the Site that could not reasonably have been expected to be discovered through a site inspection; or

(f) any event or circumstances of a nature analogous to any of the foregoing.

For the avoidance of doubt, any directions, including rules and regulations, measures, etc., issued by the Government, State Government or Government Instrumentality to mitigate the effects of the aforementioned events shall also be considered as Non-Political Event.

21.3 Indirect Political Event

An Indirect Political Event shall mean one or more of the following acts or events:

(a) an act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage that causes damage to the Project;

(b) industry-wide or State-wide strikes or industrial action interrupting supplies and services to the Project Highway for a continuous period of 24 (twenty-four) hours and exceeding an aggregate period of 10 (ten) days in an Accounting Year;

(c) any boycott or agitation economic upheaval or similar occurrence which prevents construction of the Project Highway by the Contractor for an aggregate period exceeding 10 (ten) days in an Accounting Year;

(d) any failure or delay of a Sub-contractor to the extent caused by any Indirect Political Event;

(e) deleted; or

(f) any event or circumstances of a nature analogous to any of the foregoing.

For the avoidance of doubt, any directions, including rules and regulations, measures etc., issued by the Government, State Government or Government Instrumentality to mitigate the effects of the aforementioned events shall also be considered as Indirect Political Event.

21.4 Political Event

A Political Event shall mean one or more of the following acts or events by or on account of any Government Instrumentality:

(a) Change in Law, only if consequences thereof cannot be dealt with under and in accordance with the provisions of Clause 19.17;

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(b) compulsory acquisition in national interest or expropriation of any Project Assets or rights of the Contractor or of the Sub-Contractors;

(c) unlawful or unauthorised or without jurisdiction revocation of, or refusal to renew or grant without valid cause, any clearance, licence, permit, authorisation, no objection certificate, consent, approval or exemption required by the Contractor or any of the Sub-contractors to perform their respective obligations under this Agreement; provided that such delay, modification, denial, refusal or revocation did not result from the Contractor's or any Sub-contractor's inability or failure to comply with any condition relating to grant, maintenance or renewal of such clearance, licence, authorisation, no objection certificate, exemption, consent, approval or permit;

(d) any failure or delay of a Sub-contractor but only to the extent caused by another Political Event; or

(e) any event or circumstances of a nature analogous to any of the foregoing.

21.5 Duty to report Force Majeure Event

(i) Upon occurrence of a Force Majeure Event, the Affected Party shall by notice report such occurrence to the other Party forthwith. Any notice pursuant hereto shall include full particulars of:

(a) the nature and extent of each Force Majeure Event which is the subject of any claim for relief under this Article 21 with evidence in support thereof;

(b) the estimated duration and the effect or probable effect which such Force Majeure Event is having or will have on the Affected Party's performance of its obligations under this Agreement;

(c) the measures which the Affected Party is taking or proposes to take for alleviating the impact of such Force Majeure Event; and

(d) any other information relevant to the Affected Party's claim.

(ii) The Affected Party shall not be entitled to any relief for or in respect of a Force Majeure Event unless it shall have notified the other Party of the occurrence of the Force Majeure Event as soon as reasonably practicable, and in any event no later than 10 (ten) days after the Affected Party knew, or ought reasonably to have known, of its occurrence, and shall have given particulars of the probable material effect that the Force Majeure Event is likely to have on the performance of its obligations under this Agreement.

(iii) For so long as the Affected Party continues to claim to be materially affected by such Force Majeure Event, it shall provide the other Party with regular (and not less than weekly) reports containing information as required by Clause 21.5 (i), and such other information as the other Party may reasonably request the Affected Party to provide, failing which the Affected Party shall not be entitled to any relief for or in respect of a Force Majeure Event.

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21.6 Effect of Force Majeure Event on the Agreement

(i) Upon the occurrence of any Force Majeure after the Appointed Date, the costs incurred and attributable to such event and directly relating to this Agreement (the "**Force Majeure costs**") shall be allocated and paid as follows:

(a) upon occurrence of a Non-Political Event, the Parties shall bear their respective Force Majeure costs and neither Party shall be required to pay to the other Party any costs thereof;

(b) upon occurrence of an Indirect Political Event, all Force Majeure costs attributable to such Indirect Political Event, and not exceeding the Insurance Cover for such Indirect Political Event, shall be borne by the Contractor, and to the extent Force Majeure costs exceed such Insurance Cover, one half of such excess amount shall be reimbursed by the Authority to the Contractor for the Force Majeure events; and

(c) upon occurrence of a Political Event, all Force Majeure costs attributable to such Political Event shall be reimbursed by the Authority to the Contractor.

(d) For the avoidance of doubt, Force Majeure costs shall mean escalation cost, prolongation cost and all other costs directly attributable to the Force Majeure Event, but shall not include debt repayment obligations, if any, of the Contractor. It is hereby expressly agreed by the Parties that escalation cost and prolongation cost for the purposes of this Clause 21.6 shall be limited to the extent determined herein below:

(i) escalation cost shall be determined in accordance with the principles, procedures and formulae specified in Clause 19.10 proportionately for the period of delay attributable to the Force Majeure Event;

(ii) prolongation cost shall be determined in accordance with the principles, procedures and formulae specified in Clause 10.5(vi) for the period of delay attributable to the Force Majeure Event,

For the avoidance of doubt, the incomplete work referred to in this Clause 21.6 shall be limited to the portion of the work that remains unfinished due to the occurrence of a Force Majeure Event, and shall specifically exclude any work that was incomplete due to delays attributable to the Contractor prior to the occurrence of such Force Majeure Event. The value of such work shall be assessed as of the Bid Due Date by Authority Engineer, in accordance with the methodology set out in Clause 13.2(iv).

(ii) Save and except as expressly provided in this Article 21, neither Party shall be liable in any manner whatsoever to the other Party in respect of any loss, damage, cost, expense, claims, demands and proceedings relating to or arising out of occurrence or existence of any Force Majeure Event or exercise of any right pursuant hereto.

(iii) Upon the occurrence of any Force Majeure Event during the Construction Period, the Project Completion Schedule for and in respect of the affected Works shall be

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extended on a day for day basis for such period as performance of the Contractor's obligations is affected on account of the Force Majeure Event or its subsisting effects.

21.7 Termination Notice for Force Majeure Event

(i) If a Force Majeure Event subsists for a period of 60 (sixty) days or more within a continuous period of 120 (one hundred and twenty) days, either Party may in its discretion terminate this Agreement by issuing a Termination Notice to the other Party without being liable in any manner whatsoever, save as provided in this Article 21, and upon issue of such Termination Notice, this Agreement shall, notwithstanding anything to the contrary contained herein, stand terminated forthwith; provided that before issuing such Termination Notice, the Party intending to issue the Termination Notice shall inform the other Party of such intention and grant 15 (fifteen) days' time to make a representation, and may after the expiry of such 15 (fifteen) days period, whether or not it is in receipt of such representation, in its sole discretion issue the Termination Notice.

21.8 Termination Payment for Force Majeure Event

(i) In the event of this Agreement being terminated on account of a Non-Political Event, the Termination Payment shall be an amount equal to the sum payable under Clause 23.5.

Provided that in the event Termination occurs during the Maintenance Period, the Authority Engineer shall only determine the value of Works associated with Maintenance.

(ii) If Termination is on account of an Indirect Political Event, the Termination Payment shall include:

(a) any sums due and payable under Clause 23.5; and

(b) the reasonable cost, as determined by the Authority Engineer, of the Plant and Materials procured by the Contractor and transferred to the Authority for use in Construction or Maintenance, only if such Plant and Materials are in conformity with the Specifications and Standards;

Provided that in the event Termination occurs during the Maintenance Period, the Authority Engineer shall only determine the value of Works associated with Maintenance.

(iii) If Termination is on account of a Political Event, the Authority shall make a Termination Payment to the Contractor in an amount that would be payable under Clause 23.6 (ii) as if it were an Authority Default.

21.9 Deleted

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21.10 Excuse from performance of obligations

If the Affected Party is rendered wholly or partially unable to perform its obligations under this Agreement because of a Force Majeure Event, it shall be excused from performance of such of its obligations to the extent it is unable to perform on account of such Force Majeure Event; provided that:

(a) the suspension of performance shall be of no greater scope and of no longer duration than is reasonably required by the Force Majeure Event;

(b) the Affected Party shall make all reasonable efforts to mitigate or limit damage to the other Party arising out of or as a result of the existence or occurrence of such Force Majeure Event and to cure the same with due diligence; and

(c) when the Affected Party is able to resume performance of its obligations under this Agreement, it shall give to the other Party notice to that effect and shall promptly resume performance of its obligations hereunder.

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Article 22

Suspension of Contractor's Rights

22.1 Suspension upon Contractor Default

Upon occurrence of a Contractor Default, the Authority shall be entitled, without prejudice to its other rights and remedies under this Agreement including its rights of Termination hereunder, to (i) suspend carrying out of the Works or Maintenance or any part thereof, and (ii) carry out such Works or Maintenance itself or authorise any other person to exercise or perform the same on its behalf during such suspension (the "**Suspension**"). Suspension hereunder shall be effective forthwith upon issue of notice by the Authority to the Contractor and may extend up to a period not exceeding 90 (ninety) days from the date of issue of such notice.

22.2 Authority to act on behalf of Contractor

During the period of Suspension hereunder, all rights and liabilities vested in the Contractor in accordance with the provisions of this Agreement shall continue to vest therein and all things done or actions taken, including expenditure incurred by the Authority for discharging the obligations of the Contractor under and in accordance with this Agreement shall be deemed to have been done or taken for and on behalf of the Contractor and the Contractor undertakes to indemnify the Authority for all costs incurred during such period. The Contractor hereby licences and sub-licences respectively, the Authority or any other person authorised by it under Clause 22.1 to use during Suspension, all Intellectual Property belonging to or licensed to the Contractor with respect to the Project Highway and its design, engineering, construction and maintenance, and which is used or created by the Contractor in performing its obligations under the Agreement.

22.3 Revocation of Suspension

(i) In the event that the Authority shall have rectified or removed the cause of Suspension within a period not exceeding 60 (sixty) days from the date of Suspension, it shall revoke the Suspension forthwith and restore all rights of the Contractor under this Agreement. For the avoidance of doubt, the Parties expressly agree that the Authority may, in its discretion, revoke the Suspension at any time, whether or not the cause of Suspension has been rectified or removed hereunder.

(ii) Upon the Contractor having cured the Contractor Default within a period not exceeding 60 (sixty) days from the date of Suspension, the Authority shall revoke the Suspension forthwith and restore all rights of the Contractor under this Agreement.

22.4 Termination

(i) At any time during the period of Suspension under this Article 22, the Contractor may by notice require the Authority to revoke the Suspension and issue a Termination

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Notice. The Authority shall, within 15 (fifteen) days of receipt of such notice, terminate this Agreement under and in accordance with Article 23.

(ii) Notwithstanding anything to the contrary contained in this Agreement, in the event that Suspension is not revoked within 90 (ninety) days from the date of Suspension hereunder, the Agreement shall, upon expiry of the aforesaid period, be deemed to have been terminated by mutual agreement of the Parties and all the provisions of this Agreement shall apply, *mutatis mutandis*, to such Termination as if a Termination Notice had been issued by the Authority upon occurrence of a Contractor Default.

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Article 23

Termination

23.1 Termination for Contractor Default

(i) Save as otherwise provided in this Agreement, in the event that any of the defaults specified below shall have occurred, and the Contractor fails to cure the default within the Cure Period set forth below, or where no Cure Period is specified, then within a Cure Period of 60 (sixty) days, the Contractor shall be deemed to be in default of this Agreement (the "**Contractor Default**"), unless the default has occurred solely as a result of any breach of this Agreement by the Authority or due to Force Majeure. The defaults referred to herein shall include:

(a) the Contractor fails to provide, extend or replenish, as the case may be, the Performance Security and Additional Performance Secuirty, if any, in accordance with this Agreement;

(b) after the replenishment or furnishing of fresh Performance Security and Additional Performance Security, as the case may be, in accordance with Clause 7.3, the Contractor fails to cure, within a Cure Period of 30 (thirty) days, the Contractor Default for which the whole or part of the Performance Security was appropriated;

(c) the Contractor does not achieve the latest outstanding Project Milestone due in accordance with the provisions of Schedule-J, subject to any Time Extension, and continues to be in default for [45 (forty five)][18] days;

(d) the Contractor abandons or manifests intention to abandon the construction or Maintenance of the Project Highway without the prior written consent of the Authority;

(e) the Contractor fails to proceed with the Works in accordance with the provisions of Clause 10.1 or stops Works and/or the Maintenance for 30 (thirty) days without reflecting the same in the current programme and such stoppage has not been authorised by the Authority Engineer;

(f) the Project Completion Date does not occur within the period specified in Schedule-J for the Scheduled Completion Date, or any extension thereof;

(g) the Contractor fails to rectify any Defect, the non-rectification of which shall have a Material Adverse Effect on the Project, within the time specified in this Agreement or as directed by the Authority Engineer;

(h) the Contractor subcontracts the Works or any part thereof in violation of this Agreement or assigns any part of the Works or the Maintenance without the prior approval of the Authority;

[18] This shall be reduced to 30 (thirty) for the projects with Estimated Project Cost less than or equal to Rs. 300 Crore.

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(i) the Contractor creates any Encumbrance in breach of this Agreement;

(j) an execution levied on any of the assets of the Contractor has caused a Material Adverse Effect;

(k) filing of an application for initiating corporate insolvency resolution process by any person under the Insolvency and Bankruptcy Code, 2016 against the Contractor, its promoters or persons having influence or control over the Contractor or its promoters, as the case may be, which has a potential to impact the Project in the opinion of the Authority or further admission of an application for initiating corporate insolvency resolution process by an adjudicating authority under the Insolvency and Bankruptcy Code, 2016 against the Contractor, its promoters or persons having influence or control over the Contractor or its promoters, as the case may be or if a trustee or receiver is appointed for the Contractor or for the whole or material part of its assets that has a material bearing on the Project;

(l) the Contractor has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the Authority, a Material Adverse Effect;

(m) a resolution for winding up or insolvency of the Contractor is passed, or any petition for winding up or insolvency of the Contractor is admitted by a court of competent jurisdiction and a provisional liquidator or receiver or interim resolution professional, as the case may be, is appointed and such order has not been set aside within 90 (ninety) days of the date thereof or the Contractor is ordered to be wound up by court except for the purpose of amalgamation or reconstruction; provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of the Contractor are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of the Contractor under this Agreement; and provided that:

i. the amalgamated or reconstructed entity has the capability and experience necessary for the performance of its obligations under this Agreement; and

ii. the amalgamated or reconstructed entity has the financial standing to perform its obligations under this Agreement and has a credit worthiness at least as good as that of the Contractor as at the Appointed Date;

(n) any representation or warranty of the Contractor herein contained which is found to be false or the Contractor is at any time hereafter found to be in breach or non-compliance thereof;

(o) the Contractor submits to the Authority any statement, notice or other document, in written or electronic form, which has a material effect on the Authority's rights, obligations or interests and which is false in material particulars;

(p) the Contractor has failed to fulfil any obligation, for which failure Termination has been specified in this Agreement; or

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(q) the Contractor commits a default in complying with any other provision of this Agreement if such a default causes a Material Adverse Effect on the Project or on the Authority.

(r) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:

i. for doing or forbearing to do any action in relation to the Contract, or

ii. for showing or forbearing to show favour or disfavour to any person in relation to the Contract,

or if any of the Contractor's personnel, agents or subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (s). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.

(s) the Contractor fails in achieving the rate of progress as per revised schedule in accordance with Clause 11.14 of this Agreement.

(t) Any Catastrophic Failure of structure/ highway due to construction defects during Construction / Defects Liability Period.

(u) Pavement roughness index more than 2400 mm per km for two consecutive bi-annual cycles determined by the Authority

(ii) Without prejudice to any other rights or remedies which the Authority may have under this Agreement, upon occurrence of a Contractor Default, the Authority shall be entitled to terminate this Agreement by issuing a Termination Notice to the Contractor; provided that before issuing the Termination Notice, the Authority shall by a notice inform the Contractor of its intention to issue such Termination Notice and grant 15 (fifteen) days to the Contractor to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it is in receipt of such representation, issue the Termination Notice.

(iii) The following shall apply in respect of cure of any of the defaults and/ or breaches of the Agreement:

(a) The Cure Period shall commence from the date of the notice by the Authority to the Contractor asking the latter to cure the breach or default specified in such notice;

(b) The Cure Period provided in the Agreement shall not relieve the Contractor from liability for Damages caused by its breach or default;

(c) The Cure Period shall not in any way be extended by any period of suspension under the Agreement;

(d) If the cure of any breach by the Contractor requires any reasonable action by the Contractor that must be approved by the Authority hereunder the applicable Cure Period (and any liability of the Contractor for damages

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incurred) shall be extended by the period taken by the Authority to accord its required approval.

(iv) After termination of this Agreement for Contractor Default, the Authority may complete the Works and/or arrange for any other entities to do so. The Authority and these entities may then use any Materials, Plant and equipment, Contractor's documents and other design documents made by or on behalf of the Contractor.

23.2 Termination for Authority Default

(i) In the event that any of the defaults specified below shall have occurred, and the Authority fails to cure such default within a Cure Period of 90 (ninety) days or such longer period as has been expressly provided in this Agreement, the Authority shall be deemed to be in default of this Agreement (the "**Authority Default**") unless the default has occurred as a result of any breach of this Agreement by the Contractor or due to Force Majeure. The defaults referred to herein shall include:

(a) the Authority commits a material default in complying with any of the provisions of this Agreement and such default has a Material Adverse Effect on the Contractor;

(b) the Authority has failed to make payment of any amount due and payable to the Contractor within the period specified in this Agreement;

(c) deleted;

(d) the Authority becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with its creditors, or carries on business under a receiver, trustee or manager for the benefit of its creditors, or if any act is done or event occurs which (under Applicable Laws) has a similar effect;

(e) the Authority repudiates this Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by this Agreement;

(f) the Authority Engineer fails to issue the relevant Interim Payment Certificate within 60 (sixty) days after receiving a statement and supporting documents; or

(g) the whole work is suspended by Authority beyond 120 (one hundred twenty) days for any reason which is not attributed to the Contractor.

(ii) Without prejudice to any other right or remedy which the Contractor may have under this Agreement, upon occurrence of an Authority Default, the Contractor shall be entitled to terminate this Agreement by issuing a Termination Notice to the Authority; provided that before issuing the Termination Notice, the Contractor shall by a notice inform the Authority of its intention to issue the Termination Notice and grant 15 (fifteen) days to the Authority to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it is in receipt of such representation, issue the Termination Notice.

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If on the consideration of the Authority's representation or otherwise, the contractor does not issue the Termination Notice on such 15th (fifteenth) day and prefers to continue with the project, it is deemed that the cause of action of the Termination Notice has been condoned by the Contractor and he would be deemed to have waived any claim and forfeited any right to any other remedy on that count or in relation to such action or omission.

23.3 Termination for Authority's convenience

Notwithstanding anything stated hereinabove, the Authority may terminate this Agreement for convenience. The termination shall take effect 30 (thirty) days from the date of notice provided to the Contractor.

23.4 Requirements after Termination

Upon Termination of this Agreement in accordance with the terms of this Article 23, the Contractor shall comply with and conform to the following:

(a) deliver all relevant records, reports, Intellectual Property and other licences pertaining to the Works, Maintenance, other design documents and in case of Termination occurring after the Provisional Certificate has been issued, the "as built" Drawings for the Works;

(b) transfer and/or deliver all Applicable Permits to the extent permissible under Applicable Laws; and

(c) vacate the Site within 15 (fifteen) days.

23.5 Valuation of Unpaid Works

(i) Within a period of 45 (forty-five) days after Termination under Clause 23.1, 23.2 or 23.3, as the case may be, has taken effect, the Authority Engineer shall proceed in accordance with Clause 18.5 to determine as follows the valuation of unpaid Works (the "**Valuation of Unpaid Works**"):

(a) value of the completed stage of the Works, less payments already made;

(b) reasonable value of the partially completed stages of works as on the date of Termination, only if such works conform with the Specifications and Standards; and

(c) value of Maintenance, if any, for completed months, less payments already made, and shall adjust from the sum thereof (i) any other amounts payable or recoverable, as the case may be, in accordance with the provisions of this Agreement; and (ii) all taxes due to be deducted at source.

(ii) The Valuation of Unpaid Works shall be communicated to the Authority, with a copy to the Contractor, within a period of 45 (forty-five) days from the date of Termination.

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23.6 Termination Payment

(i) Upon Termination on account of Contractor's Default under Clause 23.1, the Authority shall:

(a) encash and appropriate the Performance Security, Additional Performance Security if any and Retention Money, or in the event the Contractor has failed to replenish or extend the Performance Security and Additional Performance Security if any, claim the amount stipulated in Clause 7.1, as agreed pre-determined compensation to the Authority for any losses, delays and cost of completing the Works and Maintenance, if any;

(b) encash and appropriate the Bank Guarantee, if any, for and in respect of the outstanding Advance Payment and interest thereon;

(c) pay to the Contractor, by way of Termination Payment, an amount equivalent to the Valuation of Unpaid Works after adjusting any other sums payable or recoverable, as the case may be, in accordance with the provisions of this Agreement; and

(d) declare the contractor (including each partner of the Joint Venture) as non-performer and ineligible for bidding in any future projects of the Authority, both as the sole party or as one of the parties of Joint Venture/ Consortium, for a period of 2 (two) years from the date of termination.

(ii) Upon Termination on account of an Authority Default under Clause 23.2 or for Authority's convenience under Clause 23.3, the Authority shall:

(a) return the Performance Security, Additional Performance Security and Retention Money forthwith;

(b) encash and appropriate the bank guarantee, if any, for and in respect of the outstanding Advance Payment; and

(c) pay to the Contractor, by way of Termination Payment, an amount equal to:

i. Valuation of Unpaid Works;

ii. the reasonable cost of temporary works, as determined by the Authority Engineer; and

iii. 10% (ten per cent) of the cost of the Works and Maintenance that are not commenced or not completed,

and shall adjust from the sum thereof (i) any other amounts payable or recoverable, as the case may be, in accordance with the provisions of this Agreement, and (ii) all taxes due to be deducted at source.

(iii) Termination Payment shall become due and payable to the Contractor within 30 (thirty) days of a demand being made by the Contractor to the Authority with the necessary particulars, and in the event of any delay, the Authority shall pay interest at

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the average of one year MCLR of top 5 Scheduled Commercial Banks[β] plus 1.25% per annum, on the amount of Termination Payment remaining unpaid; provided that such delay shall not exceed 90 (ninety) days. For the avoidance of doubt, it is expressly agreed that Termination Payment shall constitute full discharge by the Authority of its payment obligations in respect thereof hereunder.

(iv) The Contractor expressly agrees that Termination Payment under this Article 23 shall constitute a full and final settlement of all claims of the Contractor on account of Termination of this Agreement and that it shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

23.7 Other rights and obligations of the Parties

Upon Termination for any reason whatsoever:

(a) property and ownership in all Materials, Plant and Works and the Project Highway shall, as between the Contractor and the Authority, vest in the Authority in whole; provided that the foregoing shall be without prejudice to Clause 23.6;

(b) risk of loss or damage to any Materials, Plant or Works and the care and custody thereof shall pass from the Contractor to the Authority; and

(c) the Authority shall be entitled to restrain the Contractor and any person claiming through or under the Agreement from entering upon the Site or any part of the Project, which have not been vested in the Authority in accordance with the provisions of this Agreement.

23.8 Survival of rights

Notwithstanding anything to the contrary contained in this Agreement any Termination pursuant to the provisions of this Agreement shall be without prejudice to the accrued rights of either Party including its right to claim and recover money damages, insurance proceeds, security deposits, and other rights and remedies, which it may have in law or Agreement. All rights and obligations of either Party under this Agreement, including Termination Payments, shall survive the Termination to the extent such survival is necessary for giving effect to such rights and obligations.

23.9 Foreclosure with mutual consent

(i) Without prejudice to any provision of this Agreement, the Authority and Contractor may foreclose this Agreement by mutual consent in circumstances which does not constitute either party's default without any liability or consequential future liability for either party.

[β] The Authority shall declare the list of Top 5 Scheduled Commercial Banks on 1st September every calendar year based on the balance sheet size as declared in their annual reports, The 1 year MCLR of the top 5 Scheduled commercial banks shall be taken at the start of every quarter.

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(ii) Should a Party intend to foreclose this Agreement by mutual consent, the intending Party shall issue a notice to the other Party and upon issuance of such notice, the other Party may within 15 days from receipt of such notice either agree to such foreclosure or raise objection(s) to the same by intimating either of the two possible positions to the intending Party in writing.

(iii) In either case of the other Party agreeing to the proposed foreclosure or otherwise, the Parties may negotiate the proposed foreclosure and sign a Supplementary Agreement for foreclosure to the main Agreement within 30 (thirty) days of the date agreeing by both Parties. Foreclosure shall not come into effect unless and otherwise Supplementary Agreement is signed.

(iv) Any attempt or endeavor for foreclosure by mutual agreement shall be without prejudice to the rights and obligations of the Parties herein and the factum of such an attempt or exercise shall not stop either of the Parties from discharging their contractual obligations under this Agreement.

(v) For the avoidance of doubt, it is clarified that such foreclosure will be without prejudice to the Contractor and shall not affect the Contractor in any way if it wishes to bid in future projects of the Authority.

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Part VI

Other Provisions

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भारत सरकार / Govt. of India
नई दिल्ली / New Delhi-110001

Article 24

Assignment and Charges

24.1 Restrictions on assignment and charges

This Agreement shall not be assigned by the Contractor to any person, save and except with the prior consent in writing of the Authority, which consent the Authority shall be entitled to decline without assigning any reason.

24.2 Hypothecation of Materials or Plant

Notwithstanding the provisions of Clause 24.1, the Contractor may pledge or hypothecate to its lenders, any Materials or Plant prior to their incorporation in the Works. Further, the Contractor may, by written notice to the Authority, assign its right to receive payments under this Agreement either absolutely or by way of charge, to any person providing financing to the Contractor in connection with the performance of the Contractor's obligations under this Agreement. The Contractor acknowledges that any such assignment by the Contractor shall not relieve the Contractor from any obligations, duty or responsibility under this Agreement.

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Article 25

Liability and Indemnity

25.1 General indemnity

(i) The Contractor will indemnify, defend, save and hold harmless the Authority and its officers, servants, agents, Government Instrumentalities and Government owned and/or controlled entities/enterprises, (the "**Authority Indemnified Persons**") against any and all suits, proceedings, actions, demands and third party claims for any loss, damage, cost and expense of whatever kind and nature, whether arising out of any breach by the Contractor of any of its obligations under this Agreement or from any negligence under the Agreement, including any errors or deficiencies in the design documents, or tort or on any other ground whatsoever, except to the extent that any such suits, proceedings, actions, demands and claims have arisen due to any negligent act or omission, or breach or default of this Agreement on the part of the Authority Indemnified Persons.

25.2 Indemnity by the Contractor

(i) Without limiting the generality of Clause 25.1, the Contractor shall fully indemnify, hold harmless and defend the Authority and the Authority Indemnified Persons from and against any and all loss and/or damages arising out of or with respect to:

(a) failure of the Contractor to comply with Applicable Laws and Applicable Permits;

(b) payment of taxes required to be made by the Contractor in respect of the income or other taxes of the Sub-contractors, suppliers and representatives; or

(c) non-payment of amounts due because of Materials or services furnished to the Contractor or any of its Sub-contractors which are payable by the Contractor or any of its Sub-contractors.

(ii) Without limiting the generality of the provisions of this Article 25, the Contractor shall fully indemnify, hold harmless and defend the Authority Indemnified Persons from and against any and all suits, proceedings, actions, claims, demands, liabilities and damages which the Authority Indemnified Persons may hereafter suffer, or pay by reason of any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to any materials, information, design or process used by the Contractor or by the Sub-contractors in performing the Contractor's obligations or in any way incorporated in or related to the Project. If in any such suit, action, claim or proceedings, a temporary restraint order or injunction is granted, the Contractor shall make every reasonable effort, by giving a satisfactory bond or otherwise, to secure the revocation or suspension of the

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injunction or restraint order. If, in any such suit, action, claim or proceedings, the Project Highway, or any part thereof or comprised therein, is held to constitute an infringement and its use is permanently enjoined/ injuncted, the Contractor shall promptly make every reasonable effort to secure for the Authority a licence, at no cost to the Authority, authorising continued use of the infringing work. If the Contractor is unable to secure such licence within a reasonable time, the Contractor shall, at its own expense, and without impairing the Specifications and Standards, either replace the affected work, or part, or process thereof with non-infringing work or part or process or modify the same so that it becomes non-infringing.

25.3 Notice and contest of claims

In the event that either Party receives a claim or demand from a third party in respect of which it is entitled to the benefit of an indemnity under this Article 25 (the "**Indemnified Party**") it shall notify the other Party (the "**Indemnifying Party**") within 15 (fifteen) days of receipt of the claim or demand and shall not settle or pay the claim without the prior approval of the Indemnifying Party, which approval shall not be unreasonably withheld or delayed. If the Indemnifying Party wishes to contest or dispute the claim or demand, it may conduct the proceedings in the name of the Indemnified Party, subject to the Indemnified Party being secured against any costs involved, to its reasonable satisfaction.

25.4 Defence of claims

(i) The Indemnified Party shall have the right, but not the obligation, to contest, defend and litigate any claim, action, suit or proceeding by any third party alleged or asserted against such Party in respect of, resulting from, related to or arising out of any matter for which it is entitled to be indemnified hereunder, and reasonable costs and expenses thereof shall be indemnified by the Indemnifying Party. If the Indemnifying Party acknowledges in writing its obligation to indemnify the Indemnified Party in respect of loss to the full extent provided by this Article 25, the Indemnifying Party shall be entitled, at its option, to assume and control the defence of such claim, action, suit or proceeding, liabilities, payments and obligations at its expense and through the counsel of its choice; provided it gives prompt notice of its intention to do so to the Indemnified Party and reimburses the Indemnified Party for the reasonable cost and expenses incurred by the Indemnified Party prior to the assumption by the Indemnifying Party of such defence. The Indemnifying Party shall not be entitled to settle or compromise any claim, demand, action, suit or proceeding without the prior written consent of the Indemnified Party, unless the Indemnifying Party provides such security to the Indemnified Party as shall be reasonably required by the Indemnified Party to secure the loss to be indemnified hereunder to the extent so compromised or settled.

(ii) If the Indemnifying Party has exercised its rights under Clause 25.3, the Indemnified Party shall not be entitled to settle or compromise any claim, action, suit or proceeding without the prior written consent of the Indemnifying Party (which

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consent shall not be unreasonably withheld or delayed).

(iii) If the Indemnifying Party exercises its rights under Clause 25.3, the Indemnified Party shall nevertheless have the right to employ its own counsel, and such counsel may participate in such action, but the fees and expenses of such counsel shall be at the expense of the Indemnified Party, when and as incurred, unless:

(a) the employment of counsel by such party has been authorised in writing by the Indemnifying Party; or

(b) the Indemnified Party shall have reasonably concluded that there may be a conflict of interest between the Indemnifying Party and the Indemnified Party in the conduct of the defence of such action; or

(c) the Indemnifying Party shall not, in fact, have employed independent counsel reasonably satisfactory to the Indemnified Party, to assume the defence of such action and shall have been so notified by the Indemnified Party; or

(d) the Indemnified Party shall have reasonably concluded and specifically notified the Indemnifying Party either:

i. that there may be specific defences available to it which are different from or additional to those available to the Indemnifying Party; or

ii. that such claim, action, suit or proceeding involves or could have a material adverse effect upon it beyond the scope of this Agreement:

Provided that if Sub-clauses (b), (c) or (d) of this Clause 25.4 (iii) shall be applicable, the counsel for the Indemnified Party shall have the right to direct the defence of such claim, demand, action, suit or proceeding on behalf of the Indemnified Party, and the reasonable fees and disbursements of such counsel shall constitute legal or other expenses hereunder.

25.5 Survival on Termination

The provisions of this Article 25 shall survive Termination.

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Article 26

Dispute Resolution

26.1 Dispute Resolution

(i) In the event of any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "**Dispute**") shall, in the first instance, be attempted to be resolved amicably.

(ii) The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith, and further agree to provide each other with reasonable access during normal business hours to all non-privileged records, information and data pertaining to any Dispute.

26.2 Escalation of Dispute

In the event of any Dispute(s) between the Parties remain**s** unresolved within 30 (thirty) days of the notice in writing referred to in Clause 26.1(i) or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to arbitration or conciliation in accordance with the provisions of Clause 26.3.

26.3 Arbitration, Conciliation and Adjudication of Dispute

26.3.1 Any Dispute between the Parties the sum of which is of value less than Rupees 10 Crores which remains unresolved between the Parties through the mechanisms available/ prescribed in the Agreement, which has not been agreed upon/ reached settlement by the Parties, will be referred either to SAROD, (a Society registered under Society's Act, 1860 vide Registration no. S/RS/SW1049/2013) duly represented by Government/ Authority and National Highways Builders Federation (NHBF) or to India International Arbitration Centre ("IIAC").

(i) The appointment of Tribunal, Code of conduct for Arbitrators and fees and expenses of SAROD/IIAC and the Arbitral Tribunal shall also be governed by the Rules of SAROD as amended from time to time or the India International Arbitration Centre Act 2019 and the regulations framed thereunder as amended from time to time.

(ii) Subject to the provisions of The Limitation Act, 1963, as amended from time to time, Arbitration may be commenced during or after the Contract Period, provided that the obligations of Authority and the Contractor shall not be altered by reason of the Arbitration being conducted during the Contract Period.

(iii) The venue of Arbitration shall be New Delhi or a place selected by governing body of SAROD or IIAC, as the case may be, and the language for all documents and communications between the Parties shall be English.

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(iv) Each Party shall bear its own costs and expenses incurred in connection with the arbitral proceedings.

(v) The arbitrators shall make a reasoned award (the "**Award**"). Any Award made in any arbitration held pursuant to this Article / shall be final and binding on the Parties as from the date it is made, and the Contractor and the Authority agree and undertake to carry out such Award without delay.

(vi) The Contractor and the Authority agree that the Award may be enforced against the Contractor and/or the Authority, as the case may be, and their respective assets wherever situated.

26.3.2 Any Dispute between the Parties, the sum of which is of value Rupees 10 Crores or above, which remains unresolved between the Parties through the mechanisms available or prescribed in the Agreement, which has not been agreed upon/ reached settlement by the Parties, will be resolved by Conciliation as per the Arbitration and Conciliation Act, 1996.

26.3.3 The Contractor and the Authority agree that the Award or a settlement agreement may be enforced against the Contractor and/or the Authority, as the case may be, and their respective assets wherever situated.

26.3.4 This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pending the Award or settlement hereunder. Further the Parties unconditionally acknowledge and agree that notwithstanding any Dispute between them, each Party shall proceed with the performance of its respective obligations, pending resolution of Dispute in accordance with this Article.

26.3.5 This provision relating to Conciliation under the Arbitration and Conciliation Act, 1996 shall cease to apply once the provisions relating to substitution of conciliation process by mediation are notified under Mediation Act, 2023. Thereafter "Conciliation" herein be referred to as Mediation as per the provisions of the Mediation Act 2023.

26.3.6 Notwithstanding anything to the contrary contained in the Agreement, it is agreed that any Dispute between the Parties the sum of which is of value equal to or above Rupees 10 Crores shall not be referred to Arbitration. It is further agreed that all declaratory disputes or non-monetary disputes shall not be referred to Arbitration. For the avoidance of doubt, it is clarified that nothing herein shall prevent the Parties from seeking resolution of such Disputes through civil courts.

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Article 27

Miscellaneous

27.1 Governing law and jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the courts at [Delhi] shall have exclusive jurisdiction over matters arising out of or relating to this Agreement.

27.2 Waiver of immunity

Each Party unconditionally and irrevocably:

(a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;

(b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Party with respect to its assets;

(c) waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and

(d) consents generally in respect of the enforcement of any judgement or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgement that may be made or given in connection therewith).

27.3 Delayed payments

The Parties hereto agree that payments due from one Party to the other Party under the provisions of this Agreement shall be made within the period set forth therein, and if no such period is specified, within 30 (thirty) days of receiving a demand along with the necessary particulars. In the event of delay beyond such period, the defaulting Party shall pay interest for the period of delay calculated at a rate equal to the average of one year MCLR of top 5 Scheduled Commercial Banks[β] plus 1.25% per annum, and recovery thereof shall be without prejudice to the rights of the Parties under this Agreement including Termination thereof.

[β] The Authority shall declare the list of Top 5 Scheduled Commercial Banks on 1st September every calendar year based on the balance sheet size as declared in their annual reports, The 1 year MCLR of the top 5 Scheduled commercial banks shall be taken at the start of every quarter.

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27.4 Waiver

(i) Waiver, including partial or conditional waiver, by either Party of any default by the other Party in the observance and performance of any provision of or obligations under this Agreement:-

(a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;

(b) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and

(c) shall not affect the validity or enforceability of this Agreement in any manner.

(ii) Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

27.5 Liability for review of Documents and Drawings

Except to the extent expressly provided in this Agreement:

(a) no review, comment or approval by the Authority or the Authority Engineer of any Document or Drawing submitted by the Contractor nor any observation or inspection of the construction, or maintenance of the Project Highway nor the failure to review, approve, comment, observe or inspect hereunder shall relieve or absolve the Contractor from its obligations, duties and liabilities under this Agreement, the Applicable Laws and Applicable Permits; and

(b) the Authority shall not be liable to the Contractor by reason of any review, comment, approval, observation or inspection referred to in Sub-clause (a) above.

27.6 Exclusion of implied warranties etc.

This Agreement expressly excludes any warranty, condition or other undertaking implied at law or by custom or otherwise arising out of any other agreement between the Parties or any representation by either Party not contained in a binding legal agreement executed by both Parties.

27.7 Survival

(i) Termination shall:

(a) not relieve the Contractor or the Authority, as the case may be, of any obligations hereunder which expressly or by implication survive Termination hereof; and

(b) except as otherwise provided in any provision of this Agreement expressly

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limiting the liability of either Party, not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of, or caused by, acts or omissions of such Party prior to the effectiveness of such Termination or arising out of such Termination.

(ii) All obligations surviving Termination shall only survive for a period of 3 (three) years following the date of such Termination.

27.8 Entire Agreement

This Agreement and the Schedules together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof, and no amendment or modification hereto shall be valid and effective unless such modification or amendment is agreed to in writing by the Parties and duly executed by persons especially empowered in this behalf by the respective Parties. All prior written or oral understandings, offers or other communications of every kind pertaining to this Agreement are abrogated and withdrawn unless made a part of this Agreement. For the avoidance of doubt, the Parties hereto agree that any obligations of the Contractor arising from the Request for Proposals shall be deemed to form part of this Agreement and treated as such.

27.9 Severability

If for any reason whatever, any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to the Dispute Resolution Procedure set forth under this Agreement or otherwise.

27.10 No partnership

This Agreement shall not be interpreted or construed to create an association, joint venture or partnership between the Parties, or to impose any partnership obligation or liability upon either Party, and neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwisebind, the other Party.

27.11 Third parties

This Agreement is intended solely for the benefit of the Parties and their respective successors and permitted assigns, and nothing in this Agreement shall be construed to create any duty to, standard of care with reference to, or any liability to, any person not a Party to this Agreement.

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27.12 Successors and assigns

This Agreement shall be binding upon, and inure to the benefit of the Parties and their respective successors and permitted assigns.

27.13 Notices

Any notice or other communication to be given by any Party to the other Party under or in connection with the matters contemplated by this Agreement shall be in writing and shall:

(a) in the case of the Contractor, be given by e-mail and by letter delivered by hand to the address given and marked for attention of the person set out below or to such other person as the Contractor may from time to time designate by notice to the Authority; provided that notices or other communications to be given to an address outside [Delhi] may, if they are subsequently confirmed by sending a copy thereof by registered acknowledgement due, air mail or by courier, be sent by e-mail to the person as the Contractor may from time to time designate by notice to the Authority;

[***]

{Attention:
Designation:
Address:
Email: ;}

(b) in the case of the Authority, be given by e-mail and by letter delivered by hand and be addressed to the [Chairman] of the Authority with a copy delivered to the Authority Representative or such other person as the Authority may from time to time designate by notice to the Contractor; provided that if the Contractor does not have an office in [Delhi] it may send such notice by facsimile or e-mail and by registered acknowledgement due, air mail or by courier; and

(c) any notice or communication by a Party to the other Party, given in accordance herewith, shall be deemed to have been delivered when in the normal course of post it ought to have been delivered and in all other cases, it shall be deemed to have been delivered on the actual date and time of delivery; provided that in the case of e- mail, it shall be deemed to have been delivered on the working day following the date of its delivery.

27.14 Language

All notices required to be given by one Party to the other Party and all other communications, Documentation and proceedings which are in any way relevant to this Agreement shall be in writing and in English language.

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27.15 Counterparts

This Agreement may be executed in two counterparts, each of which, when executed and delivered, shall constitute an original of this Agreement.

27.16 Confidentiality

The Parties shall treat the details of this Agreement as private and confidential, except to the extent necessary to carry out obligations under it or to comply with Applicable Laws. The Contractor shall not publish, permit to be published, or disclose any particulars of the Works in any trade or technical paper or elsewhere without the previous agreement of the Authority.

27.17 Copyright and Intellectual Property rights

(i) As between the Parties, the Contractor shall retain the copyright and other Intellectual Property rights in the Contractor's documents and other design documents made by (or on behalf of) the Contractor. The Contractor shall be deemed (by signing this Agreement) to give to the Authority a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's documents, including making and using modifications of them. This licence shall:

(a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works;

(b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works; and

(c) in the case of Contractor's documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by this Agreement, including replacements of any computers supplied by the Contractor.

(ii) The Contractor's documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Authority for purposes other than those permitted under this Clause 27.17.

(iii) As between the Parties, the Authority shall retain the copyright and other intellectual property rights in this Agreement and other documents made by (or on behalf of) the Authority. The Contractor may, at its cost, copy, use, and obtain communication of these documents for the purposes of this Agreement. They shall not, without the Authority's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the contract.

27.18 Limitation of Liability

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(i) Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with this Agreement, save and except as provided under Articles 23 and 25.

(ii) The total liability of one Party to the other Party under and in accordance with the provisions of this Agreement, save and except as provided in Articles 23 and 25, shall not exceed the Contract Price. For the avoidance of doubt, this Clause shall not limit the liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

27.19 Care and Supply of Documents

(i) Each of the Contractor's documents shall be in the custody and care of the Contractor, unless and until taken over by the Authority. Unless otherwise stated in the Agreement, the Contractor shall supply to the Authority 2 (two) copies of the each of the Contractor's documents.

(ii) The Contractor shall keep, on the Site, a copy of the Agreement, publication named in the Authority's requirements, the Contractor's documents, and variations and other communications given under the Agreement. The Authority's personnel shall have the right of access to all these documents at all reasonable times.

(iii) If a Party becomes aware of an error or defect of a technical nature in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other party of such error or defect.

27.20 Authority's Use of Contractor's Documents.

(i) As between the Parties, the Contractor shall retain the copyright and other Intellectual Property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.

(ii) The Contractor hereby gives to the Authority a non-terminable transferable nonexclusive royalty-free license to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This license shall:

(a) apply through out the actual or intended working life (whichever is longer) of the relevant parts of the Works,

(b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and

(c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contractor, including replacements of any computers supplied by the Contractor.

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(iii) The Contractor's Documents and other design documents made by or on behalf of the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Authority for purposes other than those permitted under this Sub-Clause.

27.21 Contractor's Use of Authority's Documents

As between the Parties, the Authority shall retain the copyright and other intellectual property rights in the Authority's requirements and other Documents made by (or on behalf of) the Authority. The Contractor may, at its cost copy, use, and obtain communication of these documents for the purpose of the Agreement. They shall not without the Authority's consent, be copied, used or communicating to a third party by the Contractor, except as necessary for the purposes of the Agreement.

27.22 Access to the Site by Others

The Contractor shall, at all times, afford access to the Site to the authorized representatives of the Authority, the Authority Engineer and anyone else authorized by the Authority to access the site and to the persons duly authorized by any Governmental Agency having jurisdiction over the Project, including those concerned with safety, security or environmental protection to inspect the Project Highway and to investigate any matter within their authority and upon reasonable notice, the Contractor shall provide to such persons reasonable assistance necessary to carry out their respective duties and functions with minimum disruption to the construction, operation and maintenance of the Project Highway consistent with the purpose for which such persons have gained such access to the Site.

27.23 Term

This Agreement shall come into force and effect from the date first hereinabove written and shall remain in force and effect till the Termination Date i.e. the Parties perform all their respective obligations or is terminated by any of the Parties for the reasons and in the manner provided for in the Agreement.

27.24 Amendments

The Agreement may not be supplemented, amended, modified or changed except by an instrument in writing signed by the Contractor and the Authority and expressed to be a supplement, modification or change to the Agreement.

27.25 Representation and Bribes

The Contractor represents and warrants to the Authority that:

(a) No representation or warranty by the Contractor contained herein or in any other document furnished by it to the Authority, or to any Governmental Instrumentality in relation to Applicable Permits contains or will contain any untrue statement of material fact or omits or will omit to state a material fact

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necessary to make such representation or warranty not misleading; and

(b) It warrants that no sums, in cash or kind, have been paid or will be paid by or on behalf of the Contractor, to any person by way of fees, commission or otherwise for securing or entering into the Contractor for influencing or attempting to influence any officer or employee of the Authority or GOI in connection therewith.

27.26 No Agency

The Agreement does not constitute either Party as the agent, partner or legal representative of the other for any purposes whatsoever, and neither Party shall have any express or implied right or authority to assume or to create any obligation or responsibility on behalf of or in the name of the other Party.

27.27 Retention of Video Recording

The Contractor shall preserve and store all video recordings required under this Agreement during the Development Period, Construction Period and the Maintenance Period. Video recordings made during the Development Period and Construction Period shall be retained for a minimum period of 1 (one) year from the date of issuance of Completion Certificate, and video recordings made during the Maintenance Period shall be retained for a minimum period of 3 (three) years from the date of such recording, or until the final resolution of any related dispute, whether through conciliation, mediation, or court proceedings, whichever is later. Provided, however, that this requirement shall not apply to video recordings that are hosted on the Authority's designated portal/website or are otherwise made available to the Authority.

27.28 Liability of the Project Highway Content uploaded on the Authority's designated portal/website

27.28.1 The Contractor agrees and acknowledges that the Authority assumes no responsibility or liability whatsoever, in respect of any information, data, video recording, report, Document, notice pertaining to the Project provided by the Contractor and uploaded or published on the Authority's designated portal/website (the "**Project Highway Content**") in accordance with this Agreement.

27.28.2 The Authority shall have no obligation to review, verify, validate, or approve any such Project Highway Content, nor shall it be responsible for ensuring its compliance with any applicable legal, contractual, technical, or regulatory standards. The Contractor shall bear sole and absolute responsibility for ensuring that all the Project Highway Content is accurate, complete, up-to-date, and fully compliant with the Agreement and all Applicable Laws, rules, regulations, directions, and notifications issued by any Government Instrumentality.

27.28.3 The Contractor expressly acknowledges and agrees that it shall be solely responsible

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for:

a. ensuring that all Project Highway Content uploaded or published on the website is accurate, complete, and in strict conformity with this Agreement and instructions issued by the Authority from time to time; and

b. at its cost and expense, defending, addressing, and resolving any claims, complaints, or proceedings arising from or in connection with the Project Highway Content, including any errors, omissions, or non-compliance, and shall be responsible for all liability, civil or criminal, or claims, and shall fully indemnify, defend, and hold harmless the Authority from and against any and all losses, damages, costs, liabilities, penalties, or expenses incurred in connection therewith.

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Article 28

Definitions

28.1 Definitions

In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

"**Accounting Year**" means the financial year commencing from the first day of April of any calendar year and ending on the thirty-first day of March of the next calendar year;

"**Advance Payment**" shall have the meaning set forth in Clause 19.2;

"**Affected Party**" shall have the meaning set forth in Clause 21.1;

"Affiliate" means, in relation to either Party {and/or Members}, a person who controls, is controlled by, or is under the common control with such Party {or Member} (as used in this definition, the expression "control" means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person, whether by operation of law or by contract or otherwise);

"Agreement" means this Agreement, its Recitals, the Schedules hereto and any amendments thereto, or any supplementary agreement made in accordance with the provisions contained in this Agreement;

"Applicable Laws" means all laws, brought into force and effect by the GOI or the State Government including rules, regulations and notifications made thereunder, and judgements, decrees, injunctions, writs and orders of any court of record, applicable to this Agreement and the exercise, performance and discharge of the respective rights and obligations of the Parties hereunder, as may be in force and effect during the subsistence of this Agreement;

"Applicable Permits" means all clearances, licences, permits, authorisations, no objection certificates, consents, approvals and exemptions required to be obtained or maintained under Applicable Laws in connection with the construction, operation and maintenance of the Project Highway during the subsistence of this Agreement;

"**Appointed Date**" means the date declared by the Authority as the project commencement date with the consent of the contractor, as per the process prescribed in Article 3 and 8 of this Agreement;

"Arbitration Act" means the Arbitration and Conciliation Act, 1996, with all its subsequent amendments;

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"Authority" shall have the meaning attributed thereto in the array of Parties hereinabove as set forth in the Recitals;

"Authority Default" shall have the meaning set forth in Clause 23.2;

"Authority Engineer" shall have the meaning set forth in Clause 18.1;

"Authority Representative" means such person or persons as may be authorised in writing by the Authority to act on its behalf under this Agreement and shall include any person or persons having authority to exercise any rights or perform and fulfil any obligations of the Authority under this Agreement;

"Bank" means a bank incorporated in India and recognized by the Reserve Bank of India

"Base Rate" means the floor rate of interest announced by the State Bank of India for all its lending operations;

"Base Date" means the last date of the calendar month, which precedes the Bid Due Date by at least 28 (twenty eight) days;

"Bid" means the documents in their entirety comprised in the bid submitted by the [selected bidder/ Joint Venture] in response to the Request for Proposal in accordance with the provisions thereof;

"**Bid Due Date**" means last date and time for submission of Bids as specified in the RFP;

"**Bid Security**" means the bid security provided by the Contractor to the Authority in accordance with the Request for Proposal, and which is to remain in force until substituted by the Performance Security;

"Catastrophic Failure" means (i) Collapse of any bridge or flyover or Underpass or any retaining structures during the Contract Period; (ii) Embankment or pavement failure causing loss of serviceability of pavement (i.e. at least one carriageway required to be closed/diverted for rehabilitation) for a continuous length of 50.0m or a cumulative discontinuous length more than 1.0% of project length, whichever is lower within the DLP period or 5 years, whichever is less; (iii) Collapse of launching girder or staging leading to loss of life during Construction Period; (iv) Failure of Pavement Quality Concrete (PQC) Pavement requiring full depth panel replacement in more than 2.0% of the carriageway area within 5 years of completion of Construction; and (v) Collapse inside of the tunnel/collapse of tunnel portal during operation phase or human beings trapped for more than 72 hours during construction.

"Change in Law" means the occurrence of any of the following after the Base Date:

(a) the enactment of any new Indian law;

(b) the repeal, modification or re-enactment of any existing Indian law;

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(c) the commencement of any Indian law which has not come into effect until the Base Date; or

(d) a change in the interpretation or application of any Indian law by a judgement of a court of record which has become final, conclusive and binding, as compared to such interpretation or application by a court of record prior to the Base Date.

"Change of Scope" shall have the meaning set forth in Article 13;

"Change of Scope Notice" shall have the meaning set forth in Clause 13.2 (i);

"**Change of Scope Request**" shall have the meaning set forth in Clause 13.2 (ii);

"Change of Scope Order" shall have the meaning set forth in Clause 13.2 (v);

"Completion Certificate" shall have the meaning set forth in Clause 12.4;

"Construction" shall have the meaning set forth in Clause 1.2 (f);

"Construction Period" means the period commencing from the Appointed Date and ending on the date of the Completion Certificate;

"Construction Zone" comprises of the Main Carriage Way including entry/exit points, median, paved and earthen shoulders, major bridges, flyover, areas for structures including ROBs and RUBs including their approaches, tunnel including approaches to its portals at both ends, and a parallel working space for accommodating slopes/retaining structures etc.;

"**Contract Period**" means the period starting on and from Appointed Date and ending on the Defects Liability Period.

"Contract Price" means the amount specified in Clause 19.1 (i);

"Contractor" shall have the meaning attributed thereto in the array of Parties hereinabove as set forth in the Recitals;

"Contractor Default" shall have the meaning set forth in Clause 23.1;

"Cure Period" means the period specified in this Agreement for curing any breach or default of any provision of this Agreement by the Party responsible for such breach or default and shall:

(a) commence from the date on which a notice is delivered by one Party to the other Party asking the latter to cure the breach or default specified in such notice;

(b) not relieve any Party from liability to pay Damages or compensation under the provisions of this Agreement; and

(c) not in any way be extended by any period of Suspension under this

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Agreement; provided that if the cure of any breach default by the Contractor requires any reasonable action by the Contractor that must be approved by the Authority or the Authority Engineer hereunder, the applicable Cure Period shall be extended by the period taken by the Authority or the Authority Engineer to accord their approval;

"Damages" shall have the meaning set forth in paragraph (w) of Clause 1.2;

"Defect" means any defect or deficiency in Construction of the Works or any part thereof, which does not conform with the Specifications and Standards, and in the case of Maintenance, means any Defect or deficiency which is specified in Schedule-E;

"Defects Liability Period" shall have the meaning set forth in Clause 17.1;

"Design Director" shall have the meaning set forth in Clause 10.1;

"Dispute" shall have the meaning set forth in Clause 26.1;

"Dispute Resolution Procedure" means the procedure for resolution of Disputes set forth in Article 26;

"Drawings" means all of the drawings, calculations and documents pertaining to the Project Highway as set forth in Schedule-I, and shall include 'as built' drawings of the Project Highway;

"Document" or "Documentation" means documentation in printed or written form, or in tapes, discs, drawings, computer programmes, writings, reports, photographs, films, cassettes, or expressed in any other written, electronic, audio or visual form;

"Emergency" means a condition or situation that is likely to endanger the safety or security of the individuals on or about the Project Highway, including Users thereof, or which poses an immediate threat of material damage to any of the Project Assets;

"Encumbrances" means, in relation to the Project Highway, any encumbrances such as mortgage, charge, pledge, lien, hypothecation, security interest, assignment, privilege or priority of any kind having the effect of security or other such obligations, and shall include any designation of loss to payees or beneficiaries or any similar arrangement under any insurance policy pertaining to the Project Highway, where applicable herein but excluding utilities referred to in Clause 9.1;

"EPC" means engineering, procurement and construction;

"Estimated Project Cost" means the Estimated Project Cost as specified in the RFP;

"Final Payment Certificate" shall have the meaning set forth in Clause 19.15;

"**Final Payment Statement**" shall have the meaning set forth in Clause 19.13;

"Force Majeure" or "Force Majeure Event" shall have the meaning ascribed to it in

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Clause 21.1;

"GAD" or "General Arrangement Drawings" shall have the meaning set forth in Clause 3.1 (iii) (b);

"GOI" or "Government" means the Government of India;

"Good Industry Practice" means the practices, methods, techniques, designs, standards, skills, diligence, efficiency, reliability and prudence which are generally and reasonably expected from a reasonably skilled and experienced contractor engaged in the same type of undertaking as envisaged under this Agreement and which would be expected to result in the performance of its obligations by the Contractor in accordance with this Agreement, Applicable Laws and Applicable Permits in reliable, safe, economical and efficient manner;

"Government Instrumentality" means any department, division or sub- division of the Government or the State Government and includes any commission, board, authority, agency or municipal and other local authority or statutory body including panchayat under the control of the Government or the State Government, as the case may be, and having jurisdiction over all or any part of the Project Highway or the performance of all or any of the services or obligations of the Contractor under or pursuant to this Agreement;

"IRC" means the Indian Roads Congress;

"Indemnified Party" means the Party entitled to the benefit of an indemnity pursuant to Article 25;

"Indemnifying Party" means the Party obligated to indemnify the other Party pursuant to Article 25;

"Indirect Political Event" shall have the meaning set forth in Clause 21.3;

"Insurance Cover" means the aggregate of the maximum sums insured under the insurance taken out by the Contractor pursuant to Article 20, and includes all insurances required to be taken out by the Contractor under Clauses 20.1 and 20.9 but not actually taken, and when used in the context of any act or event, it shall mean the aggregate of the maximum sums insured and payable or deemed to be insured and payable in relation to such act or event;

"Intellectual Property" means all patents, trademarks, service marks, logos, get-up, trade names, internet domain names, rights in designs, blue prints, programmes and manuals, drawings, copyright (including rights in computer software), database rights, semi-conductor, topography rights, utility models, rights in know-how and other intellectual property rights, in each case whether registered or unregistered and including applications for registration, and all rights or forms of protection having equivalent or similar effect anywhere in the world;

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"**Interim Payment Certificate**" or "**IPC**" means the interim payment certificate issued by the Authority Engineer for payment to the Contractor in respect of Contractor's claims for payment raised in accordance with the provisions of this Agreement;

"Joint Venture" means the group of entities which have come together for implementation of this Project;

"Joint Venture Undertaking" shall have the meaning set forth in Clause 1.5(iv);

"Key Personnel" means the positions (if any) of the Contractor's Personnel, other than the Contractor's Representative;

"Lead Member" shall, in the case of a Joint Venture, mean the member of such Joint Venture who shall have the authority to bind the contractor and each member of the Joint Venture; and shall be deemed to be the Contractor for the purposes of this Agreement; the Lead Member shall itself undertake and perform at least 51% (fifty one per cent) of the total length of the Project Highway, and such portion shall correspond to not less than 51% (fifty-one percent) of the Contract Price;

"**LOA**" or "**Letter of Acceptance**" means the letter of acceptance issued by the Authority as referred to in Recital (D);

"Maintenance" means the maintenance of the Project Highway as set forth in Article 14 for the period specified therein;

"**Maintenance Inspection Report**" shall have the meaning set forth in Clause 15.2;

"Maintenance Manual" shall have the meaning ascribed to it in Clause 10.7;

"Maintenance Programme" shall have the meaning set forth in Clause 14.3;

"Maintenance Period" shall have the meaning set forth in Clause 14.1;

"Maintenance Requirements" shall have the meaning set forth in Clause 14.2;

"Major Bridge" means a bridge having a total length of more than 60 (sixty) metres between the inner faces of the dirt walls as specified in IRC:5;

"**Manual**" shall mean the Manual of Standards and Specifications for Project Highways;

"Material Adverse Effect" means a material adverse effect of any act or event on the ability of either Party to perform any of its obligations under and in accordance with the provisions of this Agreement and which act or event causes a material financial burden or loss to either Party;

"Materials" comprise of all the supplies (other than Plant) used by the Contractor used in the Works or for the maintenance of the Project Highway;

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"Mediation Act" means the Mediation Act, 2023 and shall include modifications to or any re-enactment thereof, as in force from time to time;

"**Memorandum**" shall have the meaning set forth in Clause 8.2;

"Monthly Maintenance Statement shall have the meaning set forth in Clause 19.6;

"**MORTH**" means the Ministry of Road Transport and Highways or any substitute thereof dealing with Highways;

"**Non-Political Event**" shall have the meaning set forth in Clause 21.2;

"Parties" means the parties to this Agreement collectively and "Party" shall mean any of the parties to this Agreement individually;

"Performance Security" and **"Additional Performance Security"** shall have the meaning set forth in Clause 7.1;

"Plant" means the apparatus and machinery intended to form or forming part of the works of the Works;

"Political Event" shall have the meaning set forth in Clause 21.4;

"Preservation Costs" shall have the meaning set forth in Clause 11.1 (iii);

"Programme" shall have the meaning set forth in Clause 10.1 (iii);

"Project" means the construction and maintenance of the Project Highway in accordance with the provisions of this Agreement, and includes all works, services and equipment relating to or in respect of the Scope of the Project;

"Project Assets" means all physical and other assets relating to (a) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road over-bridges, drainage works, traffic signals, sign boards, kilometre-stones, [toll plaza(s)], electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; and (b) Project Facilities situated on the Site;

"Project Completion Date" means (i) the date of issuance of Provisional Certificate under Clause 12.2; or (ii) where no Provisional Certificate is issued, the date of issuance of Completion Certificate under Clause 12.4;

"Project Completion Schedule" means the progressive Project Milestones set forth in Schedule-J for completion of the Project Highway on or before the Scheduled Completion Date;

"Project Facilities" means all the amenities and facilities situated on the Site, as described in Schedule-C;

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"**Project Highway**" means the Site comprising the existing road {, proposed bypasses and tunnels} forming part of [NH-** from km ** to km **] and all Project Assets, and its subsequent development and augmentation in accordance with this Agreement;

"Project Highway Content" shall have the meaning set forth in Clause 27.28.1;

"Project Milestone" means the project milestone set forth in Schedule-J;

"Proof Consultant" shall have the meaning set forth in Clause 10.2;

"Provisional Certificate" shall have the meaning set forth in Clause 12.2;

"Punch List" shall have the meaning ascribed to it in Clause 12.2(i) and, if applicable, shall only include any or all of the below:

(i) plantation of avenue trees along the edge of the RoW and other landscaping works within RoW
(ii) completion of work on Provision of Unlined Roadside Drains
(iii) lining of roadside drains in identified stretches
(iv) construction of rest areas, as approved
(v) completion of Fencing Works of RoW
(vi) turfing on embankment slopes in identified sections
(vii) pointing to Stone Masonry works in identified Cross Drainage Structures
(viii) stone Pitching at identified locations

"Quality Assurance Plan" or **"QAP"** shall have the meaning set forth in Clause 11.2**;**

"Re.", "Rs." or "Rupees" or "Indian Rupees" or "INR" means the lawful currency of the Republic of India;

"**Request for Proposals**" *or* "**RFP**" shall have the meaning set forth in Recital 'C';

"Retention Money" shall have the meaning set forth in Clause 7.5;

"Right of Way" means and refers to the total land required and acquired for the project, both in its width and length, together with all way leaves, easements, unrestricted access and other rights of way, howsoever described, necessary for construction and maintenance of the Project Highway in accordance with this Agreement;

"**Safety Consultant**" shall have the meaning set forth in Clause 10.1;

"Scheduled Completion Date" shall be the date set forth in Clause 10.3;

"Scheduled Construction Period" means the period commencing from the Appointed Date and ending on Scheduled Completion Date;

"Scope of the Project" shall have the meaning set forth in Clause 2.1;

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"Section" means a part of the Project Highway;

"Site" shall have the meaning set forth in Clause 8.1;

"Specifications and Standards" means the specifications and standards relating to the quality, quantity, capacity and other requirements for the Project Highway, as set forth in Schedule-D, and any modifications thereof, or additions thereto, as included in the design and engineering for the Project Highway submitted by the Contractor to, and expressly approved by, the Authority;

"**Stage Payment Statement**" shall have the meaning set forth in Clause 19.4;

"**State**" means the [State of ***** and/or the Union Territory of ****] and "**State Government**" means the government of that State;

"**Structures**" means an elevated road or a flyover, as the case may be;

"Sub-contractor" means any person or persons to whom a part of the Works or the Maintenance has been subcontracted by the Contractor and the permitted legal successors in title to such person, but not an assignee to such person;

"Suspension" shall have the meaning set forth in Article 22;

"**Taking Over Certificate**" shall have the meaning set forth in Clause 14.10;

"Taxes" means any Indian taxes including GST, excise duties, customs duties, value added tax, sales tax, local taxes, cess and any impost or surcharge of like nature (whether Central, State or local) on the goods, Materials, equipment and services incorporated in and forming part of the Project Highway charged, levied or imposed by any Government Instrumentality, but excluding any interest, penalties and other sums in relation thereto imposed on any account whatsoever. For the avoidance of doubt, Taxes shall not include taxes on corporate income;

"Termination" means the expiry or termination of this Agreement;

"Termination Notice" means the communication issued in accordance with this Agreement by one Party to the other Party terminating this Agreement;

"Termination Payment" means the amount payable by either Party to the other upon Termination in accordance with Article 23;

"Terms of Reference" or "TOR" shall have the meaning set forth in Clause 18.2;

"Tests" means the tests set forth in Schedule-K to determine the completion of Works in accordance with the provisions of this Agreement;

"Time Extension" shall have the meaning set forth in Clause 10.5;

"User" means a person who travels or intends to travel on the Project Highway or any

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part thereof in/on any vehicle;

"**Valuation of Unpaid works**" shall have the meaning set forth in Clause 23.5;

"Works" means all works including survey and investigation, design, engineering, procurement, construction, Plant, Materials, maintenance, temporary works and other things necessary to complete the Project Highway in accordance with this Agreement; and

"WPI" means the wholesale price index for various commodities as published by the Ministry of Commerce and Industry, GOI and shall include any index which substitutes the WPI, and any reference to WPI shall, unless the context otherwise requires, be construed as a reference to the WPI published for the period ending with the preceding month.

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Schedules

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Schedule-A

(See Clauses 2.1 and 8.1)

Site of the Project

1 The Site

1.1 Site of the Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.

1.2 The dates of handing over the Right of Way to the Contractor are specified in Annex-II of this Schedule-A.

1.3 An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2 (i) of this Agreement.

1.4 The Proposed center line coordinates are given in Annex II and the alignment plan and profile is given in Annex III of this schedule.

1.5 The alignment plans of the Project Highway are specified in Annex-III. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be upgraded. The proposed plan and profile of the Project Highway shall be followed by the contractor. The Contractor shall, however, improve/upgrade the Road Profile as indicated in Annex-III based on site/design requirement within the available ROW.

1.6 The status of the environment clearances obtained or awaited is given in Annex-IV.

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Annex – I

(Schedule-A)

Site

[**Note-1:** Through suitable drawings and description in words, the land, buildings, structures and road works comprising the Site shall be specified briefly but precisely in this Annex-I. All the chainages/ location referred to in Annex-I to Schedule-A shall be existing chainages.]

[Note-2: Description of the land shall include reference to the relevant land acquisition notification(s) for and in respect of the Site.]

1. Site

The Site of the Project Highway comprises the section of [National Highway **] commencing from km *** to km *** i.e. the *** - *** section in the State of ***. The land, carriageway and structures comprising the Site are described below.

2. Land

The Site of the Project Highway comprises the land (sum total of the land already in possession and land to be possessed) as described below:

Sr. No.	Chainage (km)		Construction Zone within ROW (In m)	Total ROW (In m)
	From	To		

3. Carriageway

The present carriageway of the Project Highway and the type of the existing pavement is as follows:

Sr. No.	Existing Chainage (km)		Length (km)	Carriageway Width (m)	Type of existing pavement	Pavement Composition	Remarks
	From	To					

4. Major Bridges

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The Site includes the following Major Bridges:

Sr. No.	Location (km)	Type of Structure			No. of Spans with span length (m)	Width (m)	Remarks
		Foundation	Sub-structure	Super-structure			

5. Road over-bridges (ROB)/ Road under-bridges (RUB)

The Site includes the following ROB (Road Over Bridge)/RUB (Road Under Bridge):

Sr. No.	Location (km)	Type of Structure			No. of Spans with span length (m)	Width (m)	Remarks
		Foundation	Sub-structure	Super-structure			

6. Railway Level Crossings

The Site includes the following railway level crossings:

Sr. No.	Location (km)	Remarks

7. Grade separators (Viaducts, Flyovers, etc.)

The Site includes the following grade separators:

Sr. No.	Location (km)	Type of Structure			No. of Spans with span length (m)	Width (m)	Remarks
		Foundation	Sub-structure	Super-structure			

8. Underpasses/Overpasses (VUP, LVUP, SVUP, VOP, LVOP, SVOP, CUP, etc.)

The Site includes the following underpasses/overpasses:

Sr.	Location	Type of Structure	No. of Spans	Width	Remarks

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No.	(km)	Foundation	Sub-structure	Super-structure	with span length (m)	(m)	

9. Minor Bridges

The Site includes the following Minor Bridges:

Sr. No.	Location (km)	Type of Structure			No. of Spans with span length (m)	Width (m)	Remarks
		Foundation	Sub-structure	Super-structure			

10. Culverts

The Site has the following culverts:

Sr. No.	Location (km)	Type of Culvert	Span / Opening with Span Length (m)	Width (m)	Remarks

Total number of structures

The total number of structures on the Site is noted below:

[(a)	No. of Major Bridges	**
(b)	No. of Railway Over Bridges	**
(c)	No. of Grade Separators	**
(d)	No. of Minor Bridges	**
(e)	No. of Vehicular and Non Vehicular Underpasses	**
(f)	No. of Box Culverts	**
(g)	No. of Pipe Culverts	**
(h)	No. of Slab Culverts	**

11. Tunnel

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The Site includes the following tunnels:

Sr. No.	Location (km)		Type (single / twin Tube)	Length (km)		Cross section details (area in sqm)		Type of ventilation	Remarks
	From	To		LHS Tube	RHS Tube	LHS Tube	RHS Tube		

12. Bypasses

The details of the existing bypasses:

Sr. No.	Name of bypass (town)	Existing Chainage (km)		Design Length (in km)
		From	To	

13. Major Junctions

The details of major junctions are as follows:

Sr. No.	Location (km)	At grade/ Separated	Junction Type	Road Leading To		Category of Cross road
				Left	Right	

14. Minor Junctions

The details of minor junctions are as follows:

Sr. No.	Location (km)	Junction Type	Road Leading To		Category of Cross road
			Left	Right	

15. Bus bays

The details of Bus bays on the site are as follows:

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Sr. No.	Location	Length (m)	Side (LHS/RHS/BOTH)	Remarks

16. Truck Lay Byes

The details of truck lay byes are as follows:

Sr. No.	Location	Length (m)	Side (LHS/RHS/BOTH)	Remarks

Bus bays and Truck Lay byes

The total number of bus bays and truck lay byes on the Project is noted below:

[(a) No. of Bus bays on LHS

(b) No. of Bus bays on RHS

(c) No. of Truck lay-byes on LHS

(d) No. of Truck lay-byes on RHS]

17. Toll plaza

The details of toll plaza are as follows:

Sr. No.	Location (km)	Lane Configuration	Remarks

18. Road Side Drains

The details of roadside drains are as follows:

Sr. No.	Location		Type (Masonry/CC/RCC/ Earthen)	Remarks
	From (Km)	To (km)		

19. Utility

The existing utility to be shifted/ relocated are listed in **Annex-III.**

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Annex – II

(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

1. Dates for providing Right of Way of Construction Zone

The dates on which the Authority shall provide Right of Way of Construction Zone to the Contractor on different stretches of the Site are stated below:

Sr. No	From km to km	Length (km)	Width (m)	Date of providing Right of Way*
(1)	**(2)**	**(3)**	**(4)**	**(5)**
(i) Full Right of Way (full width) (a) Stretch (b) Stretch (c) Stretch				
(ii) Part Right of Way (part width) (a) Stretch (b) Stretch (c) Stretch				
(iii) Balance Right of Way (width) (a) Stretch (b) Stretch (c) Stretch				

*The dates specified herein shall in no case be beyond 180 (one hundred and eighty) days after the Appointed Date.

2. COORDINATE [in case of Greenfield Sections]

Sr. No.	Chainage (km)	Proposed Centerline Coordinate	
		Latitude	Longitude

3. Reference Permanent Bench Mark(CORS)

Sr. No.	Chainage (km)	Latitude	Longitude	RL

3.

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Annex - III

(Schedule-A)

Alignment Plans

Following drawings are enclosed in digital form as **Annex –III**

- Alignment Plan & Longitudinal Profile
- Proposed center line coordinates.
- Major/ Minor Junctions
- GAD of Structures
- Traffic Signage Plan
- Utility Relocation Plan

Note

- *The proposed plan and profile of the Project Highway indicated in the alignment plan shall be followed by the Contractor as minimum. The Contractor shall, however, improve/upgrade the Road profile as indicated in this Annex-III based on site/design requirement.*
- *Traffic Signage plan of the Project Highway showing numbers & location of traffic signs is enclosed in this Annex-III. The Contractor shall, however, improve/upgrade upon the traffic signage plan as indicated based on site/design requirement as per the relevant specifications/IRC Codes/Manual.*

a. Electrical Utilities

The site includes the following electrical utilities

i. Extra HighTension lines (EHT Lines)

S. No.	Chainage (km)		Length along (in km)				Crossing (Nos)			
	From	To	400 kV	220 kV	132 kV	66 kV	400 kV	220 kV	132 kV	66 kV

ii. Low/High Tension lines (LT/HT Lines)

S. No.	Chainage (km)		Length along (in km)			Crossing (Nos)		
	From	To	LT	11 kV	33 kV	LT	11 kV	33 kV

iii. Others (Please specify)

b. Other Utility

(Please provide details of other Utilities like water supply, sewerage lines, gas pipelines, etc.)

[Table to be inserted]

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Annex – IV

(Schedule-A)

Environment Clearances

The following environment clearances have been obtained: [***]

The following environment clearances are awaited: [***]

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Schedule - B

(See Clause 2.1)

Development of the Project Highway

1. Development of the Project Highway

Development of the Project Highway shall include design and construction of the Project Highway as described in this Schedule-B and in Schedule-C.

2. [Rehabilitation and augmentation]

[Rehabilitation and augmentation] shall include [***-Laning and Strengthening] of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

3. Specifications and Standards

The Project Highway shall be designed and constructed in conformity with the Specifications and Standards set forth in Annex-I of Schedule-D.

4. Details of the items for determining cost of Change of Scope, in accordance with the provisions of this Agreement, are set forth in Annex-III of Schedule-B

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Annex – I

(Schedule-B)

Description of [*-Laning]** [$]

[Indicative Description of [*-Laning] of Annex – I (Schedule-B)**

1. **Development of the Project Highway**

The Project Highway shall follow the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex-III of Schedule-A. Notwithstanding anything to the contrary contained in this Agreement or [IRC:SP:***] (the "**Manual**"), the proposed plan & profile, locations of different structures/drains/service & slip road/RE walls, chainages of different structures/drains/service & slip road/RE walls, length of different structures/drains/service & slip road/RE walls etc. of the project highway as indicated in the Schedule A, Schedule B, Schedule C and their Annexures shall be treated as minimum requirement. Based on site/design requirement, the Contractor shall finalize their Detailed Designs (Development Stage) including plan & profile of the project highway and submit the same to Authority & Authority Engineer (AE) for its review(s) and Safety Audit by Safety Auditor before the start of the execution of project. The designs so reviewed shall not be in contradiction with the scope of project. For avoidance of doubt, the provisions mentioned in schedule B & C cannot be changed, only the design of the components is to be submitted for consent/ approval.

['The Contractor shall deploy at its own Cost and Expenses, the Grading/Paving/Compaction Equipment fitted with System of Automated & Intelligent Machine-aided Construction (AI-MC) for finishing of all Grades including Embankment, Subgrade, GSB, WMM. The System of Automated & Intelligent Machine-aided Construction (AI-MC) used by the Contractor shall be capable of delivering accuracy as per the applicable IRC specifications. During the Construction Period, the Contractor shall furnish all the Physical Progress Data (All desired type of Surface Grading Data, Compaction and Temperature Data etc.) obtained through System of Automated & Intelligent Machine-aided Construction (Al-MC)/CMS to Authority for monitoring of Construction on Daily Basis. These Digital Data and desired output shall be made available at the Location (Server/Cloud) finalized by Authority.]

1.1 Widening of the Existing Highway

1.1.1 The Project Highway shall follow the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex-III of Schedule-A. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for [***] terrain to the extent land is available.

1.1.2 Width of Carriageway

(a) **-Laning [with/without] paved shoulders shall be undertaken. The paved carriageway shall be [*** m] for [*** Laning] (including paved shoulder and kerb

[$] The contents of this Annex-I may be modified in accordance with the structure of the Project.

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shyness/edge strip). The earthen shoulder shall be [***] metre on either sides and Edge strip shall be minimum [***] m as per Manual.

(b) In built - up areas and approaches to grade separated structures/bridges/ROBs with full height RE wall/Full or partial height retaining wall, the width of paved carriageway shall be [***] m for flush/raised median (including *** m paved shoulder and ***m shyness width) and ***m for depressed medians (including ***m paved shoulder and ***m edge strip) for ***/*** laning respectively. Built-up stretches for the Project are as follows:

Sr. No.	**Existing Chaiange (km)**		**Design Chaiange (km)**		**Length (km)**	**Side (LHS, RHS, Both)**	**Village name**
	From	**To**	**From**	**To**			

Note: Except as otherwise provided in this Agreement, the width of the paved carriageway and cross-sectional features shall conform to paragraph 1.1 above.

1.1.3 Typical Cross section

The Typical cross sections to be followed for different stretches of the Project Highway shall be as per **Annex-II to Schedule B**.

The Loops/Ramps of Interchanges shall be constructed with the lane configuration including paved shoulders except toll plaza as given in **Annex-II to Schedule B.** At toll plaza location, the lane width shall be as per lane requirement and taper.

The cross road at vehicular overpass locations shall be constructed with lane configuration as given in **Annex-II to Schedule B.**

The entire cross-sectional elements shall be accommodated in the available/proposed ROW. If required, suitable retaining structures shall be provided to accommodate the highway cross section within the available/ proposed ROW. The details of such sections are mentioned in Schedule-B. In case of any other section not included in Schedule-B, where retaining structures are to be provided, shall constitute a Change of Scope in accorandace with provisions of this Agreement.

1.2 Width of Median

The minimum width of median including kerb shyness shall be in accordance with the TCS mentioned in Clause 1.1.3 above.

2. Geometric Design and General Features

2.1 General

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Geometric design and general features of the Project Highway shall be in accordance with Section [***] of the Manual. Intermediate Sight distance (Desirable Minimum Sight Distance) shall be followed for design of all vertical curves including structures as well as highways.

2.2 Design speed

The Project Highway shall be designed for ruling design speed of [80/100 kmph for plain and rolling terrain and 60 kmph for mountainous and steep terrain] .

2.3 Improvement of the existing road geometrics

2.3.1 **The existing road geometrics shall be improved as per the provisions of Manual**.

In the following sections, where improvement of the existing road geometrics to the prescribed standards is not possible, the existing road geometrics shall be improved to the extent possible within the given right of way and appropriate road signs, pavement markings and safety measures shall be provided:

Sr. No.	Stretch (design chainage: km)		Type of deficiency	Remarks
	From	To		

2.3.2 Realignments:

The existing road shall be realigned and improved to the standards as specified in the manual at the following locations:

Sr. No.	Existing Chainage (km)		Design Chainage (km)		Length (km)
	From	To	From	To	

2.3.3 Bypasses:

The existing road shall be bypassed to the standards as specified in the manual at the following locations:

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Sr. No.	Name of bypass	Existing Chainage (km)		Design Chainage (km)		Length (km)
		From	To	From	To	

2.4 Right of Way

Details of the Right of Way along Project Highways and Side Roads are given in Annex II of Schedule-A.

2.5 **Type of shoulders**

2.5.1 The Design Specification of paved shoulder shall conform to the requirements specified in paragraph [***] of the manual.

2.5.2 Paved shoulders and shyness on median side shall be of same specification and pavement composition as of main carriageway.

2.5.3 The overlay on the main carriageway pavement and on the paved shoulders shall be uniform in thickness and composition.

2.5.4 In Built-up sections, footpaths/fully paved shoulders shall be provided with width [**]m respectively.

2.5.5 In open country, paved shoulders of [** m] width shall be provided.

2.5.6 The Design specifications of earthern shoulders shall conform to the requirements specified in paragraph [**] of the Manual.

2.5.7 The earthen shoulder of [**]m width shall be provided with top 150 mm of earthen shoulder with well graded natural moorum, gravel, crushed stone or combination thereof, confirming to Clause 401 of MoRTH specification.

2.6 **Lateral and vertical clearances at underpasses**

2.6.1 Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per the provision of relevant Manual.

2.6.2 The width of the opening at the underpasses shall be as follows:

Sr. No.	Location (Chainage) (from km to km)	Span/ opening (m)	Remarks

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2.6.3 The finished road level below the underpasses shall be kept 150 mm above the ground level/service road/ cross road (whichever is higher) to ensure that these underpasses don't become water accumulation points.

2.7 Lateral and vertical clearances at Overpasses

2.7.1 Lateral and vertical clearances for overpasses shall be as per paragraph [**] of the Manual.

2.7.2 The width of the opening at the overpasses shall be as follows:

Sr. No.	Location (Chainage) (from km to km)	Span/ opening (m)	Remarks

2.8 Service roads/Slip roads/Connecting Roads

2.8.1 Service roads shall be constructed at the locations and for the lengths indicated below:

Sr. No.	Design Chainage (km)		Length (km)		Paved Carriageway Width including shyness (m)	Total Length (km)	Remarks
	From	To	LHS	RHS			

2.8.2 The Parking bays shall be provided along service road at following locations:

Sr. No.	Design Chainage of Parking Bay		Remarks
	LHS service road	RHS service road	

2.8.3 Slip Road

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The Slip roads shall be constructed at the locations and for the lengths indicated below:

Sr. No.	Design Chainage (km)		Length (km)		Paved Carriageway Width including shyness (m)	Total Length (km)	Remarks
	From	To	LHS	RHS			

2.8.4 Separator between Main Carriageway and Service/Slip Road

A separator with Crash Barrier/ pedestrian guard Rail between main carriageway and service/slip road shall be provided to prevent the pedestrians, local vehicles and animals entering the highway.

2.8.5 Conncting Roads

The connecting roads shall be constructed at the locations and for the lengths indicated below:

Sr. No.	Design Chainage (km)	Length (km)		Paved Carriageway Width including shyness (m)	Total Length (km)	Remarks
		LHS	RHS			

Note:

(i) Above length of the service/slip/connecting roads is minimum specified. The actual length of the service/slip/connecting roads shall be determined by the Contractor in accordance with the approved plan & profile and design approved by the Authority Engineer**.** Any increase/decrease up to 5 percent of the length specified in this Clause of Schedule-B shall not constitute a Change of Scope (COS). For increase and decrease beyond 5%, the COS as per provisions of this Agreement shall be given on incremental basis.

For avoidance of doubt, if the total length of service roads for the project to be constructed is 100 km, and the total length of service roads for the project constructed is 130 km then the length for COS shall be determined as follows:

L= total length of service roads for the project as stipulated to be constructed= 100 km

L1= total length of service roads actually executed= 130 km

Length qualifying for COS: = {130-(100+5%)} =25 km

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(ii) The acceleration, deceleration lane, right turning storage lane, entry/exit lanes shall be constructed in addition to length given in above table and shall be deemed to be part of the scope and no Change of Scope shall be considered for the same.

(iii) Any structures falling within acceleration / deceleration lane /taper shall be constructed to the required width. This increase in width shall not be treated as change of scope.

(iv) Any additional requirement at new location shall be treated as Change of Scope and shall be dealt as per provisions of Article 13 of this Agreement.

2.9 Grade separated structures

Grade separated structures shall be provided as per provision of the relevant Manual.

[2.5m wide footpaths for VUP and Flyovers and 1.5m for LVUP and SVUP shall be provided at grade intersection below structures for each direction of pedestrian movement.]

The requisite particulars are given below:

2.9.1 Flyover

Sr. No.	Design Chainage (km)	LHS Roadway Width (m)	RHS Roadway Width (m)	Span Arrangement (m)	Minimum Vertical Clearance (m)	Skew Angle (to be specified)	Remarks

2.9.2 Viaduct

Sr. No.	Design Chainage (km)	LHS Roadway Width (m)	RHS Roadway Width (m)	Span Arrangement (m)	Minimum Vertical Clearance (m)	Skew Angle (to be specified)	Remarks

2.9.3 Vehicle Overpass (VOP)

Sr. No.	Design Chainage (km)	LHS Roadway Width (m)	RHS Roadway Width (m)	Span Arrangement (m)	Minimum Vertical Clearance (m)	Skew Angle (to be specified)	Remarks

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2.9.4 Vehicle Underpasses (VUP)

Sr. No.	Design Chainage (km)	LHS Roadway Width (m)	RHS Roadway Width (m)	Span Arrangement (m)	Minimum Vertical Clearance (m)	Skew Angle (to be specified)	Remarks

2.9.5 Light Vehicle Underpasses (LVUP)

Sr. No.	Design Chainage (km)	LHS Roadway Width (m)	RHS Roadway Width (m)	Span Arrangement (m)	Minimum Vertical Clearance (m)	Skew Angle (to be specified)	Remarks

2.9.6 Small Vehicle Underpasses (SVUP)

Sr.No.	Design Chainage (km)	LHS Roadway Width (m)	RHS Roadway Width (m)	Span Arrangement (m)	Minimum Vertical Clearance (m)	Skew Angle (to be specified)	Remarks

2.9.7 Cattle and Pedestrian underpasses

Sr.No.	Design Chainage (km)	LHS Roadway Width (m)	RHS Roadway Width (m)	Span Arrangement (m)	Minimum Vertical Clearance (m)	Skew Angle (to be specified)	Remarks

2.10 Typical cross-sections of the Project Highway

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The Project Highway shall be constructed to [***] lane configuration. Typical cross sections required to be developed in different sections of the Project Highway are given below.

Sr. No	Design Chainage (km)		Length (km)	TCS	Remarks
	From	To			

[The Design Consultant shall take full care in designing the cross section confirming to the details given above.]

Note:

(i) Any variations in the lengths specified in the above table shall not constitute a Change of Scope

(ii) Lengths mentioned in the above list for cross section types concerned to structures are inclusive of structure length.

(iii) RE wall shall be provided for full height on all structures.

(iv) Chainages may be adjusted according to location of structures as per site conditions.

(v) Carriageway width tapering shall be provided 1 in 50 as per Manual. Intermediate Sight Distance (Desirable Minimum Sight Distance) shall be followed for design of all vertical curves (Summit and Valley Curves) including structures as well as highways.

3. Intersections and Grade Separators

All at-grade intersections and grade separated intersections shall be as per the Section [***] of the Manual. Existing at-grade intersections shall be improved to the prescribed standards.

The service road pavement composition shall be continued on crossroads of the intersections for the length specified for at-grade and grade separated intersections.

Properly designed intersections shall be provided at the locations and of the types and features given in the tables below:

3.1 At-grade intersections

3.1.1 Major Junctions:

Sr. No.	Design Chainage	Junction	Leads to	Median	Category of	Carriageway width of	Length of crossroad to

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	(km)	Type	Left	Right	Opening	Cross Road	cross road	be developed	
								LHS	RHS

3.1.2 Minor Intersections:

Sr. No.	Design Chainage (km)	Junction Type	Leads to		Median Opening	Category of Cross Road	Carriageway width of crossroad	Length of crossroad to be developed	
			Left	Right				LHS	RHS

Note :

(i) All Junctions shall be improved as per MoRTH Type Designs for Intersections on National Highways, 1995.

(ii) The Contractor shall take up 'Detailed Engineering study' to ascertain further details of all intersections and treatment of the intersections shall be designed in accordance with the latest guidelines mentioned in the Manual. Auxiliary lanes including storage, acceleration and deceleration lane along with physical islands to be provided. The cross road at the junctions which are having a level difference from the main carriageway, are to be improved at the level of main carriageway for the length of 30 metre and then to be merged with the cross road at the gradient not more than 1:25 (1:20 in hilly terrain).

(iii) For major/ minor junctions physical islands with hazard marking shall be provided for left-in / left out arrangement. Where there is space constraint to provide physical islands, the effect of junction kept wide opened can be avoided by ghost island with marking.

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3.2 At-Grade Intersections below Grade Separators/ Interchanges:

Sr. No.	Design Chainage (km)	Junction Type	Leads to		U-Turn provision in Viaduct Spans	Category of Cross Road	Carriageway width of crossroad	Length of crossroad to be developed	
			Left	Right				LHS	RHS

Note:

(i) The Contractor shall take up 'Detailed Engineering study' to ascertain further details of all intersections and treatment of the intersections shall be designed in accordance with the latest guidelines mentioned in section-[***] of Manual.

(ii) Junction improvement under grade separators shall be carried out as per manual with proper entry/exit to crossroads and slip/service roads, etc. Auxiliary lanes including storage, acceleration and deceleration lane along with physical islands to be provided.

(iii) Location of grade-separated structures are indicative. Exact location should be decided in consultation with Authority Engineer

3.3 Interchanges (IC)

3.3.1 Details of grade separated structure at interchange:

Sr. No	Design Chainage (km)	Type of Interchange	Span Arrangement (m)	Total Width (m)	Typical Cross Section	Remarks

[Note : Layout, Geometric Design and Typical Cross Sections of Interchange is included in Annex-II to schedule-B.]

3.3.2 Details of Ramps, Cross Roads and Connecting Roads at Interchanges (IC)

Sr. No.	Carriageway Widths including Kerb Shyness	Length (m)	Description of Ramps, Crossroads and Connecting Roads	Remarks

[Note : Layout, Geometric Design and Typical Cross Sections of Ramps, Cross Roads and Connecting Roads of Interchange is included in Annex-II to schedule-B.]

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4. Road Embankment and Cut Section

Construction of road embankment/cuttings shall conform to the Specifications and Standards given in section [***] of the Manual. Notwithstanding anything to the contrary contained in this Agreement or Manual, the difference of the proposed profile and the existing ground level of the project highway as indicated in the Annex-III of Schedule A shall be treated as minimum requirement.

Based on site/design requirement, the Contractor shall design the alignment plans and profiles of the project highway with the approval of the Authority Engineer within the available Right of Way. In case of green field stretches / realignments stretches / bypasses/ full reconstruction of existing stretches (if the existing stretches have been overtopped in past during rains /floods), the bottom of subgrade shall be 1000 mm above highest flood level (HFL)/ ground water table/ Natural ground level /pond level, whichever is higher.

For stability of slope upto 3m height the turfing can be adopted. For the slope from 3-6m, suitable geocell, geo-grid, geo-green etc. can be provided with suitable drainage chutes and suitable energy dissipators as per IRC:56. For the slope more than 6 metre height, a complete slope stability analysis as per IRC:75 shall be done and the slopes shall be compulsorily protected with stone pitching within stone masonry grid structure of 4x4 metre and suitable drains/chutes and energy dissipators etc. shall be provided for effective drainage of the water.

Protection measures for cut slopes be provided as per specifications wherever steep cutting section is involved simultaneously with cutting of slopes. Unprotected slopes shall not be permitted at any point of time

5. Pavement Design

5.1 Pavement design shall be carried out in accordance with the provision of relevant Manual*.

Note: [The Contractor shall develop 3D Digital Models and use suitable System of Automated & Intelligent Machine-aided Construction (Al-MC) for Motor Graders and Paver and the same in Compactors and Dozers to ensure Quality Standards as per IRC Specifications and Productivity improvement. Further, the Contractor shall generate measurable Digital Records that can be shared on a Digital Drive or can be viewed in real time. The Hardware and Software used by the Contractor shall have Features and Specifications mentioned in Schedule D.]

5.2 Type of pavement requirement

The pavement shall be [flexible/rigid] type for entire length of project highway except for toll plaza locations where rigid pavement shall be provided.

5.3 Design requirements

* As and when applicable

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[Refer to the provision of relevant Manual and specify design requirements and strategy]

5.3.1 Design Period and strategy

[Flexible/Rigid] pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of *** years. Stage construction shall not be permitted.

5.3.2 Recommended Pavement Design

Notwithstanding anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for a minimum design traffic of *** million standard axles and minimum effective sub-grade CBR of [***]. The pavement for service road/crossroad shall be designed for [***] MSA, which shall, however, in no case be less than 20 MSA in built up area and 10 MSA in rural areas.

5.3.3 In order to meet the intended functional requirement of respective pavement layers, the minimum thickness of respective pavement layers for main carriageway including paved shoulders and shyness, connecting/ cross roads/ service roads/ slip roads/ entry/exit locations, acceleration/ deceleration lane, right turning lanes, bus bays, truck lay byes, etc. shall, however, in no case be less than as given below:

(i) Flexible Pavement:

Pavement Composition	**Minimum Crust Thickness (mm)**		
	Main Carriageway including paved shoulders and shyness, entry/exit locations, acceleration/ deceleration lane, right turning lanes, bus bays, truck lay byes, etc.	**Service/slip roads**	**Cross/ connecting roads**
Subgrade			
Sub Base Course			
Non-Bituminous Base Course			
Bituminous Base / Binder Course			
Wearing course			

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(ii) Rigid pavement:

Pavement Composition	**Minimum Crust Thickness (mm)**		
	Main Carriageway including paved shoulders and shyness, entry/exit locations, acceleration/ deceleration lane, right turning lanes, bus bays, truck lay byes, etc.	**Service/slip roads**	**Cross/ connecting roads**
Subgrade			
Granual Base Course			
Dry Lean Concrete (DLC)			
Pavement Quality Concrete (PQC)			

5.4 Reconstruction of Stretches with New pavement

The following stretches of the existing road shall be dismantled/milled and reconstructed. These shall be designed as new pavement.

Sr. No.	**Design Chainage**		**Remarks**
	From	**To**	

5.5 Bituminous Mix for Overlay

The following stretches of the existing road shall be provided with bituminous overlay:

Sr. No.	**Design Chainage**		**Minimum Design Traffic**	**Minimum Overlay Pavement Composition**	**Remarks**
	From	**To**			

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6. Roadside Drainage

a. Drainage system

Drainage system including surface and subsurface drains for the Project Highway including crossroads shall be provided as per section [***] of the Manual. RCC Drain cum footpaths shall conform to the cross- sectional features and other details as given in Annexures to Schedule-B and shall be provided as under:

Sr. No.	Design Chainage (km)		Length (m)		Min bottom width x Min Depth of Drain	Min Width of Footpath (m)	Total Length (m)	Remarks
	From	To	LHS	RHS				

b. Load bearing RCC Drain locations are as follows:

Sr. No.	Design Chainage (km)		Length (m)		Min bottom width x Min Depth of Drain	Min Width of Footpath (m)	Total Length (m)	Remarks
	From	To	LHS	RHS				

c. Details of Lined Drain

Sr. No.	Design Chainage (km)		Length (m)		Min bottom width x Min Depth of Drain	Total Length (m)	Remarks
	From	To	LHS	RHS			

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d. Unlined Drains

At locations other than mentioned above, unlined drains shall be provided in the entire project length which gets terminated at all crossroad locations. In case, the definite outfall is not available, a rainwater harvesting system shall be provided at the deepest location for dispersal of water.

e. Median Drain

Lined drain shall be provided in the center of the median at super elevation locations and depressed median. Draining of storm water from one carriageway to other carriageway is not permitted. The Contractor shall design the median drain based on site/design requirement mentioned in Schedule D with approval from the Authority Engineer, which shall be connected with the nearest culvert/ outfall.

Sr. No.	Design Chainage (km)		Total Length	Remarks
	From	To		

f. Drainage arrangement between Main Carriageway and Service/Slip Roads

A suitable drainage arrangement for draining storm water of main carriageway shall be provided for draining of storm water of main carriageway to service road is not permitted.

g. Drainage where Embankment Height is more than 3m

Drainage chutes shall be provided at suitable interval on embankment slopes. The drainage arrangement shall include kerb, cement concrete drainage channel at the edge roadway, Cement Concrete Chutes, CC bedding, energy dissipation basin, etc. Mountable Kerb shall be provided beyond the post of MBCB to channelize storm water into chute.

h. Drainage for Structures

A suitable drainage arrangement for draining of storm water from deck slab shall be provided. Water shall not fall on any surface of the structures, or remain standing or flowing over the road below structure.

i. Drainage for Underpass and Subways Structures

A suitable drainage arrangement for draining of storm water from Underpasses and Subways shall be provided.

j. Drainage arrangement of Retaining Structures

Vertical Drop-down drainage pipes of HDPE with suitable cleaning provision shall be provided at suitable interval. Drainage fixtures and dropdown pipes shall be of HDPE material not less than 100mm dia.

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Note: In case, the definite outfall is not available, a rainwater harvesting system shall be provided at the deepest location for dispersal of water.

7. Design of Structures

7.1 General

(i) All bridges shall be high level bridges.

(ii) All structures shall be designed to carry utility services on outer side of RCC barrier/Railing as per site requirement.

(iii) Project Highway is proposed to be constructed to [***]-lane configuration with provision for widening to [***]-lane configuration in future. As such, superstructure of all bridges, culverts and structures shall be designed for edge movement of the vehicle considering stitching of new superstructure in future due to widening for additional lane.

(iv) For all structures, except where expansion joints have been provided, the pavement layers shall be continued over the structures for smooth riding quality of the project highway. These structures shall be designed considering the dead load of pavement layers.

(v) All major structures will be designed as continuous slab to reduce the number of expansion joints on the MJB/ ROBs/ flyover/ Interchange etc.

(vi). All structures shall be designed for Special Vehicle (SV) loading, Class 70R, Class A and congestion factor, whichever is critical, as per latest IRC provisions and constructed in accordance with section-[**] of the Manual and shall conform to the cross-sectional features and other details specified therein.

(vii). Clear deck width of bridges/grade separated structures/RoBs (measured from inside to inside of crash barrier) shall be equal to the roadway width (carriageway width + paved shoulder width + earthen shoulder width + width of median including shyness for raised median /depressed median as applicable) in their approaches. Wherever footpath is provided on bridge/RoB, RCC crash barrier should be provided between footpath and carriageway and at outer edges of the bridge/RoB. In case of footpath on bridge/RoB, the width of earthen shoulder shall be tapered at the rate of 1:15 (**Referece MoRTH** Circular **n**o. RW/NH-33044/22/2020-S&R dated 4th June, 2024).

(viii) The Safety Barrier and Footpath on Bridges and RoB shall continue on approaches. The footpath shall be provided with paved surface & railing for embankment height more than 3m.

(ix) An effective drainage system for bridge decks shall be proided as specified in the relevant provisions of the Manual.

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(x) Properly designed floor protection comprising of bed pitching, launching apron, cut-off walls, guide bunds and protection around piers/abutments in erodible strata shall be provided at all bridge/culvert locations confirming to IRC:78, IRC:89 and IRC:SP:13.

7.2 Culverts

7.2.1 Overall width of all culverts (measured from inside to inside of Parapet/ headwall) shall be equal to the roadway width of the approaches. The overall width of culverts shall be including width of main carriageway and slip/service roads/Entry ramps/Exit Ramps/ Acceleration/Deceleration lanes, etc. All culverts shall also be continued in median and in gap between main carriageway and service road

7.2.2 New/ Reconstruction of existing RCC/pipe culverts:

The existing culverts at the following locations shall be re-constructed as new culverts:

Sr. No	**Design Chainage**	**Culvert Type**	**Skew Angle**	**Span/ Opening (m)**	**New/ Reconstruction**	**Culvert Crossing Type (Balancing/Stream, etc)**	**Remarks**

7.2.3 Widening of existing RCC pipe culverts

All existing culverts which are to be retained shall be widened (measured from inside to inside of Parapet/ headwall) to the proposed roadway width of the Project Highway as per the typical cross section given in section [**] of the Manual. Repairs and strengthening of existing structures where required shall be carried out.

Sr. No	**Design Chainage**	**Culvert Type**	**Skew Angle**	**Span/ Opening (m)**	**Repairs / Rehabilitation proposals**	**Culvert Crossing Type (Balancing/ Stream, etc)**	**Remarks**

7.2.4 Construction of Box Culverts:

New culverts (given in table below) shall be constructed for width (measured from inside to inside of Parapet/ headwall) equal to the proposed roadway width of the Project Highway & as per typical cross-section given in schedule B. The details are given as under:

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Sr. No	Design Chainage (km)	Span Arrangement (m)	Skew Angle	Culvert Crossing Type	Remarks

7.2.5 Widening of existing box culverts

All existing culverts which are to be retained shall be widened (measured from inside to inside of Parapet/ headwall) to the proposed roadway width of the Project Highway as per the typical cross section given in Schedule-B. Repairs and strengthening of existing structures where required shall be carried out.

Sr. No	Design Chainage	Culvert Type	Skew Angle	Span/ Opening (m)	Repairs / Rehabilitation proposals	Culvert Crossing Type (Balancing/ Stream, etc)	Remarks

7.2.6 Culverts shall be provided on the crossroads at following junction locations for continuity of the surface drainage:

Sr. No	Design Chainage (km)	Span Arrangement (m)	Type (Box/Pipe)	Length of Culvert	Remark

Note:

1. Repairs and strengthening of all existing culverts proposed to be retained shall include but not limited to general cleaning of culverts and area around culverts including removal of debris and dismantled material, restoration of slopes and protective works, removal and relaying of existing wearing coat, apron & quadrilateral pitching to be done for all existing culverts, restoration/construction of floor protection as per design requirement and repair and rehabilitation of damaged concrete, if any, etc. to the complete satisfaction of Authority Engineer and as per Manual requirements.

2. In case the existing culverts proposed for repair and rehabilitation are found to be deficient or weak, the same shall be reconstructed to the complete satisfaction of the Authority Engineer and as per Manual requirements. Reconstruction of these existing culverts proposed for repair and rehabilitation shall be treated as Change of Scope and dealt under Article 13 of this Agreement.

7.3 Bridges

7.3.1 Minor Bridges

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(i) Existing bridges at the following locations on the Project Highway shall be reconstructed. GADs for these bridges are attached in Annex-III of Schedule A.

Sr. No.	Design Chainage (km)	Span Arrangement	Total Proposed width		Skew Angle	Foundation	Sub-Structure	Super Structure	Remarks
			MCW	SR					

(ii) Existing narrow bridges at the following locations on the Project Highway shall be retaned with repair and rehabilitation along with widening as per section [***] of the Manual GADs for these bridges are attached in Annex-III of Schedule A.

Sr. No.	Design Chainage (km)	Span Arrangement	Total Proposed width		Skew Angle	Foundation	Sub-Structure	Super Structure	Remarks
			MCW	SR					

(iii) Additional New Bridges at the following locations on the Project Highway shall be constructed. GADs for these new bridges are attached in Annex-III of Schedule A.

Sr. No.	Design Chainage (km)	Span Arrangement	Total Proposed width		Skew Angle	Foundation	Sub-Structure	Super Structure	Remarks
			MCW	SR					

7.3.2 Major Bridges

(i) Existing bridges at the following locations on the Project Highway shall be reconstructed. GADs for these bridges are attached in Annex-III of Schedule A.

Sr. No.	Design Chainage (km)	Span Arrangement	Total Proposed width		Skew Angle	Foundation	Sub-Structure	Super Structure	Remarks
			MCW	SR					

(ii) Existing narrow bridges at the following locations on the Project Highway shall be retaned with repair and rehabilitation along with widening as per section [***] of the Manual GADs for these bridges are attached in Annex-III of Schedule A.

Sr. No.	Design Chainage (km)	Span Arrangement	Total Proposed width		Skew Angle	Foundation	Sub-Structure	Super Structure	Remarks
			MCW	SR					

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(iii) Additional New Bridges at the following locations on the Project Highway shall be constructed. GADs for these new bridges are attached in Annex-III of Schedule A.

Sr. No.	Design Chainage (km)	Span Arrangement	Total Proposed width		Skew Angle	Foundation	Sub-Structure	Super Structure	Remarks
			MCW	SR					

7.3.3 Structures in marine environment:

Existing / proposed new bridges at the following locations are suspectable to marine environment. These bridges shall be design confirming to IRC:112 requirements and MoRTH circular Efile no. RW/NH-34066/09/2017/S&R(B)(Computer no. 185417 dated 22nd January 2021.

Sr. No.	**Location at km**	**Exposure Conditions**	**Remarks**

7.3.4 The railing of existing bridges shall be replaced by crash barriers at the following locations:

Sr. No.	**Location at km**	**Remarks**

7.3.5 Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as follows:

Sr. No.	**Location at km**	**Remarks**

7.4 Rail-road bridges

7.4.1 Design, construction and detailing of ROB/RUB shall be as specified in the provision of relevant Manual. [The details of span and type of super-structure have to be mentioned as per approved GAD by the Railways. Refer to the provision of relevant Manual and specify modification, if any]

7.4.2 Road over-bridges

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Road over-bridges (road over rail) shall be provided at the following level crossings, as per GAD drawings attached:

Sr. No.	Design Chainage (km)	Span Arrangement	Total Proposed width		Skew Angle	Foundation	Sub-Structure	Super Structure	Remarks
			MCW	SR					

7.4.3 Road under-bridges

Road under-bridges (road under railway line) shall be provided at the following level crossings, as per GAD drawings attached:

Sr. No.	Design Chainage (km)	Span Arrangement	Total Proposed width		Skew Angle	Foundation	Sub-Structure	Super Structure	Remarks
			MCW	SR					

Note:

(i) If the length/width of the span/ type of super-structure is changed due to any reason the COS shall be considered.

(ii) ROB shall be designed, constructed, and maintained as per the requirements of Railway authorities. The construction plan shall be prepared in consultation with the concerned Railway authority.

(iii) The ROB shall be constructed and maintained by the Contractor under supervision of the Railways.

7.5 Grade separated structures

[Refer to the provision of relevant Manual]

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2.9 and 3 of this Annex-I.

7.6 Repairs and strengthening of bridges and structures

The existing bridges and structures to be repaired/ strengthened, and the nature and extent of repairs /strengthening required are given below:

7.6.1 Bridges

Sr. No.	**Location of bridge (km)**	**Nature and extent of repairs /strengthening to be carried out**

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7.6.2 ROB / RUB

Sr. No.	Location of ROB/RUB (km)	Nature and extent of repairs /strengthening to be carried out

7.6.3 Overpasses/Underpasses and other structures

Sr. No.	Location of Structure (km)	Nature and extent of repairs /strengthening to be carried out

Note:

1. The Contractor shall conduct detailed investigation of structure proposed for repair/strengthening confirming to relevant provisions of IRC:SP:40 for design of repair / strengthening works.

2. Repairs and strengthening of all existing bridges/structures proposed to be retained shall include but not limited to general cleaning of bridges/structures and area around bridge including removal of debris and dismantled material of old bridges/causeways/structures, restoration of slopes and protective works, removal and relaying of existing wearing coat, apron & quadrilateral pitching to be done for all existing bridges, cracks to be sealed in abutments and piers, restoration/construction floor protection as per design requirement and repair and rehabilitation of damaged concrete, if any, etc. to the complete satisfaction of Authority Engineer and as per Manual requirements.

3. In case the existing bridges and structures proposed for repair and rehabilitation are found to be deficient or weak, the same shall be reconstructed to the complete satisfaction of the Authority Engineer and as per Manual requirements. This reconstruction of these existing bridges and structures shall be treated as Change of Scope and dealt under Article 13 of this Agreement.

7.7 The following structures shall be provided with footpaths:

[Refer to the provision of relevant Manual and provide details of new Structures with footpath.]

Sr. No.	Location at km	Remarks

7.8 The following structures specified in table below shall be designed to carry utility services:

[Refer to the provision of relevant Manual and provide details]

Sr. No.	Bridge at km	Utility service to be carried	Remarks

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7.9 FoB/ Skywalks

FoB/Skywalks shall be provided in builtup areas/ near schools and institutions. **[detailed drawings of FoB in schedule B shall be provided]**

Sr. No.	Location at km	FoB Type	Remarks

7.10 List of Major Bridges and Structures

The following is the list of the Major Bridges, ROBs/RUBs, Underpasses, Overpasses and Structures:

Sr. No.	Type of structure	Nos.

Note:

(i) All major bridges, structures and ROBs shall be provided with Structural Health Monitoring System as per guidelines issued by the MoRTH.

(ii) All bridges, ROBs/RUBs, Underpasses, Overpasses and structures in marine environment shall be designed for exposure conditions in accordance with IRC:112-2020. In addition, steel reinforcement shall be provided with corrosion protection through the use of Fusion Bonded Epoxy Coating (FBEC), or by using galvanized steel or stainless steel reinforcement as per guidelines issued by the MoRTH.

(iii) An inspection gallery along with a caged ladder (access from the deck slab) to be provided at each pier location for facilitating regular inspection of bridge structures. For location where access for the deck slab is not possible from the top, the same may be provided from the bottom i.e. by providing staircase along the pier upto the top of pier cap along with an inspection platform all around the pier cap as shown in the indicative GAD. If this is not feasible, then some other kind of arrangement has to be made to provide access to the top of pier cap for inspecting bearings, underneath the box/slab structures etc. Staircase (with stone masonry/concrete) in the approaches to box/slab culverts (near the end of return wall)/minor and major bridge by the side of abutments on either side of the carriageway shall be provided to access the underneath of box/slab culverts/bridges.

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8. Tunnel

The tunnel shall be [***] tube ([***] -lane) configuration. The tunnel cross section shall be [***]-lanes in each direction as per GAD enclosed in Annex-III of Schedule A. The proposed tunnels shall be connected by cross passage at an inclination of [*** degrees] at spacing of [***] m centre to centre to facilitate traffic diversion in the event of any emergency in accordance with the Manual and IRC:SP:91. Other tunnel ancillary works including drainage, water-proofing, ventilation, tunnel illumination including electrical sub-station on both sides portals, furnishing, signages, emergency facilities, etc. shall be provided as specified in the Manual, IRC:SP:91 and specifications as per Schedule – D.

The details of tunnel are as below:

Sr. No.	Design Chainage (km)		Carriageway width (m)	Length (m)	Remarks
	From	To			

Location of cross passages are as below:

Cross Passage (Orthogonal to traffic flow direction)			
S.no.	Left Tunnel	Right Tunnel	Length of cross passage

Location of emergency lay-bye are as below:

S.no.	Left Tunnel	Right Tunnel	Remarks

Details of lining to be provided in the tunnel:

Based on the Geotechnical Data Report (GDR) at the tunnel location, lining is to be provided for minimum thickness as per details given below:

Chainage		Rock Classification	Length (m)	Lining Thickness (m)	Shotcrete (m)		Rock Bolt	Lattice Girder
From	To				Fibre Rein.	Plain Rein.		

Note: Above details for tunnel lining has been prepared as per the Geotechnical Data Report of the strata based on Geophysical studies done at the tunnel location. This shall form Geotechnical Baseline Report (GBR) and any variation in tunnel support pattern due to deviation from Baseline Report shall be treated as Change of Scope and dealt under the provision of Article 13 of this Agreement.

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9. Traffic Control Devices and Road Safety Works

9.1 Traffic control devices and road safety works shall be provided in accordance with Section [**] of the Manual.

9.2 Traffic Signs:

Traffic signs shall be provided as per IRC:67 and MoRTH circular no. RT-25035/07/2023-RS (Part) (221534) dated 24th December 2024 as mentioned in Schedule-C and Schedule D.

9.3 Pavement Marking:

Pavement markings shall be provided as per IRC:35 and MoRTH circular no. RT-25035/07/2023-RS (Part) (221534) dated 24th December 2024 as mentioned in Schedule-C and Schedule D.

9.4 Safety Barrier:

The safety barriers shall be provided in accordance with Section-[**] of the Manual and MoRTH circular no RW/NH-2923/02/2019-S&R (P&B) dated 01.01.2020.

The Safety Barrier length proposed are excluding the safety barrier already proposed on Culverts, Grade Separated Structures, Interchange, Bridges, RoB and RUB as per applicable cross sections respectively.

End Treatment of Steel barriers/Rope Barrier shall be specified i.e. MELT or P-4 confirming to EN 1317-4, TT, MBCB barrier to Concrete Barrier

End Treatment to Concrete barrier shall be done as specified in Clause No. [***] of the Manual.

The details of the location are as below:

S. No.	Item	LHS		RHS		Total Length (m)	Remarks
		(From)	(To)	(From)	(To)		

[The specific locations are to be mentioned.]

10. Roadside Furniture

10.1 Roadside Furniture shall be provided in accordance with the provisions of Manual and as per the details mentioned in Schedule-C.

10.2 Overhead Traffic Sign Board shall be provided at the following location:

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Sr. no.	Location	Type of Overhead signboards	Remarks

11. Hazardous Locations

11.1 The safety barriers shall be provided at the following hazardous location:

Sr. No.	Location Stretch		Type of Safety Barrier	LHS/ RHS	Remarks
	From (km)	To (km)			

12. Retaining Structures

12.1 RCC Retaining wall, Breast walls and Toe walls shall be provided at the following location:

Sr. No.	Location Stretch		Type of Retaining Structures (Retaining/ Breast/Toe Wall)	Height of Retaining Structures	LHS/ RHS	Remarks
	From (km)	To (km)				

13. Special Requirement for Hill roads:

13.1 Retaining Structure and protection works shall be provided at locations as indicated below and as provided in TCS schedule in Clause 2.10 of schedule-B.

Sr. No.	Design Chainage (km)		Length (m)	LHS/ RHS/ Both	Height (m)	Type of Retaining Structure (Retaining/ Breast/ Toe wall)	Details of Foundation Treatment	Type of Safety Barrier	Remarks
	From	To							

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13.2 Slope Protection measure

Slope protection works shall be provided at location as indicated below:

Sr. No.	Design Chainage (km)		Length (m)	LHS/ RHS/ Both	Height (m)	Type of Retaining Structure (Retaining/ Breast/ Toe wall)	Details of Slope Protection measures
	From	To					

14. Shifting of Utilities

14.1 The Contractor shall undertake the work of shifting of any utility (including electric lines, water pipes, gas pipelines and telephone cables) to an appropriate location or alignment, in accordance with the provisions of the Agreement.

14.2 Shifting of obstructing utilities indicated in Schedule A to an appropriate location in accordance with standards and specifications of concerned Utility Owing Department is part of the scope of work of the Contractor. Copy of utility relocation plan is enclosed in Annex – III of Schedule A. The specifications of concerned Utility Owing Department shall be applicable.

14.3 The type/ spacing/ size/ specifications of poles/ towers/ lines/cables to be used in shifting work shall be as per the guidelines of Utility Owning Department and it is to be agreed solely between the Contractor and the Utility Owning Department. No change of scope shall be admissible, and no cost shall be paid for using different type/ spacing/ size/ specifications in shifting work in comparison to those in the existing work or for making any overhead crossings to underground as per requirement of utility Owning department and/ or construction of project highway. The Contractor shall carry out joint inspection with Utility Owning Department and get the estimates from Utility Owning Department. The assistance of the Authority is limited to giving forwarding letter on the proposal of Contractor to Utility Owning Department whenever asked by the Contractor. The decision/ Approval of utility owning department shall be binding on the Contractor.

14.4 The dismantled material/ scrap of existing Utility to be shifted/ dismantled shall belong to the Contractor who would be free to dispose-off the dismantled material as deemed fit by them unless the Contractor is required to deposit the dismantled material to Utility Owning Department as per the norms and practice and, in that case the amount of credit for dismantled material may be availed by the Contractor as per estimate agreed between them

14.5 The utilities shall be handed over after shifting work is completed to Utility Owning Department up to their entire satisfaction. The maintenance liability shall rest with the Utility Owning Department after handing over process is complete as far as utility shifting works are concerned

14.6 The supervision charges at the rates / charges applicable of the utility owning

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department shall be paid directly by the Authority to the utility owing department as and when Contractor furnishes demand of utility owing department along with a copy of estimated cost given by the letter.

14.7 Existing lights, junction boxes, connection to individual properties along the affected section shall be disconnected and reconnected as part of utility relocation and the same shall be in the scope of the Contractor.

15. Work Zone Traffic Management Plans

The traffic diversion plans shall be prepared as per IRC:SP:55 for smooth flow of traffic and safety of Users. A diversion plan shall be proposed for construction of Culvert, Grade Separated Structures, Bridges, RoB/RUB, etc. and traffic management plan for widening/ reconstruction of carriageway.

Sr. No.	Design Chainage (Km)		Construction Activity	Diversion	Traffic Management Plan	Barricading Type – III/IV/CC Barrier with lighting along barrier	Deployment of Flagman in Habitation/ Schools/ Hospital, etc.	Remarks
	From	To						

16. Change of Scope

The length of Structures and bridges specified hereinabove shall be treated as an approximate assessment. The actual lengths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths upto 10% of the length as specified in this Schedule-B (increase or decrease, as the case may be) shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13 of this Agreement.

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Annex-II

Applicable Stretches of Typical Cross Section

Sr. No.	Chainage (km)		Length (km)	TCS Type
	From	To		

Note:

- *The lane configuration and width of all structures shall be as per respective paragraph/ appendices of this schedule.*
- *If the paved carriageway width of structure is more than the carriageway width of approaches, then proper pavement tapering (as per manual) shall be provided*.

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Typical Cross Section (Loop/Ramp)

Minimum lane configurations of Loops / Ramps for each interchange are as follows:

Interchange No & Chainage	Description	Lane Configuration	Length (km)	TCS Type

Note:

- *The width of Paved Carriageway shall be as given in TCS. However where toll plaza has to be constructed on Loop/Ramp, the width of Paved Carriageway shall be as per the width of toll plaza lane configuration given in Schedule C including taper length as per manual.*
- *The lane configuration and width of all structures shall be as per respective paragraph of this schedule.*
- *The above lengths are tentative and minimum specified without acceleration / deceleration lane and taper length. The acceleration / deceleration lane and taper shall be constructed as per Schedule D.*

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Applicable Stretches of Typical Cross Section (Crossroad at VOP location)

The cross road at vehicular overpass locations shall be constructed to the lane configuration as given below:

Location of VOP	**Chainage(Km)**		**Length(Km)**	**TCS Type**
	From	**To**		

Note:

- *The width of structures shall be constructed as per respective clauses / appendices mentioned in this schedule.*

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Annex – III

(Schedule-B)

(see Clause 16.2.2(c)(i))

Items for Change of Scope

Sr. No.	Description/Specification of Items	Quantity	Per Unit Rate	Amount
1.	**Road Portion (MCW)**			
(a)	[2L/4L/6L] Main Carriageway + 2.5 m PS; Pavement [Flexible/Rigid]; Embankment Height [1 m or as applicable]; Design Traffic [MSA as per Schedule]; Design Life [20/30 years]; Min Effective CBR of 8% for Flexible Pavement or Min K-Value of 55 Mpa/m for Rigid Pavement including Protection Works, Drainage, Road Furniture/Safety Barriers, Road Marking, Highway Lighting, Median & Avenue Plantation, etc. including all works to complete the Road Cross Section.	1 km	Per Sqm Paved area.	**[**]**
2.	**Road Portion (SR)**			
(c)	[7m/7.5m] Service Road; Pavement [Flexible/Rigid]; Embankment Height [1 m or as applicable]; Design Traffic [10 MSA/20 MSA for Flexible Pavement or 1,300–1,400 /2,600–2,800 CVPD for Rigid Pavement]; Design Life [20/30 years]; Min Effective CBR of 8% or Min K-Value of 55 Mpa/m for Rigid Pavement including Protection works, Drainage, Road Furniture/Safety Barriers, Road Marking, Highway Lighting, Median and Avenue Plantation, etc. including all works to complete the Cross Section of Service Road.	1 km	Per Sqm Paved area.	**[**]**
3.	**Elevated Structures like Flyovers /**			

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	VUP/ LVUP/ SVUP			
3.1	**Flyovers / VUP/PUP including approaches**			
(a)	Flyover with RE Wall; Span (15m + 25m + 15m); Height (5.5m); [Pile/Open] Foundation as per Geotechnical Investigation (Seismic Zone as applicable); Super-Structure [RCC/ PSC Girder]; Design Load (SV Loading + Edge Loading); Approaches as per ISD; Design Traffic (as per Schedule); Design Life [20/30 years]; Min Effective CBR 8%; Bearing & Expansion Joints, Drainage Facility, Road Furniture/Safety Barriers, Road Marking, Highway Lighting, Median Plantation, etc. complete including all works to complete the Cross Section. Design Life of RE Wall of 50 years with minimum backfill properties of C = 0 and ø = Min 30.	Structure (Area to be Mentioned as per lane Configuration of the Structure) + Approach	Per Sqm of Structure Area. Per Sqm of paved Area of approach	**[**]**
(b)	VUP with RE Wall Span [20/30m]; Height (5.5 m); [Pile/Open] Foundation as per Geo technical Investigation (Seismic Zone as applicable); Super-Structure [RCC/ PSC Girder/Box Type]; Design Load (SV Loading + Edge Loading); approaches as per ISD; Design Traffic (as per Schedule); Design Life [20/30 years]; Min Effective CBR 8%; Bearing & Expansion Joints, Drainage Facility, Road Furniture/Safety Barriers, Road Marking, Highway Lighting, Median Plantation, etc. complete including all works to complete the Cross Section. Design Life of RE Wall of 50 years with minimum backfill properties of C = 0 and ø = Min 30.	Structure (Area to be Mentioned as per lane Configuration of the Structure) + Approach	Per Sqm of Structure Area. Per Sqm of paved Area of approach	**[**]**
3.2	**LVUP/ SVUP/PUP**			

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(a)	LVUP [0 to 30 Degree Skew Angle] with RE Wall; Span (12 m); Height (4 m); Foundation Design as per applicable Seismic Zone; Super-Structure (Box Type); Design Load (SV Loading; Edge Loading); Approaches as per ISD; Design Traffic (as per Schedule); Design Life [20/30 years]; Min Effective CBR 8%; Bearings & Expansion Joints, Drainage Facility, Road Furniture/Safety Barriers, Road Marking, Highway Lighting, Median Plantation, etc. complete including all works to complete the Cross Section. Design Life of RE wall of 50 years with minimum backfill properties of C = 0 and ø = Min 30.	Structure (Area to be Mentioned as per lane Configuration of the Structure) + Approach	Per Sqm of Structure Area. Per Sqm of paved Area of approach	**[**]**
(b)	SVUP [0 to 30 Degree Skew Angle] with RE Wall (Panel) as per ISD; Span (7 m); Height (4 m); (Seismic Zone as applicable); Super-Structure (Box Type); Design (SV Loading + Edge Loading); Approaches as per ISD; Design Traffic (as per Schedule); Design Life [20/30 years]; Min Effective CBR 8%; Bearings & Expansion Joints, Drainage Facility, Road Furniture/Safety Barriers, Markings, Highway Lighting, Median Plantation, etc. complete including all works to complete the Cross Section. Design Life of RE wall of 50 years with minimum backfill properties of C = 0 and ø = Min 30.	Structure (Area to be Mentioned as per lane Configuration of the Structure) + Approach	Per Sqm of Structure Area. Per Sqm of paved Area of approach	**[**]**
(c)	PUP [0 to 30 Degree Skew Angle] with RE Wall (Panel); Span (7 m); Height (3 m); (Seismic Zone as applicable); Super-Structure (Box Type); Design (SV Loading + Edge Loading); Approaches as per ISD; Design Traffic (as per Schedule); Design Life [20/30 years]; Min Effective CBR 8% Bearings & Expansion Joints, Drainage Facility, Road Furniture/Safety	Structure (Area to be Mentioned as per lane Configuration of the Structure)	Per Sqm of Structure Area.	**[**]**

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	Barriers, Markings, Highway Lighting, Median Plantation, etc. complete including all works to complete the Cross Section. Design Life of RE Wall of 50 years with minimum backfill properties of C = 0 and ø = Min 30.	+ Approach	Per Sqm of paved Area of approach	
4.	**Longitudinal Drain**			
(a)	Lined Covered Drain for Width of 1.5 m and Min Depth of 1m and Max Depth [1.5/2/2.5 m] including weep holes at GSB level and Steel Grating at Carriageway level as a storm water inlet and providing filler Joint with water stopper at every 30m.	1km	Per Rm	**[**]**
(b)	Lined Trapezoidal Drain with 75 mm M-20 Grade; 600 mm extendable horizontal portion above Lined Drain; Bottom Width of 600 mm; Depth (Min 600 mm and Max 1.5 m); Side Slope of 1:1 for Lined Drain.	1km	Per Rm	**[**]**
(c)	Load Bearing Drain; Shape ;Width of 1.5 m and Min. Depth of 1m and Max Depth [1.5/2/2.5 m]; Min 100 mm thickness with M25 Grade; Slape Cover to be designed as per Class A loading; including weep holes at GSB level and Steel Grating at Carriageway level as a storm water inlet and providing filler Joint with water stopper at every 30m.	1km	Per Rm	**[**]**
5.	**Cross Drainage Structure (Box/ Pipe Culvert)**			
(a)	Pipe Culvert with Dia [600/1200 mm]; NP4, HDPE including Protection Work (i.e., Apron, Stone Pitching on slope, etc.) and Head Wall/ Chamber, Encasing, Bedding with M-15 Grade, Cradles, etc.	1 No.	Per Rm	**[**]**

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(b)	Box Culvert: [2m x 2/3/4m or 3m x 2/3/4m or 4m x 2/3/4m] including Protection work (i.e., Apron, Curtain Wall, Return / Wing Wall, Approach Slab, Quadrant Pitching, etc.) and Crash Barrier/ Parapet Wall.	1 No.	Per Rm	**[**]**
6.	**Minor Bridge**			
(a)	Span [6/10/15/20m] x Depth (Based on Hydraulic Requirement), Seismic Zone as applicable; Super-Structure [RCC/PSC Girder/Box Type]; Design (SV Loading + Edge Loading); Bearings & Expansion Joints; Protection Work (i.e., Apron, Curtain Wall, Return/Retaining / Wing Wall, Approach Slab, etc.); Crash Barrier/ Parapet Wall; Footpath, Highway Lighting on Structure + Approach of height upto 3m, etc.	1 No.	Per Sqm of Structure Area	**[**]**
7.	**FOB**			
(a)	Steel Foot Over Bridge with Staircase (MCW + Service Road) including all required Civil works.	1 No.	Per ton of Structural Steel	**[**]**
(b)	Steel Foot Over Bridge with Ramp (MCW + Service Road) including all required Civil works.	1 No	Per ton of Structural Steel	**[**]**
8.	**Retaining Wall/Toe Wall**			
(a)	Toe wall of Height [0.5/1/2/3m] excluding foundation depth; Min. Embankment Slope of 1:1.5 with backfill material (C= 0 & Min ø = 30) including PCC; Weep holes; Filter/Geo-Composite material behind Toe Wall with proper arrangement to dispose water received from the Embankment Slope above Toe Wall	1 km	Per Rmt length for Different heights.	**[**]**

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(b)	Retaining Wall 4m / 5m / 6m / 7m /8m / 9m / 10m height (excluding foundation depth) with backfill material of C= 0 and ø = Min 30, PCC, Weep holes; Filter/Geo-composite material behind Retaining Wall and Crash barrier with proper arrangement to dispose water received from Carriageway	1 km	Per Rmt length for Different heights.	**[**]**
9.	**Safety Barriers**			
(a)	W-Beam Metal Crash Barrier; Thickness (3 mm); Post Spacing (2m center to center); Height from ground (Top of Beam) of 700 mm fixing beam to posts using spacer blocks and bolts.	1 km	Per Rmt	**[**]**
(b)	Thrie-Beam Metal Crash Barrier; Thickness (3 mm); Post Spacing (2m center to center); Height from ground (Top of Beam) of 810 mm fixing beam to posts using spacer blocks and bolts.	1 km	Per Rmt	**[**]**
(c)	New Jersey Crash Barrier (Concrete Barrier); Height (1.07m); Width at Base (610 mm); Width at Top (200 mm); Slope of Faces (1:4 on Both Sides); Min Wall Thickness (150 mm)	1 km	Per Rmt	**[**]**
10.	**Road Side Furniture**			
(a)	Bus Bay; Width (Min 3m); Length [18m/30m]; Taper Length [15m for entry and 15m for exit]; Pavement Design should be same as Service Road/Main Carriageway With lighting	1 No.	Per Sqm	**[**]**
(b)	Bus Shelter; Min Platform Width of 2m; Platform Height of 150 mm above; Min Shelter Height of 2.5m; Shelter Length of Min 5m; Structure [Steel/RCC] including lighting and drainage facility with lighting	1 No.	Per Sqm	**[**]**

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(c)	******	***	****	***

Note : All the items to be designed as per applicable IRC & Good Engineering Practice.

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Schedule - C

(See Clause 2.1)

Project Facilities

1. Project Facilities†

The Contractor shall construct the Project Facilities in accordance with the provisions of this Agreement. Such Project Facilities shall include:

a) Toll Plaza
b) Road side furniture
    a. Kilometre and Hectometre Stones
    b. Traffic Signs
    c. Overhead Signs
    d. Road Marking
    e. Road Delineators
    f. Reflective Pavement Markers & Solar Studs
    g. Traffic Impact Attenuators
    h. Boundary wall and Fencing
    i. Kerb/MBCB/antiglare measures in median
    j. Noise Barriers
c) Operation and Maintenance centers
d) Truck lay-byes
e) Bus Bay and Bus shelter
f) Pedestrian Facilities
g) Highway Lighting
h) Rainwater Harvesting
i) [Environmental Management Plan]
j) Land Scaping and Tree Plantation
k) [Advanced Traffic Management System (ATMS)]
l) Highway Patrol Units
m) Emergency medical services
n) Crane Service
o) Vehicle rescue post
p) [Instrumentation for monitoring of cut slopes]
q) [Instrumentation for monitoring of bridges]
r) [Instrumentation for monitoring of Reinforced Soil walls]
s) Installation of Multi Lane Free Flow (MLFF) Tolling System.
t) [Others to be specified.]

2. Description of Project Facilities

†This template is applicable to highway projects and delete whichever facilities is not provisioned in the Project Highway. It may be suitably revised in case of other projects.

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Annex – I

(Schedule-C)

1. Project Facilities‡

The Contractor shall construct the Project Facilities described in this Annex-I to form part of the [**** Lane] Project. The Project Facilities shall include:

a) Toll Plaza
b) Roadside furniture
    a. Kilometre and Hectometre Stones
    b. Traffic Signs
    c. Overhead Signs
    d. Road Marking
    e. Road Delineators
    f. Reflective Pavement Markers & Solar Studs
    g. Traffic Impact Attenuators
    h. Boundary wall and Fencing
    i. Kerb/MBCB/antiglare measures in median
    j. Noise Barriers
c) Operation and Maintenance centers
d) Truck lay-byes
e) Bus Bay and Bus shelter
f) Pedestrian Facilities
g) Highway Lighting
h) Rainwater Harvesting
i) [Environmental Management Plan]
j) Land Scaping and Tree Plantation
k) [Advanced Traffic Management System (ATMS)]
l) Highway Patrol Units
m) Emergency medical services
n) Crane Service
o) Vehicle rescue post
p) [Instrumentation for monitoring of cut slopes]
q) [Instrumentation for monitoring of bridges]
r) [Instrumentation for monitoring of Reinforced Soil walls]
s) Installation of Multi Lane Free Flow (MLFF) Tolling System
t) [Others to be specified.]

2 Description of Project Facilities

Each of the Project Facilities is briefly described below:

2.1 Toll Plaza(s)

Tolling system shall be provided in entire length of the project and the same to be integrated with the adjoining packages. The Contractor shall install Multi Lane Free Flow (MLFF) Tolling System as under and as specified in Schedule-D (Para 5):

‡This template is applicable to highway projects and delete whichever facilities is not provisioned in the Project Highway. It may be suitably revised in case of other projects.

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(i) The Contractor shall implement Automatic Number Plate Recognition (ANPR) Camera and RFID (FASTAG) based Barrier Less Multi Lane Free Flow (MLFF) Tolling System at the proposed Toll Plaza location on the Highway stretch.
(ii) The Solution shall be integrated with e-Notice Module developed by National Informatics Center (NIC) through Central Clearing House (CCH) wherein the violators will be issued e-Notice in case they cross the Toll Plaza with FASTag that is not valid and functional. The Authority shall provide assistance in integrating the system with the e-Notice Module prepared by NIC.
(iii) The e-Notice shall be issued to the violators by NIC for amount equal to two times the fee applicable to that category of vehicles as per sub-rule (2) of rule 4 of the National Highways Fee (Determination of Rates and Collection) Rules 2008.
(iv) In case of non-payment of fees against the e-Notice within prescribed time, the road user shall have restrictions on the VAHAN based services like NOC, re-registration, insurance etc of vehicle as proposed by the Ministry in Gazette Notification No GSR467 (E) dated 11.07.2025.
(v) A separate Highway Nest with toilet facility for road users shall be provided near toll plaza location along with parking facility. One toilet block on each direction shall be provided. These toilet facilities shall follow CPWD specifications for sanitary ware items and fittings such as WC, wash basin, Wash basin-Under counter, Urinal flat back, PVC Cistern, IWC Orissa Pan, Flush Value –CP, Wash Basin pillar cock-CP, Bib Cock—CP, Health Faucet, W/c Bib cock, Wash Basin angle cock. One WC shall be provided for specially challenged persons.
(vi) Medium speed Weigh in Motion (MSWIM) devices shall be provided. In addition to MSWIM, Static weigh Bridge (SWBs) shall be provided on each direction.

2.2 **Roadside Furniture;**

2.2.1 Kilometer and Hectometer Stones

S.No.	Item	Number	Remarks
1	**Kilometer Marker/ Stones**	(2X No. of Kms)+2	The KM/ Hectometer stones/ marker can be Concrete/ Stones and shall be placed on both outer side of the earthen shoulder. In case KM/ Hectometer marker are to be fixed on separator between Main Carriageway & Service Road then these should be fixed as reflective signs. In case of Access Control Highway/ Expressway, KM/ Hectometer marker should be fixed as reflective signs. KM/ Hectometer stones are required to be provided on main carriageway and Service Road, both if continuous service road is provided throughout project length (Service Road length is more than 1 Km).

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2.2.2 Traffic Signs

Traffic Signs including roadside signs, overhead signs and kerb mounted signs etc. shall be provided along the entire Project Highway and on all Side, Roads joining the main carriageway/service road. A QR code shall be marked on back of each sign as per IRC:67.

All shoulder mounted signs shall be supported on GI Pipes. Overhead Signs shall be placed on a structurally sound gantry or cantilever structure made of GI pipes.

On multi lane roads (6 lanes or above), signs shall be mounted overhead.

The siting of signs shall confirm to IRC:67 and instructions issued by MoRTH vide circular no. RT-25035/07/2023-RS(Part)(221534) dated 24th December 2024. The two successive signs shall be placed at a minimum distance of 0.6 x V metre (V is design speed in Kmph).

The overhead gantry signs shall be placed as given below:

Sr. No.	Item	Carriageway (Left, Right, Both)
1	Overhead Gantry signs	
a	Start of Project	
b	End of project	
c	Toll plaza location on both side	
2	Overhead Cantilever Gantry signs	
a	At all major locations of crossroads i.e NH, SH, MDR (start of grade separated structure/at grade interchange)	
b	At major trauma center, roads leading to religious places or any other important location	
3.	Double/Butterfly Cantilever	

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The detailed minimum number of signages indicating places, direction, distances, and other features are as mentioned below.

Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
I	**Mandatory/Regulatory**		
1	Stop signs		
2	Give Way Signs		
3	Prohibitory signs		
4	No Parking signs		
5	No Stopping signs		
6	Speed Limit signs (Circular)		
7	Speed Limit signs (Vehicle Type)		
8	Vehicle Control signs		
9	Restriction Ends sign		
10	Compulsory Direction Control and other signs		
II	**Cautionary/Warning**		
1	Left/Right Curve		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
2	Left / Right Curve with side road		
3	Right/Left Hairpin Bend		
4	Right/Left Reverse Bend		
5	Series of Bends		
6	270 Degree Loop		
7	Side Road		
8	Y-intersection		
9	Cross Road		
10	Roundabout		
11	Traffic Signals		
12	T-lntersection		
13	Major Road Ahead		
14	Staggered Inter-section		
15	Merging Traffic Ahead		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
16	Narrow Road Ahead		
17	Road Widens		
18	Narrow Bridge Ahead		
20	Steep Ascent/Descent		
21	Reduced Carriageway		
23	Start /End of Dual Carriageway		
24	Gap in Median		
25	Pedestrian Crossing		
26	Pedestrian crossing with backing board		
27	School Ahead		
28	Built Up Area		
29	Two Way Operation (on main carriage way /service road		
30	Two Way Traffic on Cross Road Ahead		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
31	Danger Warning Sign		
32	Deaf or Blind Persons Likely on Road Ahead		
33	Cycle Crossing		
34	Cycle Route Ahead (Warning for Cycles on road ahead)		
35	Dangerous Dip		
36	Speed Breaker		
37	Rumble Strip		
38	Rough Road		
39	Dangerous Ditch		
40	Slippery Road		
41	Slippery Road because of Ice		
42	Opening or Swing Bridge		
43	Overhead Cable		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
44	Play Ground Ahead		
45	Quay Side or River Bank		
46	Sudden Side Winds		
47	Tunnel Ahead Warning		
48	Falling Rocks		
49	Cattle Crossing		
50	Wild Animals likely to be on Road Ahead		
51	Queues Likely Ahead		
52	Low flying Air Craft		
53	Unguarded Railway Crossing		
54	Guarded Railway Crossing		
55	Crash prone area ahead		
56	U- Turn		
III	**Chevron Signs**		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
1	Single Chevron		
2	Double Chevron		
3	Triple Chevron		
IV	**Object Hazard Marker Sign**		
1	Left /Right side Object Hazard Marker		
2	Two way Object Hazard Marker		
V	**Informatory/Guide**		
1	Direction and Place Identification signs		
2	Stack Type Advance Direction Sign (Shoulder Mounted)		
3	Stack Type Advance Direction Sign with cautionary / regulatory signs (Shoulder Mounted)		
4	Map Type Advance Direction Sign (Shoulder Mounted)		
5	Map Type Advance Direction Sign for roundabout (Shoulder Mounted)		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
6	Flag Type Direction Sign		
7	Reassurance Sign		
8	Place Identification Sign		
9	Truck Lay -By		
10	Toll Booth Ahead		
11	Weigh Bridge Ahead		
12	Shoulder Mounted Sign in Advance of a Grade Separated Junction/ Interchange		
13	Expressway Sign		
14	Gantry Mounted advance Direction Sign Ahead of a Flyover in Urban/City Roads		
15	Gantry Mounted advance Direction Sign Ahead of a Grade Separated Junction		
16	Gantry Mounted advance Direction Sign Ahead of a At Grade Intersection		
17	Gantry Mounted Advance Direction		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
	Sign for Interchange		
18	Cantilever Gantry Mounted Advance Direction Sign for Interchange		
19	Lane Dedicated Gantry Sign		
20	Definition/Supplementary Plates		
21	Tourism Related Sign		
22	Tourist Destination Direction Information Signs Without Photograph		
23	Tourist Destination Direction Information Signs With Photograph		
24	Finger Destination direction Information Sign for Pedestrians		
25	Tourist Map Information Sign		
26	Boundary Sign at Entrance to a City/Place		
27	Boundary Sign at Entrance to a Tourist Destination		
VI	**Facility Information signs**		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
1	Eating Place		
2	Light Refreshment		
3	Resting Place		
4	First Aid Post		
5	Toilet		
6	Filling Station(Fuel Pump)		
7	Hospital		
8	U-Turn Ahead		
9	Pedestrian Subway		
10	Police Station		
11	Picnic Site		
12	Repair Facility		
13	Railway Station/Metro Station/Monorail Station		
14	Industrial Area		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
15	Cycle Rickshaw Stand		
16	Taxi Stand		
17	Auto Rickshaw Stand		
18	Home Zone		
19	Camp Site		
20	Airport		
21	Golf Course		
22	National Heritage		
23	No Through Road		
24	No Through Side Road		
25	Toll Road Ahead		
26	Guide Sign on Toll Lane Portal		
27	Country Border		
28	Entry Ramp for Expressway		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
29	Exit Ramp for Expressway		
30	Expressway Symbol		
31	End of Expressway		
32	Bus Stop		
33	Bus Lane		
34	Contra Flow Bus Lane		
35	Cycle Lane		
36	Contra Flow Cycle Lane		
37	Holiday Chalets		
38	Emergency Exit		
VII	**Other Useful Information Signs**		
1	Signs For Persons With Disabilities		
2	International symbol of Accessibility		
3	Parking Information		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
4	Parking Areas		
5	Ramped Entrance to Subway/Over Bridge		
6	Telephone Facilities		
7	Toilet Facilities		
8	Way Finding		
9	Parking Signs		
10	Auto Rickshaw Parking		
11	Cycle Parking		
12	Cycle Rickshaw Parking		
13	Scooter and Motorcycle Parking		
14	Taxi Parking		
15	Park and Ride		
16	Parking Restrictions Signs for Traffic Management		

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Sr. No.	Road Signs	Number (DPR Consultant has to give the number required for each sign)	Remarks
17	Flood Gauge Sign		
VIII	**Route Maker Signs**		
1	State Highway Route Marker Sign		
2	National Highway Route Marker Sign		
3	Asian Highway Route Marker Sign		
4	Expressway Route Marker Sign		

Note:

1. The locations of the placement of signages shall be finalized in consultation with Authority Engineer/ Authority, as per site requirement.

2. The Road signs shall conform to the instructions issued by MoRTH vide its circular no. RT-25035/07/2023-RS (Part) (221534) dated 24th December 2024. In case of any ambiguity in the provisions of Manual, IRC:67 and MoRTH Circular dated 24th December 2024 mentioned above, the provisions of MoRTH Circular dated 24th December 2024 shall prevail.

2.2.3 Road Marking

Road Markings shall be Hot applied thermoplastic materials with reflectorized beads to achieve visibility confirming to IRC:35 and the instructions issued by MoRTH vide its circular no. RT-25035/07/2023-RS (Part) (221534) dated 24th December 2024. In case of any ambiguity in the provisions of Manual, IRC:35 and MoRTH Circular dated 24th December 2024 mentioned above, the provisions of MoRTH Circular dated 24th December 2024 shall prevail.

The cold applied plastics pavement markings shall be used for School Zone Markings, Audible Raised Profile Edge Lines and Block Markings.

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Sr.No.	Item	Unit		Remarks
		Length (m)	Number	
1	Longitudinal Marking			
2	Transverse Marking			
3	Hazard Marking			
4	Block Marking			
5	Arrow Marking			
6	Directional Marking			
7	Facility Marking			
8	Center Line			
9	Traffic Lane Lines			
10	No Overtaking Lines			
11	Warning Lines			
12	Border or Edge Lines			
13	Longitudinal Markings for Undivided Roads			
14	Longitudinal Markings for divided Roads			
15	Longitudinal Markings for Ramps/Slip Roads/One Way Streets			

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Sr.No.	Item	Unit		Remarks
16	Stop Line			
17	Give Way Lines			
18	Diagonal Markings			
19	Chevron Markings			
20	Continuity Line			
21	Word Messages			
22	Lane Change			
23	Merging/Diverging Markings			
24	Hatch Markings			
25	Raised Profile Edge Lines			
26	Lane Reduction / Narrowing Situations and Transitions (lane Balancing)			
27	Directional Arrows			
28	Mandatory Turn Arrows			
29	Guidance Arrows			
30	Deflection Arrows			
31	Bifurcation Arrows			
32	Arrows on Side Road Approaches			

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Sr.No.	Item	Unit		Remarks
33	Arrows on Main Road Approaches			
34	Word Messages			
35	Yellow Box Markings			
36	Ghost Island			
37	Marking for Speed Breakers			
38	Pedestrian Crossing			
39	Markings when highway passes through settlement fig 9.4 of IRC:SP:84/87			
40	Transverse Bar Markings			
41	Busbay Marking			
42	Truck Lay-by Markings			
43	Toll Plaza Marking			
44	School Zone Markings			
45	Object Markings within Carriageway			
46	Objects Markings Adjacent to Carriageway			
47	i. Subway Piers, Abutments, Culverts Head Walls, Concrete Barrier			
48	ii. Electrical Poles			

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Sr.No.	Item	Unit		Remarks
49	iii. Guard Rails			
50	iv. Trees			
51	v. Kerbs			
52	Directional Markings as per Annexure: A 6			
53	Facility Markings as per Annexure A.7 of IRC:35			

[Note: The locations of the marking shall be finalized in consultation with Authority Engineer, as per site requirement.]

2.2.4 Road Delineators

S.No.	Item	Number/ Length (m)	Remarks
1	Roadway Indicators		
2	Median Marker on Median/RCC Barrier		
3	Object Markers		
4	Flexible Object Markers i. On Metal Beam Barrier ii. On Toll Booth/Toll Island iii. On Entry/Exit of Tunnel iv. On Exit from Main carriageway		
5.	Solar Blinkers on Median Opening, on exit from main carriageway and traffic islands of grade separated intersections		

[Note: The locations of the marking shall be finalized in consultation with Authority Engineer, as per site requirement.]

2.2.5 Reflective Pavement Markers & Solar Studs

The Prismatic Retro-Reflective type confirming to ASTM D-4280 Pavement Markers & Solar Power Studs on Highway shall be provided in accordance with Schedule - D.

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S.No.	Item	Number	Location	Remarks
A. – For 4/ 6 Lane Projects				
1	White Colour one coloured face Road Studs		Traffic lane line & center of carriageway	Uni-directional carriageway
2	Red Colour one coloured face Road Studs		Left hand edge of the carriageway, entry to truck lay bye / bus bay, start of service road, chevron/diagonal markings on gorge	
3	Yellow / Amber Colour one coloured face Road Studs		Median side edge line, zebra crossing	
4	Green Colour one coloured face Road Studs		Lay byes, left hand side of the carriageway in case of multi-lane divided carriageways, crossable continuous line like in acceleration/deceleration lanes involving lane changing	
B– For 2 Lane PS Projects				
5	White Colour Two coloured face Road Studs		Traffic lane line & center of carriageway	Bi-directional carriageway
6	Red Colour Two coloured face Road Studs		Left hand edge of the carriageway, entry to truck lay bye / bus bay, start of service road, chevron/diagonal markings on gorge	
7	Green Colour Two coloured face Road Studs		Lay byes, left hand side of the carriageway in case of multi-lane divided carriageways, crossable continuous line like in acceleration/ deceleration lanes involving lane changing	

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S.No.	Item	Number	Location	Remarks
8.	Solar Studs on Major/Minor bridge, RoB, and all structures (Interchange/Flyover/VUP) and Builtup areas, In storage lane of median opening and Exit/Entry from main carriageway			

2.2.6 Traffic Impact Attenuators

(i) Impact Attenuators shall be provided in Gore Areas. It shall be self-restoring confirming to Manual and provided at following locations

S. No.	Item	Chainage / Number	Remarks
1	On flyover/grade separated structure at exit from main carriageway		
2	On Island of Toll Plaza		
3	Any other location which Safety Hazard		

(ii) Providing End Terminals

End Terminals P-4 type confirming to EN 1317-4 at Parapet Walls of Culverts, Structures ends shall be provided for the safety of approaching traffic, etc.

S.No.	Item	Chainage / Number	Remarks
1	Culvert Ends		
2	Structures Ends		
3	Any other location which		

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S.No.	Item	Chainage / Number	Remarks
	Safety Hazard		

2.2.7 Boundary wall and Fencing

Boundary wall shall be provided along the entire length on either side (including transverse requirements at structure locations) in greenfield/ rural stretches in accordance with the Manual. Road boundary walls shall be provided at the boundary on both sides of the right of way available under the control of the Authority, except at ingress and egress points.

At all CD structure locations, the boundary wall shall be discontinued by turning and joining it with the wing/return wall to allow crossing through these structures during dry seasons.

2.2.8 Kerb/MBCB/antiglare measures in the median

In case of depressed median, a minimum of 0.6 metre width adjacent to carriageway in either direction shall be paved. In case of depressed / flushed median, the metal beam (as indicated in Schedule-B) crash barrier shall be provided on either side of the median. In case width of median is more than 9 metre, no crash barrier is required to be provided in the median side. 200 mm X 200 mm (100 mm above FRL) kerb of CC M25 Mix shall be provided in case of flush median to prevent spreading of soil on carriageway. The MBCB (Metal beam crash barrier) face shall match with paving face for the carriageway on the median side. Suitable anti-glare measures shall be proposed in the built up section.

2.2.9 Noise Barriers

The Contractor shall carry out tests/ monitor various parameters impacting the environment of the Project Highway keeping in view the guidelines of the Ministry of Environment and Forests and submit proposals for mitigation of adverse environment impact including provision of noise barriers, etc. for review and comments of the Authority Engineer, if any and undertake implementation of the proposals in consultation with the Authority Engineer at the location specified in Schedule B. Provision of IRC: SP:108- 2015 shall be complied with

3. Operation and Maintenance centers

Dedicated operation and maintenance center(s) with minimum 2000 sqm built up area shall be provided as per the Manual, either near the toll plaza location or at any other location along the Project Highway, as identified by the Authority.

4. Truck lay-byes:

4.1 The truck lay-bye shall be provided at below given location and as per the design mentioned in Schedule-D.

Sr. No.	Design Chainage	Side	Remarks

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4.2 Toilet block

Toilet block along with Janitor room on each Truck Lay bye shall be provided. The toilet block shall consist of atleast 1 block for bathing, atleast 2 fixtures each for urinals, WC and wash basin. There shall be 24 hour lighting facility in toilet block. These toilets facilities must be functional round the clock including proper maintenance. For arrangement of water, 1 no. of boring along with water pump shall be provided to keep the toilet clean. For upkeep and maintenance of Toilet, 3 Safai wale (1 in each 8 hour shift) shall be engaged and is in the scope throughout contract period.

4.3 Truck Lay Bye Pavement: The pavement composition for the truck lay byes including taper length shall be as mentioned in Scheudle B.

5.Bus Bay and Bus shelter:

5.1 Bus Bays

Bus Bays with tapers and passenger shelters shall be constructed at the following locations

Sr. No.	**Design (Existing) Chainage (km)**		**Entry Taper Length**	**Bus Bay Length**	**Exit Taper Length**	**Remark**
	Left	**Right**				

5.2 Kerb Side Bus Stop with Pedestrian shelter

Kerb Side Bus Stop with Pedestrian shelter shall be provided at the following locations.

Sr. No.	**Design (Existing) Chainage (km)**		**Pedestrian Shelter Length**	**Remark**
	Left	**Right**		

5.3 Bus Bay Pavement: The pavement composition for the Bus Bays including taper length shall be as mentioned in Schedule B.

6. Pedestrian Facilities;

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Pedestrian Facilities shall be provided in accordance with the Manual and IRC:103 in all built up location, near institution like school, colleges, hospitals, etc. This shall consist of footpath (sidewalks), pedestrian guard rails and pedestrian crossing. The details are as mentioned below:

Sr. No.	Pedestrian facilities	Chainage		Side	Remarks
		From	To		
1	Pedestrian guardrails shall be 150 mm from Carriageway/Paved Shoulder i. Hazardous Locations on Straight Stretches ii. At Junctions/Intersections iii. Schools iv. Bus Stop/Railway Stations v. Overpass, Subway vi. Central Reserve				
2	Footpath paving including fixing of Tactile pavers				
3	Pedestrian Crossing i. With Zebra Marking ii. With Tabletop Crossing iii. At Intersections iv. At Schools				

7. Highway Lighting

The street light poles shall be 1 piece, continuous-tapered, Octagonal poles and shall be manufactured from one length of steel sheet, formed in continuous tapered tube, with one continuous arc-welded vertical seam. The minimum wall thickness for lighting poles shall not be less than 4 mm. The Bottom Diameter shall be minimum 175 mm. The Top Diameter shall be minimum 75 mm. The door on window of pole shall be antitheft. All electrical cable should be concealed. All electrical lighting fixers shall be LED. The fixtures shall be concealed except on poles. Lighting poles shall be fixed on outer side of steel/concrete barrier. The lighting shall be providing at the following locations:

Sr. No.	Lighting facilities	Chainage		Side	Lighting Source: Electricity Board/ Generator/ Solar
		From	To		
1	**Toll Plaza area:** The lighting in and around toll plaza, toll booths, office building, on the approach				

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Sr. No.	Lighting facilities	Chainage		Side	Lighting Source: Electricity
	road, etc. shall be as per Section [***] of the Manual. In addition to this at least two high mast light shall be provided on either side of toll plaza				
2	**Rest Areas:** The entire Rest areas shall be provided with lighting with average illumination to 40 Lux				
3	**Truck lay-bye:** The entire area of truck lay-byes and 50m length of the project highway on its either side shall be illuminated at night to provide an average illumination of 40Lux. Suitable designed electric poles having aesthetic appeal and energy saving bulbs (LED) may be used to provide required illumination. Alternatively, photo voltaic lamps may be used				
4	**Bus Bay & bus shelter locations**: The entire bus bay & bus shelter area shall be provided with Lighting (Average illumination of 40Lux.).				
5	**Grade separated structures, interchanges, flyovers, underpasses (vehicular/ pedestrian) and Vehicle overpasses:** Lighting requirement shall be as per section [***] of the Manual. The top and underside of the grade separated structures including service road/ slip road, interchange area at the ground level up to 50m beyond the point from where flaring of the main carriageway takes place shall be provided with lighting. Also, on all legs of at grade interchange/ crossings the lighting shall be provided 50m beyond the point of Centre on all legs. The minimum illumination shall be 40 Lux., at the extreme edge of the Highway				
6	**Built-up sections** on the project highway both in the median of main carriageway and on the service roads on both sides				
7	**On Median Openings provide 1 nos. high mast lighting of 25m height**				

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Sr. No.	Lighting facilities	Chainage		Side	Lighting Source: Electricity
8	**On Major Bridges and its approaches higher than 3m**				

8. Rainwater Harvesting

The provision of rainwater harvesting shall be provided at every 500m staggered in the entire project length and shall be executed as per requirement of IRC:SP: 42-2014 and IRC:SP: 50-2013. Additionally, wherever urban drains are provided, which do not have a definite outfall for discharge of water, at such location one pit for rain water harvesting shall be provided along the side drains at the lowest point/ where the water stagnates. The type and location of rain water harvesting is as follows:

Sr. No.	Rain water Harvesting Type	Chainage	Side	Depth of Recharge Structure
1	Type 1 confirming to clause 10.7.2 of IRC:SP 42			
2	Type 2 confirming to clause 10.7.3 of IRC:SP 42			
3	Type 3 confirming to clause 10.7.4 of IRC:SP 42			
4	Type 4 confirming to clause 10.7.5 of IRC:SP 42			

9. Environmental Management Plan [Attach MOEF Mitigation Report in Schedule-D]

The Contractor shall implement the Environmental Management Plan & Action Plan for undertaking possible mitigation measures in accordance with Environmental Clearance accorded by Ministry of Environment and Forests and Climate Change. The conditions & directions stipulated by the MOEF & CC shall be complied by the Contractor.

10. **Land Scaping and Tree Plantation**

The Contractor shall plant trees and shrubs of required numbers and types at the appropriate locations within Right of Way and in the land earmarked by the Authority for afforestation as per Schedule D at the following areas.

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Sr. No.	Types of Plantation	Location (km)	Number of trees to be planted	Remarks
1	Shrubs	In median except Structures+ First row from side of drain	1 row of 333 plants for the median of 2-3 metre at every km. and 2 rows of 333 plants (staggered) for the median of 3 metre and more	Ornamental type plantation shall be provided
2	Land Scaping	O & M Centers, Vacant land parcels, land within loops of flyovers, Toll Plaza building and surroundings Vacant space below the flyovers	Landscaping plans will be submitted by the Contractor which shall include ornamental trees, decorative statues and landscaping	The number of Ornamental type plantation and other things shall be decided on the basis availability of land.
3	Plantations	Available open land within ROW	1 row of 333 plants on each side of project highway.	Minimum _____ nos. of trees of desired type in two rows per Km. @10 m c/c near edge of ROW on both side (As per Schedule D) preferably local varieties like mango, Neem, Sheesham, Babul, Peepal etc. shall be planted

Drip irrigation system for median plantation by gravity/pressure sources with all necessary components / systems and emitting devices at plants shall be provided.

The Contractor shall maintain the trees and shrubs in good condition during the Contract Period as per the Agreement.

11. [**Advanced Traffic Management System (ATMS)]**

[Please provide details of the ATMS as per relevant provisions of Manual and guidelines issued by MoRTH/NHAI. The Standard and Specifications for ATMS shall be specified in Schedule D confirming to guidelines issued by MoRTH/NHAI.]

12. Highway Patrol Units

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Highway Patrol units shall be established and operated at toll plaza location as per Schedule-D, which shall continuously patrol the highway in a stretch not exceeding 50 km (if the stretch is more than 50 km additional 1 number of patrol vehicle per 50 km or less shall be provided). The vehicle shall be brand new with fuel, driver, and insurance all-inclusive for the entire contract period. Highway Patrol units shall be fitted with GPS and GSM based vehicle tracker system. Highway Patrol Vehicles shall be stationed on lay-bye constructed on Project Highway @ every 20 km of each Toll Plaza.

13. Emergency medical services

The Contractor shall, at its own cost, construct a medical aid post at each toll plaza with a minimum size of 5m x 5m with a toilet (to be used for the patients of minimum size of 3m x 3m) and hand it over to the Authority, no later than 30 (thirty) days prior to PCOD/COD. The Medical Aid Post(s) shall be deemed to be part of the project and shall vest in the Authority. Medical Aid Post shall be set up at Administrative Block with round-the-clock services for victims of accidents on the Project Highway.

One number Ambulance shall be provided in a stretch not exceeding 50 km (if the stretch is more than 50 km additional 1 number of ambulances per 50 km or less shall be provided). The Ambulance shall be brand new with fuel, driver, medical staff and insurance all-inclusive for the entire contract period. Ambulance fitted with GPS and GSM based vehicle tracker system shall be provided to be integrated with the Video Incident Detection System with ATMS, as per Schedule-D, along with all necessary manpower (including paramedical staff), medicines, equipment's etc. and shall be maintained in an effective manner throughout the contract period starting from the appointed date. Ambulance shall be stationed on lay-bye constructed on Project Highway @ every 20 km of each Toll Plaza

14. Crane Service:

Crane Service shall be provided on project highway, as specified in the Manual. One number crane shall be provided in a stretch not exceeding 50 km (if the stretch is more than 50 km additional 1 number of crane per 50 km or less shall be provided). Crane having capacity of minimum 20T shall be made available. The crane shall be brand new with fuel, driver, and insurance all-inclusive for the entire contract period. Cranes shall be stationed on lay-bye constructed on Project Highway @ every 20 km of each Toll Plaza.

15. Vehicle rescue post

The Contractor shall, at its own cost, construct a vehicle rescue post at each toll plaza with a minimum size of 5m x 5m with a toilet block and hand it over to the Authority, no later than 30 (thirty) days prior to PCOD/COD.

16. [Instrumentation for monitoring of cut slopes having depth of cutting more than 10m]

Requisite instrumentation to be undertaken for measuring pore water pressure, change in angle of slope, displacement or deformation, pressure on shotcrete, force on anchor bolt, etc. for monitoring of cut slopes having depth of cutting more than [10m]. The data acquisition system is to be set up, the data is to be analysed to determine the

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condition of the cut slopes and such data including analysis thereof shall be transmitted to the central system of the Authority in the format as specified by the Authority.

17. [Instrumentation for monitoring of each bridge span more than 40m]

Requisite sensors are to be embedded/ installed in each of bridge span more than [40m] and analysed using suitable software tools/ models to determine the condition of each of such bridge span in respect of parameters like strain, deflection, vibration, tilt, displacement, temperature, loss of prestress, corrosion, scour, etc. The data acquisition system is to be set up, the data is to be analysed to determine the condition of each of such bridge span and such data including analysis thereof shall be transmitted to the central system of the Authority in the format as specified by the Authority.

18. [Instrumentation for monitoring of each Reinforced Soil walls having height more than 10m]

Requisite instrumentation to be undertaken for measuring critical parameters of Reinforced Soil walls having height of more than [10m] such as facia panel displacement and tilt, lateral deformation of the retained soil, reinforcement strain and loss of stress, facia and reinforcement connection loads, joint openings, vertical settlement, lateral earth pressure, pore water pressure, drainage performance, foundation movement, scour / erosion at toe, etc. The data acquisition system is to be set up, the data is to be analysed to determine the condition of each of such RE walls and such data including analysis thereof shall be transmitted to the central system of the Authority in the format as specified by the Authority.

19. Others (to be specified)

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Schedule - D

(See Clause 2.1)

Specifications and Standards

1. Construction

The Contractor shall comply with the Specifications and Standards set forth in Annex-I of this Schedule-D for construction of the Project Highway.

2. Design Standards

The Project Highway including Project Facilities shall conform to design requirements set out in the following documents:

(a) [Manual of Specifications and Standards for [*** Laning with Paved Shoulder of Highways by the Indian Roads Congress - IRC: SP: ***], referred to herein as the Manual.

[Note: Specify the relevant Manual, Specifications and Standards]

(b) As regards to work of utility shifting, the relevant specifications, rules, regulation and acts of Utility owning Department / Agencies shall be applicable.

(c) All Circulars/instructions/guidelines issued by the Ministry **60 (sixty) days** prior to the last date of bid submission shall be applicable. The instructions of the Ministry shall supersede all provisions given in Manual or amendments to Manual mentioned in Annexure-I to Schedule-D.

Note: – *Latest revisions of all relevant codes notified/published 60 days prior to the last date of bid submission shall be applicable for this tender*

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Annex – I

(Schedule-D)

Specifications and Standards for Construction

1. **Specifications and Standards**

All Materials, works and construction operations shall conform to the **Manual of Specifications and Standards for [*** - Laning with Paved Shoulder of Highways; IRC: SP: ***]** published by IRC (referred to as "Manual" in this Schedule) and **MORTH Specifications for Road and Bridge Works [*** Revision].** Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority Engineer.

2. **Deviations from the Specifications and Standards**

2.1 The terms "Concessionaire", "Independent Engineer" and "Concession Agreement" used in the Manual shall be deemed to be substituted by the terms "Contractor", "Authority Engineer" and "Agreement" respectively.

2.2 Notwithstanding anything contained in the aforesaid Manual, the following Specifications and Standards shall apply to the Project Highway and for purpose of this agreement, the aforesaid Manual shall be deemed to be amended to the extent set forth below:

S. No.	Item	Provision as per Manual	Modified Provision

[Note 1: Deviations from the aforesaid Specifications and Standards shall be listed out here. Such deviations shall be specified only if they are considered essential in view of project-specific requirements.]

2.3 The Contractor shall ensure adherence to MoRT&H Circulars mentioned below wherever applicable including amendments issued 60 (sixty) days prior to Bid submission date:

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S. No.	Policy Circular no.	Dated	Subject
1.	Efile No. RW/NH-33044/27/2024/S&R(P&B) (Computer No. 243038)	23rd September 2024	Policy Guidelines on use of Inert Material in construction of National Highways.
2.	Efile No. RW/NH-34066/09/2017/S&R(B) (Computer No. 185417	12th February 2021	Reinforcing Steel Bars (Clause 1000.9.3.1 of Ministry's Specifications for Road and Bridge Works)
3.	Efile No. RW/NH-34066/09/2017/S&R(B) (Computer No. 185417)	22nd January 2021	Use of Stainless-Steel Reinforcing Steel Bars in Bridges on National Highways and other centrally sponsored projects to be constructed in marine Environment Susceptible to Severe Corrosion.
4.	EFile No.RW/NH-34049/01/2020-S&R (P&B) pt. (Computer No. 207229)	20th September 2024	Use of New / Alternative Material and Technology in Construction and Maintenance of National Highways project and adaption of value Engineering Practices therein.
5.	Efile No. RW/NH-35083/02/2024-S&R (Computer No. 238879)	26th November 2024	Use of Waste Plastic in Bituminous Concrete Wearing Course Mix in National Highways Construction & Maintenance Works
6.	Efile No. RW/NH-33044/2212020-S&R (P&B) (Computer No.186381)	4th June, 2024	Width of Shoulder (Paved & Earthen) for National Highways.
7.	Efile No. RW/NH-35072/05/2018-S&R (P&B) (Computer No.165688)	19th April, 2024	Recommended Bitumen Type & Grade for Different Climate & Traffic Loading for National Highway and Expressway Works in India.
8.	Efile No. RW/NH-35072/05/2018-S&R (P&B) (E165688)	23rd August,2023	Use of Bitumen: Demand-Supply, Type & Grade, Specifications, Source of Procurement and Quality in Construction of National highway projects.
9.	Efile No. RW/NH-36098/25/2022-S&R P&B)I pt.	16th March, 2023	Safety in Road Construction Zones in National Highway Projects - effective and adequate measures to be taken.
10.	Efile No. RW/NH-33044/10/2021-S&R(P&B)(171909)	15th March,2023	Reuse of materials reclaimed from existing pavement layers.
11.	Efile No. RW/NH-36098/17/2022/S&R(B)	2nd January, 2023	Provisions of crash barriers in existing bridges.
12.	Efile No. RW/NH-33049/01/2020-S&R (B)	22nd February, 2022	Use of Ultra High Performance Fiber Reinforced Concrete (UHPFRC) in Design & Construction of Structures/Bridges of National Highways.
13.	Efile No. RW/NH-33044/33/2025-S&R (P&B) Computer No. 254799	03rd November, 2025	Guidelines on design Criteria and Pavement type for service road and slip roads in NH projects
14.	Efile No. RW/NH-34049/01/2020-S&R (B)	24th June, 2025	Mandatory use of precast concrete components in NHs projects

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S. No.	Policy Circular no.	Dated	Subject
	Computer No. 182692		
15.	Efile No. RT-25035/07/2023–RS(Part) (221534)	24th December, 2024	Guidelines for provisions on Expressways and National Highways
16.	NHAI Policy Circular No. 17.5.82	24th May, 2021	Layout and Design of Toll Plaza
17.	Efile No. RW/NH-35083/05/2021-S&R(P&B) (Computer No.–192770)	16th March, 2026	SOP for use of Reinforced Soil (RS) Wall technology in National Highways (NH) Projects

Note: The instructions of the Ministry issued vide above referred circulars shall supersede all provisions given in Manual or amendments to Manual mentioned in Annexure-I to Schedule-D.

3. Adoption of Automated & Intelligent Machine-Aided Construction (AI-MC)

3.1 Definition of Automated & Intelligent Machine-Aided Construction (AI-MC)

Automated & Intelligent Machine-aided Construction (AI-MC) has been adopted to Highway Construction Projects to achieve better Construction Quality with respect to compaction in confirmation with IRC:SP:97-2013, in a Safer Environment. Construction Efficiencies of Construction Machineries are being enhanced through Location referencing. Automated & Intelligent Machine-aided Construction (AI-MC) involves using Construction Equipment mounted with on-board Computers, using a combination of 3D Modelling Data along with Global Navigation Satellite System (GNSS)/ Universal Robotic Total Station (UTS) Technology and Intelligent Guidance to control the manoeuvring of Construction Equipment. AI-MC provides Horizontal and Vertical Guidance in real time to Construction Equipment Operators. AI-MC Equipment has the potential to achieve designed Grades on the First Pass, without assistance of traditional staking.

3.2 Obligations of the Contractor

The Contractor shall deploy at its own Cost and Expenses, the Grading/ Paving/ Compaction Equipment fitted with System of Automated & Intelligent Machine-aided Construction (AI-MC) for finishing of all Grades including Embankment, Subgrade, GSB, WMM. The System of Automated & Intelligent Machine-aided Construction (AI-MC) used by the Contractor shall be Capable of delivering accuracy as per the applicable IRC specifications. During the Construction Period, the Contractor shall furnish all the Physical Progress Data (All desired type of Surface Grading Data, Compaction and Temperature Data etc.) obtained through System of Automated & Intelligent Machine-aided Construction (AI-MC) /CMS to Authority for monitoring of Construction on Daily Basis. These Digital Data and desired output shall be made available at the Location (Server/ Cloud) finalised by the Authority. Detailed specifications of this Technology are elaborated in subsequent Paras.

3.3 Construction of the Project (detailed specification)

Contractor shall use 3D Digital Models and Automated & Intelligent Machine-aided Construction (AI-MC) for Motor Graders, Paver, Compactors and Dozers to ensure Quality Standards as per IRC Specifications and Productivity Improvement. Further, the Contractor shall generate measurable Digital Records that can be shared on a

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Digital Drive or can viewed in real time. The Hardware and Software used by the Contractor shall have following Features and Specifications:

(i) **Centralized Monitoring Software {CMS} for Preparing Design Data for Field Systems and Processing Results:**

A Contractor shall use appropriate (Design/ Working) Software for 3D Constructible Model from the approved Design & Drawing that can be carried in 'Construction Grade Survey Instrument' and 3D Machine Control Tools for Construction purpose. The Software shall be able to generate Triangulated Surface Models, 3D Line Works and should have ability to Guide Machine, based on Design Data and also generate the Reports. There shall be provision to feed tolerance limits or desired passes for comparing with Final Results. The cloud-based Software shall be capable of Record Creation, Compilation, Exporting, Presenting in Graphical Format with Colour Coding showing different activity and Generate Report showing Location/ Stretches where the work done is not confirming to limits/ tolerances prescribed in Specification. The Nonconformity Report should be generatable for any selected Stretch in Tabular Format. Some of the Non-conformity/ Conformity to be displayed includes:

- Location where the thickness of each layer Embankment/ Subgrade is more than specified limit from prevailing finalised layer with its clear location, to meet the requirements as per clause 305.3.5. 1 of MoRT&H Specification.

- Number of Passes bade with respect to Target Number of Passes for the compactors to achieve the compaction requirement of respective layers as per section 305 & 903.2 of MoRT6H (Table 300-1 and 300-2).

- Weak spot w.r.t. Intelligent Compaction Measurement Value (ICNV, in conformity with clause 4.3.3.2 of IRC: SP:97-1013 page 23) to bring the conformity as per section 305 & 903.2 of MoRT6H (Table 300-1 6 300-2).

- Granular/ Bituminous layer beyond the tolerance limits, as specified in clause 902 (Table 900-1) of MoRT&H Specification.

- Laying and Rolling Temperature achieved by Asphalt Paver/ Compactor/ Pneumatic Rollers, with respect to specified minimum Target Temperature as per IRC Guidelines (like clause-507 of MoRT6H Specification; clause 4.4.3 of IRC:27-2009 for BM; clause 5.2, ii of IRC:SP:97-2013).

ii. Automated & Intelligent Machine-aided Construction (AI-MC) System for Motor Grader for Accurate Grading to Design.

A Contractor shall utilize Motor Grader controlled with GNSS Machine Control System in the Construction of Embankment, Subgrade & GSB Surface Grades. The requirement includes the finishing of Final Surface Level of Embankment, Subgrade & GSB as per Clause 902 of MoRT&H Specification.

In respect of Embankment layers, the Motor Grader shall be equipped with requisite instrumentation to set the desired level and inclination of blade of grader to achieve desired profile.

The Contractor may use any type of GNSS/GPS/Universal Robotic Total Station type Machine Control System that Results in achieving the finished grading requirements of each layer. The 3D Machine guidance and control System shall be able to control

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the depth and slope of the Motor trader Blade In relation to the 3D Model during the Grading Process. The 3D Machine Control Systems shall have requisite instrumentation to execute Earthworks Driven from Design Data. Machine Guidance & Control System shall have provision to show and send required Fields Coverage Data for each Data Point for all Passes in Dashboard/ Office Monitoring Software. Data shall have at-least following information: Date & Time Stamp, Longitude/ Latitude, Easting/ Northing, Local Easting/ Local Northing, Height on the Ground above WGS84 Geoid / Elevation/ local elevation, GNSS Mode, Motor Grader Pass Numbers, Auto/ Manual.

iii. Automated & Intelligent Machine-aided Construction (AI-MC) System for Pavers

A Contractor shall utilize Paving equipment controlled by Universal Robotic Total Station and Machine Control System in the Construction of Roadway Pavement for Automatic Control of Elevation and Slope. The requirement includes the finishing of Final Pavement surface as per the MoRTH Specification Clause 902.

Machine Guidance & Control System shall have provision to Show and Send required Fields Coverage Data for each Data Point in Dashboord/ Office Monitoring Software. Data shall have at-least like this information: Date & Time Stamp, Easting, Northing and Elevation.

iv. Automated & Intelligent Machine-aided Construction (AI-MC) System for Compactors

The Automated & Intelligent Machine Guidance System on Compactor shall allow Operator to monitor the Number of Passes completed in real time for every layer of Embankment, Subgrade, GSB or asphalt-based Items against a Target Pass Count. It should have provision to send required Fields Coverage Data for each Data Point for all Passes and Provision to show in Dashboard and Send the Data to CMS. Data shall have at least following information: Date & Time Stamp, Longitude/ Latitude, Easting/ Northing, Local Easting/ Local Northing, Height on the Ground above WGS84 Geoid/ Elevation/ Local Elevation, GNSS Mode, Compactor Pass Numbers, Compactor Direction (Forward/ Reverse), Compactor Speed, Vibration On (YES/ No, On/ Off), Frequency, Amplitude, ICMV (Required for roller instrumented with Accelerometer).

v. Automated & Intelligent Machine-aided Construction (AI-MC) System for Capturing of Temperature (T)

There shall be an equipment to capture the temperature of the asphalt-based items during the Laying and Rolling process. The same should be reflected and captured in Machine Guidance System of the Paver and Rollers and shall be sent to Monitoring Software for further reporting and analysis in the following information: Date & Time Stamp, Longitude/ Latitude, Easting/ Northing, Local Easting/ Locol Northing, Surface Temperature (Required for Tandem Roller instrument with Temperature Sensor).

vi. Data/File transfer from CMS from Automated & Intelligent Machine-aided Construction (AI-MC) System.

CMS should have the ability to send Design updates to all the equipment's in the Field ensuring that same Design Data is used by all equipment's. It should accept Field Data for Validation and Demonstration Process. It shall be capable for exporting the data to the any Highway Modelling Platform for demonstrating the Progress of Construction

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on real time basis by exposing the requested Data through API for further use like Scheduling, Billing, and Progress etc.

4. Pile Integrity Test using Cross hole sonic logging Test:

This is a more reliable method of Testing Integrity of Piles. This Test is an advancement to Low Strain Pile Integrity Test (IS: 14893-2001), which is being carried out currently in Highway Projects. The details of conducting this Test are available in ASTM D6760. RDSO, Indian Railways has published Guidelines on Integrity Testing of Piles i.e. BS-41 R1 in November 2023 which includes this Integrity Testing Method. Hence Pile Integrity testing should be done using cross hole sonic logging test.

5. Multi Lane Free Flow (MLFF) Tolling System

5.1 MLFF Project

a. The Contractor shall implement MLFF based tolling facility by installing new Gantries on main carriageway of the highway (minimum 02 (01 Main & 01 redundant)) for each direction (LHS & RHS) for MLFF based tolling within approx. 350m of existing fee plaza.
   i. The Contractor shall be fully responsible for ensuring the continuous safety, security, and illumination of the installed gantries, covering all necessary measures to protect the infrastructure and provide clear visibility under all weather and lighting conditions.
   ii. The Contractor shall be required to submit detailed design drawings including design calculations of gantries which should be approved from any of the Indian Institute of Technology (IIT)/ National Institute of Technology (NIT).

b. The MLFF Project shall broadly include, but not limited to the following components to be provided as per the functional and technical specifications mentioned in Schedule-C:
   1. Radio Frequency Identification (RFID) Reader
   2. Radio Frequency Identification (RFID) Antenna
   3. Automatic Number Plate Reader (ANPR) Camera System and Application
   4. IR Illuminator
   5. Audit Surveillance Camera System
   6. Detectors – Radar
   7. Detectors-Lidar
   8. Networking and Communications
   9. Software Application, Dashboard and Portal
   10. MLFF Control Center
   11. Power Supply for Field Equipment as well as for MLFF Control Center
   12. Operation & Maintenance (O&M) of the entire MLFF Facility

c. Integration with CCH: The Contractor must process transactions from the

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MLFF Plaza Server in an online-only mode, ensuring toll fare calculations and transaction processing to Central Clearing House (CCH) as per NETC guidelines as amended from time to time. The host system should be capable of supporting both online and offline transaction processing based on internet connectivity availability.

d. Compliance with Interface Control Document (ICD) 2.5 or latest: The Contractor must ensure to comply with ICD 2.5 or latest specifications for processing the transactions.

e. Integration with TMCC –

   i. All Transactional Data: The Contractor shall integrate the MLFF System with the Toll Monitoring and Control Centre (TMCC) software or any such software, via API for the purpose of sharing all transactional data.

   ii. Equipment Health Monitoring: All Critical MLFF equipment shall be integrated with TMCC software for monitoring the real time health status. The SLA of MLFF equipment shall be calculated based on TMCC software and through other measures by IHMCL. Contractor shall strictly ensure provisioning of necessary arrangement including but not limited to proper network infrastructure, mapping of correct IP address etc. for reflection of correct uptime of equipment on TMCC dashboard.

f. Future integration with advanced technologies: The Contractor's solution should include API based integration with future tolling technologies like GNSS and NHAI Applications like Raj Marg Yatra etc. or, Advance Traffic Management System (ATMS), any other similar system at no extra cost. The API for the same shall be provided by the Authority.

5.2 Data Retention and Handover

a) **Data Retention Period**:

The Contractor shall ensure the retention of the following data for the specified durations throughout the Concession Agreement:

i. **ANPR and Audit Surveillance Camera Images**: Minimum retention period of **180 days**

ii. **Video Recordings**: Minimum retention period of **30 days**.

iii. **Transaction Data and Reports**: Retention throughout the Concession Agreement.

iv. **Images, videos of all e**-Notice cases and other dispute cases shall be retained till the time the e-Notice or such case is disposed of.

b) **Data Handover:**

Upon the expiry or termination of the Concession Agreement, the Contractor shall hand over all retained transaction data, including images, videos, and reports, in a complete and organized manner to the Authority.

c) **Data Access and Evidence Provision**:

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a. During the Concession period, the Contractor shall provide requisite image evidence and video recordings to the Authority within the defined storage limits upon request.

b. The data shall be made available promptly to assist the Authority in its operations, audits, or legal proceedings.

d) **Compliance and Penalty**:

The Contractor shall ensure compliance with the above requirements. Non-compliance may result in penalties or other actions as deemed appropriate by the Authority.

e) **Confidentiality and Security**:

The Contractor shall ensure the confidentiality and security of the retained data, preventing unauthorized access, misuse, or loss during the retention and handover period.

5.3 Point of Sale (POS) setup for Sale of FASTag and Plaza Specific Discount Pass

The Contractor is responsible for setting up a 24*7 POS at the Control Centre Building for issuance of FASTag as per NETC Guidelines and providing services of Plaza Specific Discount Pass.

The POS executive should be trained to assist road users with making payments for e-Notices.

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Annex – II

(Schedule-D)

Specifications and Standards for Innovative Major Bridge / Tunnel Projects

1. **[Please specify additional Specifications and Standards for innovative Major Bridges like cable suspension/ cable stayed and exceptionally long span bridges as per Project requirements]**

2. **[Please specify additional Specifications and Standards for tunnels including mechanical, electrical, ventilation, fire and safety system, SCADA, etc., as per Project requirements]**

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Annex – III

(Schedule-D)

Specifications and Standards for ATMS

[Please specify as per MoRTH/NHAI relevant circulars/ guidelines]

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Schedule - E

(See Clauses 2.1 and 14.2)

Maintenance Requirements

1. Maintenance Requirements

(i) The Contractor shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits.

(ii) The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfilment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.

(iii) All Materials, works and construction operations shall conform to the MORTH Specifications for Road and Bridge Works, and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.

[Specify all the relevant documents]

2. Repair/rectification of Defects and deficiencies

The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectification of the Defects and deficiencies specified in Annex - I of this Schedule-E within the time limit set forth therein.

3. Other Defects and deficiencies

In respect of any Defect or deficiency not specified in Annex - I of this Schedule-E, the Authority Engineer may, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards, and any deviation or deterioration beyond the permissible limit shall be repaired or rectified by the Contractor within the time limit specified by the Authority Engineer.

4. Extension of time limit

Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of any Defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority Engineer and conveyed to the Contractor and the Authority with reasons thereof.

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5. Emergency repairs/restoration

Notwithstanding anything to the contrary contained in this Schedule-E, if any Defect, deficiency or deterioration in the Project Highway poses a hazard to safety or risk of damage to property, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger.

6. Daily inspection by the Contractor

The Contractor shall, through its engineer, undertake a daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Authority Engineer may specify. Such record shall be kept in safe custody of the Contractor and shall be open to inspection by the Authority and the Authority Engineer at any time during office hours.

7. Pre-monsoon inspection / Post-monsoon inspection

The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts and drainage system before [1st June] every year in accordance with the guidelines contained in IRC: SP35. Report of this inspection together with details of proposed maintenance works as required on the basis of this inspection shall be sent to the Authority Engineer before the [10th June] every year. The Contractor shall complete the required repairs before the onset of the monsoon and send to the Authority Engineer a compliance report. Post monsoon inspection shall be done by the [30th September] and the inspection report together with details of any damages observed and proposed action to remedy the same shall be sent to the Authority Engineer.

8. Repairs on account of natural calamities

All damages occurring to the Project Highway on account of a Force Majeure Event or wilful default or neglect of the Authority shall be undertaken by the Authority at its own cost. The Authority may instruct the Contractor to undertake the repairs at the rates agreed between the Parties.

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Annex – I

(Schedule-E)

Repair/rectification of Defects and deficiencies

The Contractor shall repair and rectify the Defects and deficiencies specified in this Annex-I of Schedule-E within the time limit set forth in the table below.

Table -1: Maintenance Criteria for Pavements:

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
Flexible Pavement (Pavement of MCW, Service Road, approache	Potholes	Nil	< 0.1 % of area and subject to limit of 10 mm in depth	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC:82: 2015 and Distress Identification Manual for Long Term Pavement Performance Program, FHWA 2003 (http://www.tfhrc.com/pavement/lttp/reports/03031/)	24-48 hours	MORT&H Specification 3004.2

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Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
s of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	Cracking	Nil	< 5 % subject to limit of 0.5 sqm for any 50 m length	Daily			7-15 days	MORT&H Specification 3004.3
	Rutting	Nil	< 5 mm	Daily	Straight Edge		15 -30 days	MORT&H Specification 3004.2
	Corrugations and Shoving	Nil	< 0.1 % of area	Daily	Length Measurement Unit like		2-7 days	IRC:82-2015

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Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	**Acceptable**					
	Bleeding	Nil	< 1 % of area	Daily	Scale, Tape, odometer etc.		3-7 days	MORT&H Specification 3004.4
	Ravelling / Stripping	Nil	< 1 % of area	Daily			7-15 days	IRC:82-2015 read with IRC SP 81
	Edge Deformation/ Breaking	Nil	< 1 m for any 100 m section and width < 0.1 m at any location,	Daily			7- 15 days	IRC:82-2015

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Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	**Acceptable**					
			restricted to 30 cm from the edge					
	Roughness BI	2000 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer SCRIM (Sideway-force Coefficient Routine Investigation Machine or equivalent)	Class I Profilometer : ASTM E950 (98) :2004 –Standard Test Method for measuring Longitudinal Profile of Travelled Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656 -94: 2000- Standard Guide for Classification of Automatic Pavement Condition Survey Equipment	180 days	IRC:82-2015
	Skid Number	60SN	50SN	Bi-Annually			180 days	BS: 7941-1: 2006
	Pavement Condition Index	3	2.1	Bi-Annually			180 days	IRC:82-2015

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Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	**Acceptable**					
	Other Pavement Distresses			Bi-Annually			2-7 days	IRC:82-2015
	Deflection/ Remaining Life			Annually	Falling Weight Deflectometer	IRC 115: 2014	180 days	IRC:115-2014
Rigid Pavement (Pavement of MCW, Service Road, Grade structure,	Roughness BI	2200mm/km	2400mm/km	Bi-Annually	Class I Profilometer	ASTM E950 (98) :2004 and ASTM E1656 - 94: 2000	180 days	IRC:SP:83-2008
	Skid	Skid Resistance no. at different speed of vehicles		Bi-Annually	SCRIM (Sideway-force	IRC:SP:83-2008	180 days	IRC:SP:83-2008

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Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	**Acceptable**					
approaches of connecting roads, slip roads, lay byes etc. as applicable)		**Minimum SN**	**Traffic Speed (Km/h)**		Coefficient Routine Investigation Machine or equivalent)			
		36	50					
		33	65					
		32	80					
		31	95					
		31	110					



Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
Embankment/ Slope	Edge drop at shoulders	Nil	40mm	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC	7-15 days	MORT&H Specification 408.4
	Slope of camber/cross fall	Nil	<2% variation in prescribed slope of camber /cross fall	Daily			7-15 days	MORT&H Specification 408.4
	Embankment Slopes	Nil	<15 % variation in	Daily			7-15 days	MORT&H Specification 408.4

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Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools/Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	**Acceptable**					
			prescribe side slope					
	Embankment Protection	Nil	Nil	Daily	NA		7-15 days	MORT&H Specification
	Rain Cuts/ Gullies in slope	Nil	Nil	Daily Specially During Rainy Season	NA		7-15 days	MORT&H Specification

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In addition to the above performance criterion, the contractor shall strictly maintain the rigid pavements as per requirements in the following table

Table -2: **Maintenance Criteria for Rigid Pavements:**

S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	**For the case d > D/2**
CRACKING						
1	**Single Discrete Cracks Not intersecting with any joint**	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	Not applicable
			1	w < 0.2 mm. hair cracks		
			2	w = 0.2 - 0.5 mm, discernible from slow-moving car	Seal without delay	Seal, and stitch if L > lm.
			3	w = 0.5 - 1.5 mm, discernible from fast-moving car		Within 7days

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S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	**For the case d > D/2**
			4	w = 1.5 - 3.0 mm	Seal, and stitch if L > l m. Within 7 days	Staple or Dowel Bar Retrofit, FDR for affected portion. Within 15days
			5	w > 3 mm.		
2	**Single Transverse (or Diagonal) Crack intersecting with one or more joints**	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.2 mm, hair cracks	Route and seal with epoxy. Within 7 days	Staple or Dowel Bar Retrofit. Within 15days
			2	w = 0.2 - 0.5 mm, discernible from slow vehicle		
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route, seal and stitch, if L > 1 m. Within 7 days	

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S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	**For the case d > D/2**
			4	w = 3.0 - 6.0 mm	Dowel Bar Retrofit. Within 15 days	Full Depth Repair Dismantle and reconstruct affected.
			5	w > 6 mm, usually associated with spalling, and/or slab rocking under traffic	Not Applicable, as it may be full depth	Portion with norms and specifications - See Para 5.5 & 9.2 Within 15days
3	**Single Longitudinal Crack intersecting with one or more joints**	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.5 mm, discernable from slow moving vehicle	Seal with epoxy, if L > 1 m. Within 7 days	Staple or dowel bar retrofit. Within 15days

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S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
			2	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route seal and stitch, if L > l m. Within 15 days	-
			3	w = 3.0 - 6.0 mm	Staple, if L > 1 m. Within 15 days	Partial Depth Repair with stapling. Within 15 days
			4	w = 6.0 - 12.0 mm, usually associated with spalling	Not Applicable, as it may be full depth	
			5	w > 12 mm, usually associated with spalling, and/or slab rocking under traffic		Full Depth Repair Dismantle and reconstruct affected portion as per norms and specifications - See Para 5.6.4

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S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	**For the case d > D/2**
						Within 15 days
4	**Multiple Cracks intersecting with one or more joints**	**w = width of crack**	0	Nil, not discernible	No Action	-
			1	w < 0.2 mm, hair cracks	Seal, and stitch if L > l m.	
			2	w = 0.2 - 0.5 mm. discernible from slow vehicle	Within 15 days	
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Full depth repair within 15 days	Dismantle, Reinstate subbase, Reconstruct whole slab as per specifications within 30 days
			4	w = 3.0 - 6.0 mm panel broken into 2 or 3 pieces		
			5	w > 6 mm and/or panel broken into more than 4 pieces		

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S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	**For the case d > D/2**
5	**Corner Break**	w = width of crack L = length of crack	0	Nil, not discernible	No Action	-
			1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy to secure broken parts Within 7 days	Seal with epoxy seal with epoxy Within 7days
			2	w < 1.5 mm; L < 0.6 m, only one corner broken		
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 of IRC:SP: 83-2008) Within 15 days	Full depth repair
			4	w > 1.5 mm; L > 0.6 m or three corners broken		
			5	ree or four corners broken		Reinstate sub-base, and reconstruct the slab as per norms and specifications

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S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	**For the case d > D/2**
						within 30days
6	**Punchout (Applicable to Continuous Reinforced Concrete Pavement (CRCP) only)**	w = width of crack L = length (m/m2)	0	Nil, not discernible		No Action
			1	w < 0.5 mm; L < 3 m/m^2	Not Applicable, as it may be full depth	Seal with low viscosity epoxy to secure broken parts. Within 15days
			2	either w > 0.5 mm or L < 3 m/m^2		
			3	w > 1.5 mm and L < 3 m/m^2		
			4	w > 3 mm, L < 3 m/m^2 and deformation		Full depth repair - Cut out and replace damaged area taking care not to damage reinforcement. Within 30days
			5	w > 3 mm, L > 3 m/m^2 and deformation		

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S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
Surface Defects						
7	Ravelling or Honeycomb type surface	r = area damaged surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	**Short Term** No action.	**Long Term** Not Applicable
			1	r < 2 %	Local repair of areas damaged and liable to be damaged. Within 15 days	
			2	r = 2 - 10 %		
			3	r = 10-25%	Bonded Inlay, 2 or 3 slabs if affecting.	
			4	r = 25 - 50 %		

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S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	**For the case d > D/2**
					Within 30 days	
			5	r > 50% and h > 25 mm	Reconstruct slabs, 4 or more slabs if affecting. Within 30 days	
8	**Scaling**	r = damaged surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	**Short Term**	**Long Term**
					No action.	Not Applicable
			1	r < **2 %**	Local repair of areas damaged and liable to be damaged. Within 7days	
			2	r = 2 - 10 %		

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S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
			3	r = 10 - 20%	Bonded Inlay within 15 days	
			4	r = 20 - 30 %		
			5	r > 30 % and h > 25 mm	Reconstruct slab within 30 days	
9	**Polished Surface/Glazing**	t = texture depth, sand patch test	0		No action.	Not Applicable
			1	t > 1 mm		
			2 '	t = 1 - 0.6 mm	Monitor rate of deterioration	
			3	t = 0.6 - 0.3 mm		
			4	t = 0.3 - 0.1 mm		

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					For the case d < D/2	**For the case d > D/2**
			5	t < 0.1 mm	Diamond Grinding if affecting 50% or more slabs in a continuous stretch of minimum 5 km. Within 30 days	
10	**Popout (Small Hole), Pothole Refer Para 8.4**	n = number/m^2 d = diameter h = maximum depth	0	d < 50 mm; h < 25 mm; n < 1 per 5 m^2	No action.	Not Applicable
			1	d = 50 - 100 mm; h < 50 mm; n < 1 per 5 m^2	Partial depth repair 65 mm deep. Within 15 days	
			2	d = 50 - 100 mm; h > 50 mm; n < 1		

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S.No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
				per 5 m^2		
			3	d = 100 - 300 mm; h < 100 mm n < 1 per 5 m^2	Partial depth repair 110mm i.e.10 mm more than the depth of the hole. Within 30 days	
			4	d = 100 - 300 mm; h > 100 mm; n < 1 per 5 m^2		
			5	d > 300 mm; h > 100 mm: n > 1 per 5 m^2	Full depth repair. Within 30 days	

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Joint Defects						
11	**Joint Seal Defects**	loss or damage L = Length as % total joint length	0	Difficult to discern.	**Short Term**	**Long Term**
					No action.	Not Applicable
			1	Discernible, L< 25% but of little immediate consequence with regard to ingress of water or trapping incompressible material.	Clean joint, inspect later.	
			3	Notable. L > 25% insufficient protection against ingress of water and trapping incompressible material.	Clean and reapply sealant in selected locations. Within 7 days	
			5	Severe; w > 3 mm negligible protection against ingress of water	Clean, widen and reseal the joint.	

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				and trapping incompressible material.	Within 7 days	
12	**Spalling of Joints**	w = width on either side of the joint L = length of spalled portion (as % joint length)	0	Nil, not discernible	No action.	Not Applicable
			1	w < 10 mm	Apply low viscosity epoxy resin/ mortar in cracked portion.	
			2	w = 10 - 20 mm, L < 25%	Within 7 days	
			3	w = 20 - 40 mm, L > 25%	Partial Depth Repair. Within 15 days	
			4	w = 40 - 80 mm, L > 25%	30 - 50 mm deep, h = w + 20% of w, within 30 days	
			5	w > 80 mm, and L > 25%	50 - 100 mm deep repair. H = w + 20% of w. Within 30 days	
13	**Faulting (or Stepping)**	f = difference of level	0	not discernible, < 1 mm	No action.	No action.

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	in Cracks or Joints		1	f < 3 mm		
			2	f = 3 - 6 mm	Determine cause and observe, take action for diamond grinding	Replace the slab as appropriate.
			3	f = 6 - 12 mm	Diamond Grinding	Within 30days
			4	f= 12 - 18 mm	Raise sunken slab.	Replace the slab as appropriate.
			5	f> 18 mm	Strengthen subgrade and sub-base by grouting and raising sunken slab	Within 30days
14	**Blowup or Buckling**	h = vertical displacement from normal profile	0	Nil, not discernible	**Short Term**	**Long Term**
			1	h < 6 mm	No Action	
			2	h = 6 - 12 mm	Install Signs to Warn Traffic	

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			3	h = 12 - 25 mm	within 7 days	
			4	h > 25 mm	Full Depth Repair. Within 30 days	
			5	shattered slabs, ie 4 or more pieces	Replace broken slabs. Within 30 days	
15	**Depression**	h = negative vertical displacement from normal profile L =length	0	Not discernible, h < 5 mm	No action.	Not Applicable
			1	h = 5 - 15 mm		
			2	h = 15-30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Strengthen subgrade. Reinstate pavement at normal level	

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			5	h > 100 mm	if L < 20 m. Within 30 days	
16	**Heave**	h = positive vertical displacement from normal profile. L = length	0	Not discernible. h < 5 mm	**Short Term** No action.	**Long Term** scrabble
			1	h = 5 - 15 mm	Follow up.	
			2	h = 15 - 30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Stabilise subgrade. Reinstate pavement at normal level if length < 20 m. Within 30 days	
			5	h > 100 mm		
17	**Bump**	h = vertical	0	h < 4 mm	No action	

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		displacement from normal profile	1	h = 4 - 7 mm	Grind, in case of new construction within 7 days	Construction Limit for New Construction.
			3	h = 7 - 15 mm	Grind, in case of ongoing Maintenance within 15 days	Replace in case of new construction. Within 30days
			5	h > 15 mm	Full Depth Repair. Within 30 days	Full Depth Repair. Within 30days
18	**Lane to Shoulder Dropoff**	f = difference of level	0	Nil, not discernible < 3mm	**Short Term** No action.	**Long Term**
			1	f = 3 - 10 mm	Spot repair of shoulder within 7 days	
			2	f = 10 - 25 mm		
			3	f = 25 - 50 mm	Fill up shoulder	

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			4	f = 50 - 75 mm	within 7 dayss	For any 100 m stretch Reconstruct shoulder, if affecting 25% or more of stretch. Within 30days
			5	f > 75 mm		
Drainage						
19	**Pumping**	quantity of fines and water expelled through open joints and cracks Nos	0	not discernible	No Action	
			1 to 2	slight/ occasional Nos < 10%	Repair cracks and joints Without delay.	Inspect and repair sub-drainage at distressed sections and upstream.
			3 to 4	appreciable/ Frequent 10 - 25%	Lift or jack slab within 30 days.	
		Nos/100 m stretch	5	abundant, crack development > 25%	Repair distressed pavement sections. Strengthen subgrade and subbase. Replace slab. Within 30 days	

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20	**Ponding**	Ponding on slabs due to blockage of drains	0-2	No discernible problem	No action.	
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc within 7 days, Follow up	Action required to stop water damaging foundation within 30 days.
			5	Ponding, accumulation of water observed	-do-	

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Table -3: Maintenance Criteria for Safety Related Items and Other Furniture Items:

<table>
<tr><th>Asset Type</th><th>Performance Parameter</th><th>Level of Service (LOS)</th><th>Frequency of Measurement</th><th>Testing Method</th><th>Recommended Remedial measures</th><th>Time limit for Rectification</th><th>Specifications and Standards</th></tr>
<tr><td>Highway</td><td>Availability of Safe Sight Distance</td><td>As per IRC SP :84-2014, a minimum of safe stopping sight distance shall be available throughout.
<table><tr><th>Design Speed, kmph</th><th>Desirable Minimum Sight Distance (m)</th><th>Safe Stopping Sight Distance (m)</th></tr><tr><td>100</td><td>360</td><td>180</td></tr><tr><td>80</td><td>260</td><td>130</td></tr></table></td><td>Monthly</td><td>Manual Measurements with Odometer along with video/ image backup</td><td colspan="2">Removal of obstruction within 24 hours, in case of sight line affected by temporary objects such as trees, temporary encroachments.

In case of permanent structure or design deficiency:
Removal of obstruction/improvement of deficiency at the earliest
Speed Restriction boards and suitable traffic calming measures such as transverse bar marking, blinkers, etc. shall be applied during the period of rectification.</td><td>IRC:SP 84-2014</td></tr>
<tr><td>Pavement Marking</td><td>Wear</td><td><70% of marking remaining</td><td>Bi-Annually</td><td>Visual Assessment as per Annexure-F of IRC:35-2015</td><td>Re - painting</td><td>Cat-1 Defect – within 24 hours
Cat-2 Defect - within 2 months</td><td>IRC:35-2015</td></tr>
</table>

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<tr><td></td><td>Day time Visibility</td><td>During expected life Service Time
Cement Road - 130mcd/m²/lux
Bituminous Road - 100mcd/m²/lux</td><td>Monthly</td><td>As per Annexure-D of IRC:35-2015</td><td>Re - painting</td><td>Cat-1 Defect – within 24 hours
Cat-2 Defect – within 2 months</td><td>IRC:35-2015</td></tr>
<tr><td></td><td>Night Time Visibility</td><td><u>Initial and Minimum Performance for Dry Retro reflectivity during night time:</u>
<table>
<tr><td>Design Speed</td><td colspan="2">(RL) Retro Reflectivity (mcd/m²/lux)</td></tr>
<tr><td></td><td>Initial (7 days)</td><td>Minimum Threshold level (TL) & warranty period required up to 2 years</td></tr>
<tr><td>Up to 65</td><td>200</td><td>80</td></tr>
<tr><td>65 - 100</td><td>250</td><td>120</td></tr>
<tr><td>Above 100</td><td>350</td><td>150</td></tr>
</table>
<u>Initial and Minimum Performance for Night Visibility under wet condition (Retro reflectivity):</u></td><td>Bi-Annually</td><td>As per Annexure-E of IRC:35-2015</td><td>Re - painting</td><td>Cat-1 Defect – within 24 hours
Cat-2 Defect – within 2 months</td><td>IRC:35-2015</td></tr>
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		Initial 7 days Retro reflectivity: 100 mcd/m²/lux Minimum Threshold Level: 50 mcd/m²/lux					
	Skid Resistance	Initial and Minimum performance for Skid Resistance: Initial (7days): 55BPN Min. Threshold: 44BPN *Note: shall be considered under urban/city traffic condition encompassing the locations like pedestrian crossings, bus bay, bus stop, cycle track intersection delineation, transverse bar markings etc	Bi-Annually	As per Annexure-G of IRC:35-2015		Within 24 hours	IRC:35-2015
Road Signs	Shape and Position	Shape and Position as per IRC:67-2012. Signboard should be clearly visible for the design speed of the section.	Daily	Visual with video/image backup	Improvement of shape, in case if shape is damaged. Relocation as per requirement	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 15 Days in case of Gantry/Cantilever Sign boards	IRC:67-2012
	Retro reflectivity	As per specifications in IRC:67-2012	Bi-Annually	Testing of each	Change of signboard	48 hours in case of Mandatory	RC:67-2012

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				signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09.		Signs, Cautionary and Informatory Signs (Single and Dual post signs) 1 Month in case of Gantry/Cantilever Sign boards	
Kerb	Kerb Height	As per IRC 86:1983 depending upon type of Kerb	Bi-Annually	Use of distance measuring tape	Raising Kerb Height	Within 1 Month	IRC 86:1983
	Kerb Painting	Functionality: Functioning of Kerb painting as intended	Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	IRC 35:2015
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC:SP:84-2014 and IRC:35-2015, unless specified in Schedule-B.	Daily	Counting	New Installation	Within 2 months	IRC:SP:84-2014, IRC:35-2015
	Pedestrian Guardrail	Functionality: Functioning of guardrail as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:SP:84-2014
	Traffic Safety Barriers	Functionality: Functioning of Safety Barriers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014, IRC:119-2015
	End Treatment of	Functionality: Functioning of End Treatment as intended	Daily	Visual with video/image	Rectification	Within 7 days	IRC:SP:84-2014,

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	Traffic Safety Barriers			backup			IRC:119-2015
	Attenuators	Functionality: Functioning of Attenuators as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP-2014, IRC:119-2015
	Guard Posts and Delineators	Functionality: Functioning of Guard Posts and Delineators as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC: 79 - 1981
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2012
	Traffic Blinkers	Functionality: Functioning of Traffic Blinkers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major failure in the lighting system	Daily	-	Rectification of failure	24 hours	IRC:SP:84-2014
		No minor failure in the lighting system	Monthly	-	Rectification of failure	8 hours	IRC:SP:84-2014
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014

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		No major/minor failure in the lighting system	Daily	-	Rectification of failure	8 hours	IRC:SP:84-2014
Trees and Plantation including median plantation	Obstruction in a minimum head-room of 5.5 m above carriageway or obstruction in visibility of road signs	No obstruction due to trees	Monthly	Visual with video/image backup	Removal of trees	Immediate	IRC:SP:84-2014
	Deterioration in health of trees and bushes	Health of plantation shall be as per requirement of specifications & instructions issued by Authority from time to time	Daily	Visual with video/image backup	Timely watering and treatment. Or Replacement of Trees and Bushes.	Within 90 days	IRC:SP:84-2014
	Vegetation affecting sight line and road structures	Sight line shall be free from obstruction by vegetation	Daily	Visual with video/image backup	Removal of Trees	Immediate	IRC:SP 84-2014
Rest Areas	Cleaning of toilets	-	Daily	-	-	Every 4 hours	
	Defects in electrical, water and sanitary	-	Daily	-	Rectification	24 hours	

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	installations						
Other Project Facilities and Approach roads	Damage or deterioration in Approach Roads, pedestrian facilities, truck lay-bys, bus-bays, bus-shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works		Daily	-	Rectification	15 days	IRC:SP 84-2014

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Pipe/box/slab culverts	Free waterway/ unobstructed flow section	85% of culvert normal flow area to available.	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35-1990 and recording of depth of silting and area of vegetation.	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrel before rainy season.	15 days before onset of monsoon and within 30 days after end of rainy season.	IRC 5-2015, IRC SP:40-1993 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansion joints	Bi-Annually	Physical inspection of expansion joints as per IRC:SP: 35-1990 if any, for leakage strains on walls at joints.	Fixing with sealant suitably	30 days or before onset of rains whichever comes earlier	IRC SP:40-1993 and IRC SP:69-2011
	Structurally sound	Spalling of concrete not more than 0.25 sqm	Bi-Annually	Detailed inspection of all components of culvert as per IRC SP:35-1990 and recording the defects	Repairs to spalling, cracking, delamination, rusting shall be followed as per IRC:SP:40-1993.	15 days	IRC SP 40-1993 and MORTH Specifications clause 2800
		Delamination of concrete not more than 0.25 sq.m.					
		Cracks wider than 0.3 mm not more than 1m aggregate length					

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	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sqm, damage to solid apron (concrete apron) not more than 1 sqm	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Bridges including ROBs Flyover etc. as applicable	Riding quality or user comfort	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC or wearing coat	15 days	MORT&H Specification 2811
Bridge -Super Structure	Bumps	No bump at expansion joint	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811.
	User safety (condition of crash	No damaged or missing stretch of crash barrier or pedestrian	Daily	Visual inspection and detailed condition survey as per IRC SP: 35-	Repairs and replacement of safety barriers as the case may be	3days	IRC: 5-1998, IRC SP: 84-2014 and IRC SP: 40-

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	barrier and guard rail)	hand railing		1990.			1993.
	Rusted reinforcement	Not more than 0.25 sq.m	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar / concrete.	15 days	IRC SP: 40-1993 and MORTH Specification 1600.
	Spalling of concrete	Not more than 0.50 sq.m					
	Delamination	Not more than 0.50 sq.m					
	Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting with epoxy mortar, investigating causes for cracks development and carry out necessary rehabilitation.	48 Hours	IRC SP: 40-1993 and MORTH Specification 2800.
	Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 months	MORTH specifications 2600 & 2700.

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	Deflection due to permanent loads and live loads	Within design limits.	Once in every 10 years for spans more than 40 m	Load test method	Carry out major rehabilitation works on bridge to retain original design loads capacity	6 months	IRC SP: 51-1999.
	Vibrations in bridge deck due to moving trucks	Frequency of vibrations shall not be more than 5 Hz	Once in every 5 years for spans more than 30m and every 10 years for spans between 15 to 30 m	Laser displacement sensors or laser vibro-meters	Strengthening of super structure	4 months	AASHTO LRFD specifications

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	Leakage in Expansion joints	No damage to elastomeric sealant compound in strip seal expansion joint, no leakage of rain water through expansion joint in case of buried and asphalt plug and copper strip joint.	Bi-Annually	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Replace of seal in expansion joint	15 days	MORTH specifications 2600 and IRC SP: 40-1993.
	Debris and dust in strip seal expansion joint	No dust or debris in expansion joint gap.	Monthly	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Cleaning of expansion joint gaps thoroughly	3 days	MORTH specifications 2600 and IRC SP: 40-1993.
	Drainage spouts	No down take pipe missing/broken below soffit of the deck slab. No silt, debris, clogging of	Monthly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Cleaning of drainage spouts thoroughly. Replacement of missing/broken down take pipes with a minimum pipe extension of 500mm below soffit of	3 days	MORTH specification 2700.

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Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		drainage spout collection chamber.			slab. Providing sealant around the drainage spout if any leakages observed.		
Bridge-substructure	Cracks/spalling of concrete/ rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to substructure by grouting/guniting and micro concreting depending on type of defect noticed	30 days	IRC SP: 40-1993 and MORTH specification 2800.
	Bearings	Delamination of bearing reinforcement not more than 5%, cracking or tearing of rubber not more than 2 locations per side, no rupture	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	In case of failure of even one bearing on any pier/abutment, all the bearings on that pier/abutment shall be replaced, in order to get uniform load transfer on to bearings.	3 months	MORTH specification 2810 and IRC SP: 40-199.

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Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		of reinforcement or rubber					
Bridge Foundations	Scouring around foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of doubt, use Underwater camera for inspection of deep wells in major Rivers.	Suitable protection works around pier/abutment	1 month	IRC SP: 40-1993, IRC 83-2014, MORTH specification 2500

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Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 sq.m, damage to solid apron (concrete apron) not more than 1 sq.m	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching.	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Note: Any Structure during the entire contract period which is found that does not complies with all requirements of this Table will be prepared, rehabilitated or even reconstructed under the scope of the contractor.							

Table 4: Maintenance Criteria for Structures and Culverts:

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Table 5: Maintenance Criteria for Hill Roads

In addition to above, for hill roads the following provisions for maintenance is also to done.

Hill Roads		
(i)	Damage to Retaining wall/ Breast wall	7 (Seven) days
(ii)	Landslides requiring clearance	12 (Twelve) hours
(iii)	Snow requiring clearance	24 (Twenty Four) hours

Note: For all tables 1 to 5 above, latest BIS & IRC standards (even those not indicated herewith) along with MoRTH specifications shall be binding for all maintenance activities.

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A. Flexible Pavement

Nature of Defect or deficiency		Time limit for repair/ rectification
(b)	**Granular earth shoulders, side slopes, drains and culverts**	
(i)	Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi- urban areas	24 (twenty four) hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c)	**Road side furniture including road sign and pavement marking**	
(i)	Damage to shape or position, poor visibility or loss of retro- reflectivity	48 (forty eight) hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/ Once every year
(iii)	Damaged/missing signs road requiring replacement	7 (seven) days
(iv)	Damage to road mark ups	7 (seven) days
(d)	**Road lighting**	
(i)	Any major failure of the system	24 (twenty four) hours
(ii)	Faults and minor failures	8 (eight) hours
(e)	**Trees and plantation**	

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Nature of Defect or deficiency		Time limit for repair/ rectification
(i)	Obstruction in a minimum head- room of 5 m above carriageway or obstruction in visibility of road signs	24 (twenty four)hours
(ii)	Removal of fallen trees from carriageway	4 (four) hours
(iii)	Deterioration in health of trees and bushes	Timely watering and treatment
(iv)	Trees and bushes requiring replacement	30 (thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
(f) Rest area		
(i)	Cleaning of toilets	Every 4 (four) hours
(ii)	Defects in electrical, water and sanitary installations	24 (twenty four) hours
(g) [Toll Plaza]		
(h)	**Other Project Facilities and Approach roads**	
(i)	Damage in approach roads, pedestrian facilities, truck lay- byes, bus-bays, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15 (fifteen) days
(ii)	Damaged vehicles or debris on the road	4 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
Bridges		
(a) Superstructure		
(i)	Any damage, cracks, spalling/ scaling Temporary measures Permanent measures	within 48 (forty eight) hours within 15 (fifteen) days or as specified by the Authority Engineer
(b) Foundations		

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Nature of Defect or deficiency		Time limit for repair/ rectification
(i)	Scouring and/or cavitation	15 (fifteen) days
(c)	**Piers, abutments, return walls and wing walls**	
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d)	**Bearings (metallic) of bridges**	
(i)	Deformation, damages, tilting or shifting of bearings	15 (fifteen) days Greasing of metallic bearings once in a year
(e)	**Joints**	
(i)	Malfunctioning of joints	15 (fifteen) days
(f)	**Other items**	
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediately within 24 hours if posing danger to safety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15 (fifteen) days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(g)	**Hill Roads**	
(i)	Damage to retaining wall/breast wall	7 (seven) days
(ii)	Landslides requiring clearance	12 (twelve) hours

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Nature of Defect or deficiency		Time limit for repair/ rectification
(iii)	Snow requiring clearance	24 (twenty four) hours

[Note: Where necessary, the Authority may modify the time limit for repair/rectification, or add to the nature of Defect or deficiency beforeissuing the bidding document, with the approval of the competent authority.]

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Schedule - F

(See Clause 4.1 (vii)(a))

Applicable Permits

1. Applicable Permits

(i) The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:

- Permission of the State Government for extraction of boulders from quarry;
- Permission of Village Panchayats and Pollution Control Board for installation of crushers;
- Licence for use of explosives;
- Permission of the State Government for drawing water from river/reservoir;
- Licence from inspector of factories or other competent Authority for setting up batching plant;
- Clearance of Pollution Control Board for setting up batching plant;
- Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;
- Permission of Village Panchayats and State Government for borrow earth; and
- Any other permits or clearances required under Applicable Laws.

(ii) Applicable Permits, as required, relating to environmental protection and conservation shall have been procured by the Authority in accordance with the provisions of this Agreement.

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Schedule – G

(See Clauses 7.1 and 19.2)

Annex-I

(See Clause 7.1)

Form of Bank Guarantee

[Performance Security/Additional Performance Security]

To
_____ [name of Authority]
_____ [address of Authority]

WHEREAS_____[name and address of Contractor]
(hereafter called the "Contractor") has undertaken, in pursuance of Letter of Acceptance (LOA) No. _____Dated_____ for construction of _____[name of the Project] (hereinafter called the "Agreement").

AND WHEREAS the Agreement requires the Contractor to furnish an {Performance Security/ Additional Performance Security} for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period} in a sum of Rs….. cr. (Rupees ……..….. crore) (the "**Guarantee Amount**"*).

AND WHEREAS we, …….. through our branch at ……. (the "**Bank**") have agreed to furnish this Bank Guarantee (hereinafter called the **"Guarantee**") by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor's obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

* Guarantee Amount for Performance Security and Additional Performance Security shall be calculated as per Agreement.

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2. A letter from the Authority, under the hand of an officer not below the rank of [Executive Engineer/General Manager in the Authority], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be

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relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect on ****[$]. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

12. This Guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

13. This guarantee shall also be operatable at our…….. Branch at [New Delhi], from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

14. The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of MORTH, details of which is as under:

S. No.	Particulars	Details

[$]Insert date atleast 2 (two) years from the date of issuance of this Guarantee (in accordance with Clause 7.2 of the Agreement). The Contractors can submit the BG for periods of two years at one time and keep on renewing the same till the DLP is over if they have problems in getting the BG in one go for the entire DLP.

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1.	Name of Beneficiary	****
2.	Name of Bank	****
3.	Account No.	****
4.	IFSC Code	****

Signed and sealed this ……. day of ……., 20…… at ……..

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

(i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

(ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

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SCHEDULE-G (Annex-II)
(See Clauses 7.1)

To

****
****

WHEREAS_____[name and address of Contractor] (hereafter called the **"Contractor"**) has undertaken, in pursuance of Letter of Acceptance (LOA) No. _____Dated_____for **** on Engineering, Procurement & Construction (EPC) Mode (hereinafter called the **"Agreement"**).

AND WHEREAS the Agreement requires the Contractor to furnish an (Performance Security/Additional Performance Security) for due and faithful performance of its obligations, under and in accordance with the Agreement, during the (Construction Period/ Defects Liability Period and Maintenance Period) in a sum of Rs.....…..cr. (Rupees…… crore) (the **"Surety Bond amount"**).

AND WHEREAS we,……..through our branch at ..... (the **"Surety Insurer")** have agreed to furnish this **Surety Bond** by way of Performance security.

NOW, THEREFORE, the **Surety Insurer** hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The **Surety Insurer** herby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor's obligations during the (Construction Period/ Defects Liability Period and Maintenance Period under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the **Surety Bond** Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of [Executive Engineer/ General Manager in the Authority], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the **Surety Insurer**. The **Surety Insurer** further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the **Surety Insurer**, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

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3. In order to give effect to this **Surety Bond**, the Authority shall be entitled to act as if the **Surety Insurer** were the principal debtor and any/Change in the constitution of the Contractor and/or the Surety Insurer, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the **Surety Insurer** under this **Surety Bond**.

4. It shall not be necessary, and the **Surety Insurer** hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the **Surety Insurer** its demand under this **Surety Bond**.

5. The Authority shall have the liberty, without affecting in any manner the liability of the **Surety Insurer** under this **Surety Bond**, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the **Surety Insurer** shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the **Surety Insurer** from its liability and obligation under this **Surety Bond** and the **Surety Insurer** hereby waives all of its rights under any such law.

6. This **Surety Bond** is in addition to and not in substitution of any other **Surety Bond** or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.

7. Notwithstanding anything contained hereinbefore, the liability of the **Surety Insurer** under this **Surety Bond** is restricted to the **Surety Bond** Amount and this **Surety Bond** will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the **Surety Insurer** under this **Surety Bond** all rights of the Authority under this **Surety Bond** shall be forfeited and the **Surety Insurer** shall be relieved from its liabilities hereunder.

8. The **Surety Bond** shall cease to be in force and effect on ****[∂] Unless a demand or claim under this **Surety Bond** is made in writing before expiry of the Surety Bond, the **Surety Insurer** shall be discharged from its liabilities hereunder.

[∂] insert date atleast 2(two) years from the date of issuance of this Surety Bond (in accordance with Clause 7.2 of the Agreement). The Contractors can submit the Surety Bond for periods of two years at one time and keep on renewing the same till the DLP is over if they have problems in getting the Surety Bond in one go for the entire DLP.

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9. The **Surety Insurer** undertakes not to revoke this **Surety Bond** during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this **Surety Bond** and the undersigned has full powers to do so on behalf of the **Surety Insurer**.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the **Surety Insurer** at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer & the Authority that the envelope was so posted shall be conclusive.

11. This **Surety Bond** shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

12. This **Surety Bond** is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

13. This Surety Bond shall also be operatable at our …….., branch at [New Delhi], from whom, confirmation regarding the issue of this Surety Bond or extension/renewal thereof shall be made available on demand. In the contingency of this Surety Bond being invoked and payment hereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

14. The Insurance Surety Bond shall be verified from the specific portal created for this purpose.
    Signed and sealed this……..Day of……..,23……at……

    _____

    SIGNED, SEALED AND DELIVERED

    For and on behalf of the bank by:

    under(Signature)

    (Name)

    (Designation)

    (Code Number)

    (Address)

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Annex – III

(Schedule - G)

(See Clause 19.2)

Form for Guarantee for Advance Payment

[** Name and address of the Authority]**

WHEREAS:

(A) [name and address of contractor] (hereinafter called the "**Contractor**") has executed an agreement (hereinafter called the "**Agreement**") with the [name and address of the authority], (hereinafter called the "**Authority**") for the construction of the ***** section of [National Highway No. **] on Engineering, Procurement and Construction (the "**EPC**") basis, subject to and in accordance with the provisions of the Agreement

(B) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @ average of one year MCLR of top 5 Scheduled Commercial Banks[17] plus [1.25][ι] percent per annum, compounded annually advance payment (herein after called "**Advance Payment**") equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in two installments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} installment of the Advance Payment is Rs. ------ cr. (Rupees ------ crore) and the amount of this Guarantee is Rs. ------- cr. (Rupees ------ crore) (the **"Guarantee Amount")[$].**

(C) We, …….. through our branch at …….. (the "**Bank"**) have agreed to furnish this bank guarantee (*hereinafter called the* **"Guarantee"**) for the

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[17] The Authority shall declare the list of Top 5 Scheduled Commercial Banks on 1st September every calendar year based on the balance sheet size as declared in their annual reports, The 1 year MCLR of the top 5 Scheduled commercial banks shall be taken at the start of every quarter.

[ι] This percentage shall be determined based on the rating of the Selected Bidder or, the Lead Member in the case of a Joint Venture and shall be as follows:

- **0.75%**, if the rating is above 80%;
- **1.00%,** if the rating is above 70% but up to 80%; and
- **1.25%**, if the rating is 70% or below.

[$] The Guarantee Amount should be equivalent to 110% of the value of the applicable instalment.

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Guarantee Amount.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

   A letter from the Authority, under the hand of an officer not below the rank of [Executive Engineer/General Manager in the Authority], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

2. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

3. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

4. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or

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thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

5. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.

6. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

7. The Guarantee shall cease to be in force and effect on ****.[$] Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.

8. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

9. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

10. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

11. This guarantee shall also be operatable at our…… …… Branch at [New Delhi], from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amouts so demanded under the said invocation.

12. The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of Authority, details of which is as under:

[$] Insert a date being 90 (ninety) days after the end of one year from the date of payment of the Advance payment to the Contractor (in accordance with Clause 19.2 of the Agreement).

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S. No.	Particulars	Details
1.	Name of Beneficiary	****
2.	Name of Bank	****
3.	Account No.	****
4.	IFSC Code	****

Signed and sealed this ……. day of ……., 20…… at …….
SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:
(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

(i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

(ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

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Annex – IV

(Schedule - G)
(See Clause 7.5(iv))

Annex-IV: Form for Guarantee for Withdrawal of Retention Money

[** Name and address of the Authority]**

WHEREAS:

(A) [name and address of contractor] (hereinafter called the "**Contractor**") has executed an agreement (hereinafter called the "Agreement") with the [name and address of the authority], (hereinafter called the "**Authority**") for the construction of the ***** section of [National Highway No. **] on Engineering, Procurement and Construction (the "**EPC**") basis, subject to and in accordance with the provisions of the Agreement.

(B) In accordance with Clause 7.5(iv) of the Agreement, the Contractor may withdraw the retention money (hereinafter called the "**Retention Money**") after furnishing to the Authority a bank guarantee for an amount equal to the proposed withdrawal.

(C) We, …….. through our branch at …….. (the "**Bank**") have agreed to furnish this bank guarantee (hereinafter called the "**Guarantee**") for the amount of Rs. --------- cr. (Rs.----------crore) (the "**Guarantee Amount**").

NOW, THEREFORE, the Bank hereby unconditionally and irrevocably guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of [Executive Engineer/General Manager in the Authority], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

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3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Retention Money and any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under the presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Retention Money.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect {90 (ninety)} days after the date of the Completion Certificate specified in Clause 12.4 of the Agreement.

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

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11. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

12. This guarantee shall also be operatable at our…… …….. Branch at [New Delhi], from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

13. The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of Authority, details of which is as under:

S. No.	Particulars	Details
1.	Name of Beneficiary	****
2.	Name of Bank	****
3.	Account No.	****
4.	IFSC Code	****

Signed and sealed this ……. day of ……., 20…… at …….

SIGNED, SEALED AND

DELIVERED For and

on behalf of the Bank

by:

(Signature)

(Name)
(Designation)
(Code Number)
(Address)

NOTES:
(i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

(ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

———

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SCHEDULE - H

See Clauses10.1 (iv) and 19.3

Contract Price Weightages

1.1 The Contract Price for this Agreement is Rs. ******

1.2 Proportions of the Contract Price for different stages of Construction of the Project Highway shall be as specified below:

Item	**Weightage in percentage to the Contract Price**	**Stage for Payment**	**Percentage weightage**
1	**2**	**3**	**4**
I. Road works including culverts, widening and repair of culverts.	[*****]	**A- Widening and strengthening of existing road**	
		(1) Earthwork up to top of the embankment	[**]
		(2) Sub-Grade	
		(3) Sub-Base Course	[**]
		(4) Non Bituminous Base Course	[**]
		(5) Bituminous Base Course	[**]
		(6) Wearing Coat	[**]
		(7) Widening and repair of culverts	[**]
		B.1- Reconstruction/ New realignment/ bypass (Flexible pavement)	
		(1) Earthwork up to top of the embankment	[**]
		(2) Sub-Grade	
		(3) Sub Base Course	[**]
		(4) Non-Bituminous Base Course*	[**]
		(5) Bituminous Base Course	[**]
		(6) Wearing Coat	[**]
		B.2- Reconstruction/ New realignment/ bypass (Rigid Pavement)	
		(1) Earthwork up to top of the embankment	[**]
		(2) Sub-Grade	
		(3) Sub Base Course	[**]
		(4) Dry Lean Concrete(DLC) Course	[**]

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Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(5) Pavement Quality Control (PQC) Course	[**]
		C.1- Reconstruction/ New service road (Flexible pavement)	
		(1) Earthwork up to top of the embankment	[**]
		(2) Sub-Grade	
		(3) Sub Base Course	[**]
		(4) Non-Bituminous Base Course*	[**]
		(5) Bituminous Base Course	[**]
		(6) Wearing Coat	[**]
		C.2- Reconstruction/ New Service road (Rigid Pavement)	
		(1) Earthwork up to top of the embankment	[**]
		(2) Sub-Grade	
		(3) Sub Base Course	[**]
		(4) Dry Lean Concrete(DLC) Course	[**]
		(5) Pavement Quality Control (PQC) Course	[**]
		D- Re-Construction and New culverts on existing road, realignments, bypasses :	
		Culverts (length < 6 m)	[**]
II. Minor Bridges/ Underpasses / Overpasses	[*****]	**A.1- Widening and Repair of Minor bridges (length > 6 m and < 60 m)**	
		Minor bridges	
		(1) Foundation	[**]
		(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap	[**]
		(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap	[**]

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Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(iii) Open Foundation	[**]
		(2) Sub-structure	[**]
		(3) Super-structure (including bearings)	[**]
		(4) Wearing Coat including expansion joints	[**]
		(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[**]
		(6) Wing walls/return walls	[**]
		(7) Guide Bunds, River Training works etc.	[**]
		(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	[**]
		A.2- New Minor bridges (length >6 and <60 m.)	
		(1) Foundation	[**]
		(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap	[**]
		(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap	[**]
		(iii) Open Foundation	[**]
		(2) Sub-structure	[**]
		(3) Super-structure (including bearings)	[**]
		(4) Wearing Coat including expansion joints	[**]
		(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[**]
		(6) Wing walls/return walls	[**]
		(7) Guide Bunds, River Training works etc.	[**]
		(8) Approaches (including Retaining walls, stone pitching and protection works for floor,	[**]

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Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		embankment slope etc.)	
		B.1- Widening and Repair of underpasses/ overpasses	
		Underpasses/ Overpasses	[**]
		B.2- New underpasses/ overpasses	
		(1) Foundation	[**]
		(i) Well Foundation	[**]
		(ii) Pile Foundation	[**]
		(iii) Open Foundation	[**]
		(2) Sub-structure	[**]
		(3) Super-structure (including bearings)	[**]
		(4) Wearing Coat including expansion joints	[**]
		(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.)	[**]
		(6) Wing walls/return walls	[**]
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[**]
III. Major Bridge (length > 60 m.) works and ROB/RUB/ elevated sections/flyovers including viaducts, if any	[*****]	**A.1- Widening and repairs of Major Bridges**	
		(1) Foundation	[**]
		i) Pile Foundation	[**]
		ii) Well foundation	[**]
		iii) Open Foundation	[**]
		(2) Sub-structure	[**]
		(3) Super-structure (including bearings)	[**]
		(4) Wearing Coat including expansion joints	[**]
		(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[**]
		(6) Wing walls/return walls	[**]
		(7) Guide Bunds, River Training works etc.	[**]
		(8) Approaches (including Retaining walls, stone pitching and protection works for floor,	[**]

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Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		embankment slope etc.)	
		A.2- New Major Bridges	
		(1) Foundation	
		(i) Well Foundation	
		(ii) Pile Foundation	
		(iii) Open Foundation	
		(2) Sub-structure	
		(3) Super-structure (including bearings)	
		(4) Wearing Coat including expansion joints	
		(5) Miscellaneous Items (like hand rails, crash barriers, road markings etc.)	
		(6) Wing walls/return walls	
		(7) Guide Bunds, River Training works etc.	
		(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope, etc.)	
		B.1- Widening and repair of **(a) ROB** **(b) RUB**	
		(1) Foundation	[**]
		i) Pile Foundation	
		ii) Well Foundation	
		iii) Open Foundation	
		(2) Sub-structure	[**]
		(3) Super-structure (including bearings)	[**]
		(4) Wearing Coat: (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB- rigid pavement under RUB including drainage facility complete in all respects as specified.	[**]
		(5) Miscellaneous Items (like hand rails, crash barriers, road markings etc.)	[**]
		(6) Wing walls/return walls	[**]

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Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(7) Approaches (including Retaining walls, stone pitching and protection works)	[**]
		B.2- New ROB/RUB	
		(a) ROB	
		(b) RUB	
		(1) Foundation	[**]
		(i) Well Foundation	
		(ii) Pile Foundation	
		(iii) Open Foundation	
		(2) Sub-structure	[**]
		(3) Super-structure (including bearings)	[**]
		(4) Wearing Coat: (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB- rigid pavement under RUB including drainage facility complete in all respects as specified.	[**]
		(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.)	[**]
		(6) Wing walls/return walls	[**]
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[**]
		C.1- Widening and repair of Elevated Section/Flyovers/ Grade Separators	
		(1) Foundation	[**]
		i) Pile Foundation	
		ii) Well Foundation	
		iii) Open Foundation	
		(2) Sub-structure	[**]
		(3) Super-structure (including bearings)	[**]
		(4) Wearing Coat including expansion joints	[**]
		(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.)	[**]

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Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(6) Wing walls/return walls	[**]
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[**]
		C.2- New Elevated Section/Flyovers/ Grade Separators	
		(1) Foundation	[**]
		(i) Well Foundation	
		(ii) Pile Foundation	
		(iii) Open Foundation	
		(2) Sub-structure	[**]
		(3) Super-structure (including bearings)	[**]
		(4) Wearing Coat including expansion joints	[**]
		(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.)	[**]
		(6) Wing walls/return walls	[**]
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[**]
IV. Tunnel	**[***]**	(1) Tunnel portals	[***]
		(2) Earthwork in Excavation for Tunnel	[***]
		(3) Rock bolting, Shotcrete and other primary Tunnel Support Lining System	[***]
		(4) Water proofing and Tunnel Lining works	[***]
		(5) Drainage and other utility duct works	[***]
		(6) Pavement Works	[***]
		(7) Mechanical, Electrical, ventilation, fire & safety systems, SCADA, etc.	[***]
		(8) Tunnel Control Room Building including power substations	
		(9) Other miscellaneous works including tunnels lighting, pavement marking, signs boards, railings, etc.	[***]
V. Other works	[*****]	(i) Toll Plaza	[**]

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Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(ii) Road side drains (a) Drain (b) Cover Slab	[**]
		(iii) Road signs, markings, km stones, safety devices etc.	[**]
		(iv) Overhead gantry mounted signs	
		(v) Project facilities (a) Bus Bays (b) Truck lay-byes (c) Rest areas (d) others	[**]
		(vi) Road side plantation	[**]
		(vii) Protection works# other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROBs/RUBs. (a) Crash Barrier (b) Retaining Wall (c) Breast Wall	[**]
		(viii) Safety and traffic management during construction	[**]
		(ix) Junction improvement (a) Major Junctions (b) Minor Junctions (c) Connecting roads (if any)	[***]
		(x) Street Lighting	[***]
		(xi) Utility Ducts	[***]
		(xii) Noise Barrier	[***]
		(xiii) Boundary wall	[***]
		(xiv) ATMS	[***]
		(xv) Rainwater Harvesting	[***]
		(xvi) Maintenance of existing carriageway	[***]
		(xvii) Shifting of Utilities (a) LT Electrical Lines (b) HT Electrical Lines (c) EHT Electrical Lines	[***]

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Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(d) Water Supply Lines (e) Sewer Lines (f) Oil/ Gas pipelines (g) OFC Lines (h) Other lines (Please specify).	
		(xviii)Other Miscellaneous (Please specify).	[***]

*Note- In case of CTB and AIL layer, this stage may be modified suitably to permit separate weightages for each of these layers.

#Note - For specific type of protection work detailed stages can be included

1.3 Procedure of estimating the value of work done

1.3.1 Road works.

Procedure for estimating the value of road work done shall be as follows :

Table 1.3.1

Stage of Payment	Percentage weightage	Payment Procedure
A-Widening and strengthening of existing road		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 10 (ten) percent of the total length or 500m whichever is less
(1) Earthwork up to top of the embankment	[**]	
(2) Sub-Grade	[**]	
(3) Sub-Base Course	[**]	
(4) Non Bituminous Base Course*	[**]	
(5) Bituminous Base Course	[**]	
(6) Wearing Coat	[**]	
(7) Widening and repair of culverts	[**]	Cost of completed culverts shall be determined pro rata basis with respect to the total no. of culverts. The payment shall be made on the completion of atleast one culvert. 75% of the cost will be payable on completion of box/ abutments and slab/ pipe and head wall. Remaining 25% will become payable on completion of protection works including return/ wing walls and any other work associated with culverts.

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Stage of Payment	Percentage weightage	Payment Procedure
B.1- Reconstruction/New realignment/bypass (Flexible pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 500 m length, whichever is less.
(1) Earthwork up to top of the embankment	[**]	
(2) Sub-Grade	[**]	
(3) Sub Base Course	[**]	
(4) Non-Bituminous Base Course*	[**]	
(5) Bituminous Base Course	[**]	
(6) Wearing Coat	[**]	
B.2- Reconstruction/New realignment/bypass (Rigid pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 500 m length, whichever is less.
(1) Earthwork up to top of the embankment	[**]	
(2) Sub-Grade	[**]	
(3) Sub Base Course	[**]	
(4) Dry Lean Concrete (DLC) Course	[**]	
(5) Pavement Quality Control (PQC) Course	[**]	
C.1- Reconstruction/ New service road (Flexible pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 500 m length, whichever is less.
(1) Earthwork up to top of the embankment	[**]	
(2) Sub-Grade	[**]	
(3) Sub Base Course	[**]	
(4) Non-Bituminous Base Course*	[**]	
(5) Bituminous Base Course	[**]	
(6) Wearing Coat		
C.2- Reconstruction/ New service road (Rigid pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 500 m length, whichever is less.
(1) Earthwork up to top of the embankment	[**]	
(2) Sub-Grade	[**]	

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Stage of Payment	Percentage weightage	Payment Procedure
(3) Sub Base Course	[**]	
(4) Dry Lean Concrete (DLC) Course	[**]	
(5) Pavement Quality Control (PQC) Course	[**]	
D- Re-Construction and New culverts on existing road, realignments, bypasses:		Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of atleast one culvert. 75% of the cost will be payable on completion of box/ abutments and slab/ pipe and head wall. Remaining 25% will become payable on completion of protection works including return/ wing walls and any other work associated with culverts.
(1) Culverts (length < 6m)	[**]	

*Note- In case of CTB and AIL layer, this stage may be modified suitably to permit separate weightages for each of these layers.

@. For example, if the total length of bituminous work to be done is 100 km, the cost per km of bituminous work shall be determined as follows:

Cost per km = P x weightage for road work x weightage for bituminous work x (1/L)

Where P= Contract Price

L = Total length in km

Similarly, the rates per km for other stages shall be worked out accordingly.

Note: The length affected due to law and order problems or litigation during execution due to which the Contractor is unable to execute the work, may be deducted from the total project length for payment purposes. The total length calculated here is only for payment purposes and will not affect and referred in other clauses of the Agreement.

1.3.2 Minor Bridges and Underpasses/Overpasses.

Procedure for estimating the value of Minor bridge and Underpasses/Overpasses shall be as stated in table 1.3.2:

Table 1.3.2

1	2	3
Stage of Payment	**Weightage**	**Payment Procedure**
A.1-Widening and repair of minor bridges (length > 6m and < 60m)	[**]	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length (m) of the minor bridges.
(1) Foundation		(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the major Bridge as specified here in under:

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(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap		(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof. (c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap		(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorate basis. (b) Pile Cap : Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(iii) Open Foundation		(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	[**]	(2) Sub-Structure:. Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the major bridge.
(3) Super-structure (including bearings)	[**]	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon. (For cable stayed bridge and suspension cable bridge, detailed payment stage may be included on case to case basis)
(4) Wearing Coat including expansion joints	[**]	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each major bridge.
(5) Miscellaneous Items like hand rails, crash barriers, road	[**]	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails,

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markings etc.		crash barriers, road markings etc. complete in all respects as specified for each major bridge.
(6) Wing walls/return walls	[**]	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each major bridge.
(7) Guide Bunds, River Training works etc.	[**]	(7) Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified for each major bridge.
(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	[**]	(8) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each major bridge.
A.2- New minor bridges	[**]	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length (m) of the minor bridges.
(1) Foundation		(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the major Bridge as specified here in under:
(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap		(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof. (c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap		(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorate basis. (b) Pile Cap : Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(iii) Open Foundation		(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	[**]	(2) Sub-Structure:. Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e.

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		completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the major bridge.
(3) Super-structure (including bearings)	[**]	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon. (For cable stayed bridge and suspension cable bridge, detailed payment stage may be included on case to case basis)
(4) Wearing Coat including expansion joints	[**]	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each major bridge.
(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[**]	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each major bridge.
(6) Wing walls/return walls	[**]	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each major bridge.
(7) Guide Bunds, River Training works etc.	[**]	(7) Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified for each major bridge.
(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	[**]	(8) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each major bridge.
B.1-Widening and repair of underpasses/ overpasses	[**]	Cost of each underpass/overpass shall be determined on pro rata basis with respect to the total linear length of the underpasses/overpasses. Payment shall be made on the completion of widening & repair works of a underpass/overpass.
B.2- New Underpasses/ Overpasses:	[**]	Cost of each Underpass/Overpass shall be determined on pro rata basis with respect to the total linear length (m) of the Underpasses/Overpasses.
(1) Foundation	[**]	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the structure as specified here in under :

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(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap		(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof. (c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap		(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on pro-rata basis. (b) Pile Cap : Payment of 30% shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(iii) Open Foundation		(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	[**]	(2) Sub-Structure:. Payment against Sub- structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the structure.
(3) Super-structure (including bearings)	[**]	(3) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Wearing Coat including expansion joints	[**]	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each of the structure.
(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[**]	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each of the structure.
(6) Wing walls/return walls	[**]	(6) Wing walls/return walls: Payments shall be made

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		on completion of all wing walls/return walls complete in all respects as specified for each of the structure.
(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[**]	(7) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified here in under : If reinforced soil wall is used with facia panel/blocks, interim payment shall be made @75% of the Cost of that element as derived from MoRTH data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.

1.3.3 Major Bridge works, ROB/RUB and Structures.

Procedure for estimating the value of Major Bridge works, ROB/RUB and Structures shall be as stated in table 1.3.3:

Table 1.3.3

1	2	3
Stage of Payment	**Weightage**	**Payment Procedure**
A.1- Widening and repairs of Major Bridges	[**]	Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridges.
(1) Foundation		(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the major Bridge as specified here in under:
(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap		(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof. (c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap		(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorate basis. (b) Pile Cap : Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation,

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		the trigger of first payment shall include load testing also where specified.
(iii) Open Foundation		(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	[**]	(2) Sub-Structure:. Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the major bridge.
(3) Super-structure (including bearings)	[**]	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon. (For cable stayed bridge and suspension cable bridge, detailed payment stage may be included on case to case basis)
(4) Wearing Coat including expansion joints	[**]	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each major bridge.
(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[**]	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each major bridge.
(6) Wing walls/return walls	[**]	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each major bridge.
(7) Guide Bunds, River Training works etc.	[**]	(7) Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified for each major bridge.
(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	[**]	(8) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each major bridge.
A.2- New Major Bridges	[**]	Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge.
(1) Foundation		(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e.

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		completion of atleast one foundation of each of the major Bridge as specified here in under:
(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap		(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof. (c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap		(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorate basis. (b) Pile Cap : Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(iii) Open Foundation		(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	[**]	(2) Sub-Structure:. Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the major bridge.
(3) Super-structure (including bearings)	[**]	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon. (For cable stayed bridge and suspension cable bridge, detailed payment stage may be included on case to case basis)
(4) Wearing Coat including expansion joints	[**]	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each major

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		bridge.
(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[**]	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each major bridge.
(6) Wing walls/return walls	[**]	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each major bridge.
(7) Guide Bunds, River Training works etc.	[**]	(7) Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified for each major bridge.
(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	[**]	(8) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each major bridge.
B.1 -Widening and repairs of **(a) ROB** **(b) RUB**		Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROBs/RUBs.
(1) Foundation	[**]	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the ROB/RUB as specified here in under:
(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap		(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof. (c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap		(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorate basis. (b) Pile Cap : Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(iii) Open Foundation		(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one

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		foundation.
2) Sub-structure	[**]	(2) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the ROB/RUB.
(3) Super-structure (including bearings)	[**]	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under : If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Wearing Coat including expansion joints in case of ROB. In case of RUB, rigid pavement under RUB including drainage facility as specified.	[**]	(4) Wearing Coat: Payment shall be made on completion of (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified for each of the ROB and (b) in case of RUB- rigid pavement under RUB including drainage facility complete in all respects as specified for each of the RUB.
(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[**]	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each of the ROB/RUB.
(6) Wing walls/return walls	[**]	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the ROB/RUB.
(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[**]	(7) Approaches: Payments shall be made on completion of both approaches of each ROB including stone pitching, protection works, etc. complete in all respects as specified here in under : If reinforced soil wall is used with facia panel/blocks, interim payment shall be made @75% of the Cost of that element as derived from MoRTH data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
B.2- New **(a) ROB** **(b) RUB**		Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROBs/RUBs.
(1) Foundation	[**]	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the ROB/RUB as specified here in under:
(i) Well Foundation (a) On completion of Cutting		(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be

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Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap		made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof. (c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap		(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorate basis. (b) Pile Cap : Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(iii) Open Foundation		(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
2) Sub-structure	[**]	(2) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the ROB/RUB.
(3) Super-structure (including bearings)	[**]	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under : If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Wearing Coat including expansion joints in case of ROB. In case of RUB, rigid pavement under RUB including drainage facility as specified.	[**]	(4) Wearing Coat: Payment shall be made on completion of (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified for each of the ROB and (b) in case of RUB- rigid pavement under RUB including drainage facility complete in all respects as specified for each of the RUB.
(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[**]	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each of the ROB/RUB.

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(6) Wing walls/return walls	[**]	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the ROB/RUB.
(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[**]	(7) Approaches: Payments shall be made on completion of both approaches of each ROB including stone pitching, protection works, etc. complete in all respects as specified here in under : If reinforced soil wall is used with facia panel/blocks, interim payment shall be made @75% of the Cost of that element as derived from MoRTH data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
C.1- Widening and repairs of Elevated Section/Flyovers/ Grade Separators		Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structures.
(1) Foundation	[**]	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the structure as specified here in under :
(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap		(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof. (c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap		(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on pro-rata basis. (b) Pile Cap : Payment of 30% shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(iii) Open Foundation		(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	[**]	(2) Sub-Structure:. Payment against Sub- structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of

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		abutments/piers upto abutment/pier cap level of each of the structure.
(3) Super-structure (including bearings)	[**]	(3) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Wearing Coat including expansion joints	[**]	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each of the structure.
(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[**]	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each of the structure.
(6) Wing walls/return walls	[**]	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the structure.
(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[**]	(7) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified here in under : If reinforced soil wall is used with facia panel/blocks, interim payment shall be made @75% of the Cost of that element as derived from MoRTH data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
C.2 -New Elevated Section/Flyovers/ Grade Separators		Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structures.
(1) Foundation	[**]	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the structure as specified here in under :
(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap		(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof.

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		(c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap		(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on pro-rata basis. (b) Pile Cap : Payment of 30% shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(iii) Open Foundation		(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	[**]	(2) Sub-Structure:. Payment against Sub- structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the structure.
(3) Super-structure (including bearings)	[**]	(3) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Wearing Coat including expansion joints	[**]	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each of the structure.
(5) Miscellaneous Items like hand rails, crash barriers, road markings etc.	[**]	(5) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified for each of the structure.
(6) Wing walls/return walls	[**]	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the structure.
(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[**]	(7) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified here in under : If reinforced soil wall is used with facia panel/blocks, interim payment shall be made @75% of the Cost of

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		that element as derived from MoRTH data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.

1.3.4 Tunnels

Procedure for estimating the value of tunnel(s) works done shall be as stated in table 1.3.4.

Table 1.3.4

Stage of Payment	Percentage -Weightage	Payment Procedure
(1) Tunnel portals	[***]	25% payment shall be made on completion of slope stabilisation, drainage facilities, canopies/roofs, false portal and other associated works before start of excavation of each portal. Remaining 75% payments shall be made on completion of each portal complete in all respects as specified.
(2) Earthwork in Excavation for Tunnel	[***]	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of each stage in an aggregate length of not less than 100m (combined from both portal ends including cross passages) for each tunnel tube.
(3) Rock bolting, Shotcrete and other primary Tunnel Support Lining System	[***]	
(4) Water proofing and Tunnel Lining works	[***]	
(5) Drainage and other utility duct works	[***]	
(6) Pavement Works	[***]	
(7) Mechanical, Electrical, ventilation, fire & safety systems, SCADA, etc.	[***]	Interim payment of 75% of the cost of the equipment of each component of Mechanical, Electrical, ventilation, fire & safety systems, etc. shall be made on installation at site. The remaining 25% shall be made after integration and operationalization of the Supervisory Control and Data acquisition (SCADA) systems.
(8) Tunnel Control Room Building including power substations	[***]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified
(9) Other miscellaneous works including tunnels lighting, pavement marking, signs boards, railings, etc.	[***]	

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1.3.5 Other works.

Procedure for estimating the value of other works done shall be as stated in table 1.3.5.

Table 1.3.5

Stage of Payment	Weightage	Payment Procedure
(i) Toll plaza	[**]	Unit of measurement is each completed toll plaza. Payment for each toll plaza shall be made on pro rata basis with respect to the total of all toll plazas as specified here in under :
(a) DLC(LHS)		(a) DLC (LHS) : Payment of 12.5% on pro-rata basis shall be made on completion of a stage i.e. completion of DLC on LHS.
(b) DLC (RHS)		(b) DLC (RHS) : Payment of 12.5% on pro-rata basis shall be made on completion of a stage i.e. completion of DLC on LHS.
(c) PQC(LHS)		(c) PQC(LHS): Payment of 25% on pro-rata basis shall be made on completion of a stage i.e. completion of PQC on LHS.
(d) PQC(RHS)		(d) PQC(RHS): Payment of 25% on pro-rata basis shall be made on completion of a stage i.e. completion of PQC on RHS.
(e) Admin Building		(e) Admin Building: Payment of 10% on pro-rata basis shall be made on completion of a stage i.e. completion of Admin Building and miscellaneous works.
(f) Toll Booth, canopy, safety items and all other associated works		(f) Toll Booth, canopy, safety items and all other associated works: Payment of 15% on pro-rata basis shall be made on completion of a stage i.e. completion of Toll Booth, canopy, safety items and all other associated works.
(ii) Road side drains	[**]	
(a) Drains		a) Drains: Unit of measurement is linear length in metre. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 100 m on one side.
(b) Cover Slabs		(b) Cover slabs: Unit of measurement is linear length in metre. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 100 m on one side.
(iii) Road signs, markings, km stones, safety devices, …	[**]	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than one Km on both sides.
(iv) Overhead gantry mounted signs	[**]	Unit of measurement is each number. Payment shall be made on pro-rata basis on completion of

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Stage of Payment	Weightage	Payment Procedure
		each overhead gantry mounted sign
(v) Project Facilities		Unit of measurement is each number. Payment shall be made on pro rata basis for completed facilities.
(a) Bus bays	[**]	
(b) Truck lay-byes	[**]	
(c) Rest areas	[**]	
(d) others	[**]	
(vi) Roadside plantation	[**]	Unit of measurement is linear length in Km. Payment shall be made on pro rata basis on completion of one Km.
(vii) Protection works other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROBs/ RUBs		Unit of measurement is linear length. Payment against items (a), (b) & (c) shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length and 100 m whichever is less.
(a) Crash- Barrier	[**]	
(b) Retaining wall	[**]	
(c) Breast wall	[**]	
(viii) Safety and traffic management during construction	[**]	Payment shall be made on prorata basis every six months.
(ix) Junction improvement (a) Major Junctions (b) Minor Junctions (c) Connecting roads (if any)	[***]	Unit of measurement is each number. Payments shall be made on pro rata basis for each completed facility.
(x) Street Lighting	[***]	Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(xi) Utility Ducts	[***]	
(xii) Noise Barrier	[***]	
(xiii) Boundary wall	[***]	
(xiv) ATMS	[***]	Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(xv) Rainwater Harvesting	[***]	Unit of measurement is each number. Payments shall be made on pro rata basis for each completed facility.
(xvi) Maintenance of existing carriageway	[***]	Payment shall be made on prorate basis every three months.
(xvii) Shifting of Utilities (a) LT Electrical Lines	[***]	Unit of measurement is each number. Payments shall be made on pro rata basis for each completed facility.

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Stage of Payment	Weightage	Payment Procedure
(b) HT Electrical Lines (c) EHT Electrical Lines (d) Water Supply Lines (e) Sewer Lines (f) Oil/ Gas pipelines (g) OFC Lines (h) Other lines (Please specify).		
(xvii) Others (please specify)	[***]	Unit of measurement is each number. Payments shall be made on pro rata basis for each completed facility.

Note:

(1) In case of innovative Major Bridge Projects like cable suspension/cable stayed and exceptionally long span bridges, the schedule may be modified as per site requirements before bidding with due approval of Competent Authority.

(2) The Schedule for exclusive Tunnel Projects may be modified as per site requirements before bidding with due approval of Competent Authority.

(3) (a) In order to maintain cash flow in the project, the Authority shall also make interim monthly payments to the Contractor for the work done during the month for which the corresponding stage, as mentioned in Schedule-H, has not been achieved. Such work shall be measured, in a length, number or area as specified in corresponding stage of Schedule-H and valued in accordance with the proportion of the weightage of Contract Price assigned to that stage in Schedule-H. '90% of value of such work shall be paid as an 'Interim Monthly Payment' under clause 19.3 (i) of Agreement.

(b) For Pre cast/ pre-fabricated elements to be used in permanent works, interim payments to be made @ 75% of cost of that element (to be derived from MoRT&H data book) as per schedule H.

(c) Upon completion of the defined 'stage', a reconciliation of the interim payments shall be carried out, and any balance amount shall be paid. For the avoidance of doubt, it is clarified that the interim monthly payments are made solely to maintain cash flow in the project. In the event of termination of the project, under Clause 23.1, 23.2 or 23.3, as the case may be, such interim payments shall be dealt with as per Clause 23.5 (i) (b) of the Agreement.

2. Procedure for payment for Maintenance

2.1 The cost for maintenance shall be as stated in Clause 14.1.

2.2 Payment for Maintenance shall be made in quarterly instalments in accordance with the provisions of Clause 19.7.

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Schedule - I

(See Clause 10.2 (iv))

Drawings

1. Drawings

In compliance of the obligations set forth in Clause 10.2 of this Agreement, the Contractor shall furnish to the Authority Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-I.

2. Additional Drawings

If the Authority Engineer determines that for discharging its duties and functions under this Agreement, it requires any drawings other than those listed in Annex-I, it may by notice require the Contractor to prepare and furnish such drawings forthwith. Upon receiving a requisition to this effect, the Contractor shall promptly prepare and furnish such drawings to the Authority Engineer, as if such drawings formed part of Annex-I of this Schedule-I.

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Annex – I

(Schedule - I)

List of Drawings

[**Note**: The Authority shall describe in this Annex-I, all the Drawings that the Contractor is required to furnish under Clause 10.2.]

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Schedule - J

(See Clause 10.3 (ii))

Project Completion Schedule

1. Project Completion Schedule

During Construction period, the Contractor shall comply with the requirements set forth in this Schedule-J for each of the Project Milestones and the **Scheduled Completion Date**. Within 15 (fifteen) days of the date of each Project Milestone, the Contractor shall notify the Authority of such compliance along with necessary particulars thereof.

2. Project Milestone-I

(i) Project Milestone-I shall occur on the date falling on the **[35% of the Scheduled Construction Period]** day from the Appointed Date (the "**Project Milestone- I**").

(ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have procured estimates/approvals/NOC from the concerned utility owning departments for shifting of all identified/ additional utilities affecting the construction of the Project Highway, commenced shifting of all identified utilities, cutting of trees, dismantling of structures and construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 10% (ten per cent) of the Contract Price.

3. Project Milestone-II

(i) Project Milestone-II shall occur on the date falling on the **[60% of the Scheduled Construction Period]** day from the Appointed Date (the "**Project Milestone- II**").

(ii) Prior to the occurrence of Project Milestone-II, the Contractor shall have completed shifting of all identified/ additional utilities, cutting of trees, dismantling of structures and continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 35% (thirty five per cent) of the Contract Price **and should have started construction of all bridges/ structures including ROBs/RUBs, if any.**

4. Project Milestone-III

(i) Project Milestone-III shall occur on the date falling on the **[85% of the Scheduled Construction Period]** day from the Appointed Date (the "**Project Milestone- III**").

(ii) Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 70% (seventy

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per cent) of the Contract Price and **should have started construction of all project facilities.**

5. Scheduled Completion Date

(i) The Scheduled Completion Date shall occur on the [Scheduled Construction Period] day from the Appointed Date.

(ii) On or before the Scheduled Completion Date, the Contractor shall have completed construction in accordance with this Agreement.

6. Extension of time

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and in accordance with the provisions of this Agreement, the Project Completion Schedule shall be deemed to have been amended accordingly.

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Schedule - K

(See Clause 12.1 (ii))

Tests on Completion

1. Schedule for Tests

(i) The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority Engineer and the Authority of its intent to subject the Project Highway to Tests, and no later than 10 (ten) days prior to the actual date of Tests, furnish to the Authority Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.

(ii) The Contractor shall notify the Authority Engineer of its readiness to subject the Project Highway to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule-K.

2. Tests

(i) Visual and physical test: The Authority Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include [***].

(ii) Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a Network Survey Vehicle (NSV) fitted with latest equipments and the maximum permissible roughness for purposes of this Test shall be [2,000 (two thousand)] mm for each kilometre.

(iii) Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Nondestructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.

(iv) Other tests: The Authority Engineer may require the Contractor to carry out or cause to be carried additional tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway with Specifications and Standards, except tests as specified in clause 5,but shall include measuring the reflectivity of road markings and road signs; and measuring the illumination level (lux) of lighting using requisite testing equipment.

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(v) Environmental audit: The Authority Engineer shall carry out a check to determine conformity of the Project Highway with the environmental requirements set forth in Applicable Laws and Applicable Permits.

(vi) Safety Audit: The Authority Engineer shall carry out, or cause to be carried out, a safety audit to determine conformity of the Project Highway with the safety requirements and Good Industry Practice.

3. Agency for conducting Tests

All Tests set forth in this Schedule-K shall be conducted by the Authority Engineer or such other agency or person as it may specify in consultation with the Authority.

4. Completion Certificate

Upon successful completion of Tests, the Authority Engineer shall issue the Completion Certificate in accordance with the provisions of Article 12.

5. The Authority Engineer will carry out tests with following equipment at his own cost in the presence of contractor's representative.

Sr. No.	Key metrics of Asset	Equipment to be used	Frequency of condition survey
1	Surface defects of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
2	Roughness of pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
3	Strength of pavement	Falling Weight Deflectometer (FWD)	At least once a year
4	Bridges	Mobile Bridge Inspection Unit (MBU)	At least twice a year (As per survey months defined for the state basis rainy season)
5	Road signs	Retro-reflectometer	At least twice a year (As per survey months defined for the state basis rainy season)

The first testing with the help of NSV shall be conducted at the time of issue of Completion Certificate.

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Schedule - L

(See Clause 12.2 and 12.4)

PROVISIONAL CERTIFICATE

1 I, …….. (Name of the Authority‟s Engineer), acting as the Authority‟s Engineer, under and in accordance with the Agreement dated …….. (the "Agreement"), for construction of the [****section (km ** to km **) of National- Highway No. ***] (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through …… (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.

2 Works that are incomplete on account of Time Extension have been specified in the Punch List appended hereto, and the Contractor has agreed and accepted that it shall complete all such works in the time and manner set forth in the Agreement. In addition, certain minor works are incomplete and these are not likely to cause material inconvenience to the Users of the Project Highway or affect their safety. The Contractor has agreed and accepted that as a condition of this Provisional Certificate, it shall complete such minor works within 90 (ninety) days hereof. These minor works have also been specified in the aforesaid Punch List.

3 In view of the foregoing, I am satisfied that the Project Highway from km ** to km ** can be safely and reliably placed in service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into operation on this the …… day of …….. 20…...

ACCEPTED, SIGNED, SEALED AND DELIVERED For and on behalf of CONTRACTOR by: (Signature)	SIGNED, SEALED AND DELIVERED For and on behalf of AUTHORITY‟s ENGINEER by: (Signature)

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Completion Certificate

1 I, …….. (Name of the Authority Engineer), acting as the Authority Engineer, under and in accordance with the Agreement dated ……. (the "**Agreement**"), for [construction of the ****section (km ** to km **) of National Highway No. ***] (the "**Project Highway**") on Engineering Procurement and Construction (EPC) basis through …….. (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.

2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Project Highway have been completed, and the Project Highway is hereby declared fit for entry into operation on this the ……. day of ……. 20….. , Scheduled Completed Date for which was the ……. day of …….20…..

SIGNED, SEALED AND DELIVERED

For and on behalf of the Authority Engineer by:

(Signature)

(Name)

(Designation) (Address)

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Schedule - M

(See Clauses 14.6, 15.2 and 19.7)

Payment Reduction for Non-Compliance

1. Payment reduction for non-compliance with the Maintenance Requirements

1.1 Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E.

1.2 Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance subsequently. The deductions shall continue to be made every month until compliance is done.

1.3 The Authority Engineer shall calculate the amount of payment reduction on the basis of weightage in percentage assigned to non-conforming items as given in Paragraph 2.

2. Percentage reductions in lump sum payments on monthly basis

2.1 The following percentages shall govern the payment reduction:

S. No.	Item/Defect/Deficiency	Percentage
(a)	**Carriageway/Pavement**	
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
(b)	**Road, Embankment, Cuttings, Shoulders**	
(i)	Edge drop, inadequate cross fall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, raincuts, disturbed pitching, vegetation growth, pruning of trees	5%
(c)	**Bridges and Culverts**	
(i)	Desilting, cleaning. vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
(ii)	Any Defects in superstructures, bearings and sub-structures	10%
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%

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S. No.	Item/Defect/Deficiency	Percentage
(d)	**Roadside Drains**	
(i)	Cleaning and repair of drains	5%
(e)	**Road Furniture**	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5th km stones	5%
(f)	**Miscellaneous Items**	
(i)	Removal of dead animals, broken down/accidented vehicles, fallen trees, road blockades or malfunctioning of mobile crane	10%
(ii)	Any other Defects in accordance with paragraph 1.	5%
(g)	**Defects in Other Project Facilities**	5%

2.2 The amount to be deducted from monthly lump-sum payment for non- compliance of particular item shall be calculated as under:

$$V = P \times \frac{W_I - W_O}{W_O}$$

Where,

P= Percentage of particular item/Defect/deficiency for deduction

M= Monthly lump-sum payment in accordance with Clause 19.7 of this Agreement.

L1= Non-complying length

L = Total length of the road,

R= Reduction (the amount to be deducted for non-compliance for a particular item/Defect/deficiency

The total amount of reduction shall be arrived at by summation of reductions for such items/Defects/deficiency or non-compliance.

For any Defect in a part of one kilometer, the non-conforming length shall be taken as one kilometer.

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Schedule - N

(See Clause 18.1 (i))

Selection of Authority Engineer

1. Selection of Authority Engineer

1.1 The provisions of the Model Request for Proposal for Selection of Technical Consultants, issued by the Ministry of Finance in May 2009, or any substitute thereof issued by MoRTH or Ministry of Finance shall apply for selection of an experienced firm to discharge the functions and duties of an Authority Engineer.

1.2 In the event of termination of the Technical Consultants appointed in accordance with the provisions of Paragraph 1.1, the Authority shall appoint another firm of Technical Consultants forthwith and may engage a government-owned entity in accordance with the provisions of Paragraph 3 of this Schedule-N.

2. Terms of Reference

The Terms of Reference for the Authority Engineer (the "**TOR**") shall substantially conform with Annex 1 to this Schedule N.

3. Appointment of Government entity as Authority Engineer

Notwithstanding anything to the contrary contained in this Schedule, the Authority may in its discretion appoint a government-owned entity as the Authority Engineer; provided that such entity shall be a body corporate having as one of its primary functions the provision of consulting, advisory and supervisory services for engineering projects; provided further that a government-owned entity which is owned or controlled by the Authority shall not be eligible for appointment as Authority Engineer.

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Annex – I

(Schedule - N)

Terms of Reference for Authority Engineer

1. Scope

(i) These Terms of Reference (the "**TOR**") for the Authority Engineer are being specified pursuant to the EPC Agreement dated ..... (the "**Agreement**), which has been entered into between the [name and address of the Authority] (the "**Authority**") and ..... (the "**Contractor**")# for [**-Laning] of the **** section (km ** to km **) of National Highway No. ** in the State of *** on Engineering, Procurement, Construction (EPC) basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

- In case the bid of Authority Engineer is invited simultaneously with the bid of EPC project, then the status of bidding of EPC project only to be indicated

(ii) The TOR shall apply to construction and maintenance of the Project Highway.

2. Definitions and interpretation

(i) The words and expressions beginning with or in capital letters and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.

(ii) References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.

(iii) The rules of interpretation stated in Article 1 of the Agreement shall apply, mutatis mutandis, to this TOR.

3. General

(i) The Authority Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.

(ii) The Authority Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, but subject to obtaining prior written approval of the Authority before determining:

(a) any Time Extension;

(b) any additional cost to be paid by the Authority to the Contractor;

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(c) the Termination Payment; or

(d) issuance of Completion Certificate or

(e) any other matter which is not specified in (a), (b), (c) or (d) above and which creates a financial liability on either Party.

(iii) The Authority Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority Engineer within 10 (ten) days of the beginning of every month.

(iv) The Authority Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause 18.2.

(v) The Authority Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.

(vi) In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

4. Construction Period

(i) During the Construction Period, the Authority Engineer shall review and approve the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1 (vi). The Authority Engineer shall complete such review and approval and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may beextended upto 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

(ii) The Authority Engineer shall review and approve any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.

(iii) The Authority Engineer shall review and approve the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (twenty one) days stating the modifications, if any, required thereto.

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(iv) The Authority Engineer shall complete the review and approve of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

(v) The Authority Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Clause 10.4.

(vi) The Authority Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.

(vii) The Authority Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.

(viii) The Authority Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority Engineer may require.

(ix) For determining that the Works conform to Specifications and Standards, the Authority Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 4 (ix), the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.

(x) The Authority Engineer shall test check at least 50 (fifty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.

(xi) The timing of tests referred to in Paragraph 4 (ix), and the criteria for acceptance/ rejection of their results shall be determined by the Authority Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.

(xii) In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority Engineer shall require the Contractor to carry out remedial measures.

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(xiii) The Authority Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.

(xiv) In the event that the Contractor fails to achieve any of the Project Milestones, the Authority Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.

(xv) The Authority Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.2.

(xvi) Authority Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.

(xvii) In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and Users, and requires the Authority Engineer to inspect such works, the Authority Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.

(xviii) The Authority Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate, as the case may be. For carrying out its functions under this Paragraph 4 (xviii) and all matters incidental thereto, the Authority Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

5. Maintenance Period

(i) The Authority Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Programme and for this purpose carry out a joint monthly inspection with the Contractor.

(ii) The Authority Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.

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(iii) The Authority Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor in this behalf.

(iv) In respect of any defect or deficiency referred to in Paragraph 3 of Schedule- E, the Authority Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.

(v) The Authority Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause 14.5.

6. Determination of costs and time

(i) The Authority Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.

(ii) The Authority Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.

(iii) The Authority Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

7. Payments

(i) The Authority Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority Engineer in accordance with the provisions of Clause 10.2 (iv) (d).

(ii) Authority Engineer shall -

(a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and

(b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the

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Contractor, after adjustments in accordance with the provisions of Clause 19.10.

(iii) The Authority Engineer shall, within 10 (ten) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, verify the Contractor's monthly statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.

(iv) The Authority Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Clause 19.16.

8. Other duties and functions

The Authority Engineer shall perform all other duties and functions as specified in the Agreement.

9. Miscellaneous

(i) A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority Engineer thereon, shall be furnished by the Authority Engineer to the Authority forthwith.

(ii) The Authority Engineer shall retain at least one copy each of all Drawings and Documents received by it, including 'as-built' Drawings, and keep them in its safe custody.

(iii) Within 90 (ninety) days of the Project Completion Date, the Authority Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.

(iv) The Authority Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.

(v) The Authority Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

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Schedule - O

(See Clauses 19.4 (i), 19.6 (i), and 19.8 (i))

Forms of Payment Statements

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

(a) the estimated amount for the Works executed in accordance with Clause 19.3 (i) subsequent to the last claim;
(b) amounts reflecting adjustments in price for the aforesaid claim;
(c) the estimated amount of each Change of Scope Order executed subsequent to the last claim;
(d) amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2 (iii) (a);
(e) total of (a), (b), (c) and (d) above;
(f) Deductions:
  i. Any amount to be deducted in accordance with the provisions of the Agreement except taxes;
  ii. Any amount towards deduction of taxes; and
  iii. Total of (i) and (ii) above.
(g) Net claim: (e) – (f) (iii);
(h) The amounts received by the Contractor upto the last claim:
  i. For the Works executed (excluding Change of Scope orders);
  ii. For Change of Scope Orders, and
  iii. Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

(a) the monthly payment admissible in accordance with the provisions of the Agreement;

(b) the deductions for maintenance work not done;

(c) net payment for maintenance due, (a) minus (b);

(d) amounts reflecting adjustments in price under Clause 19.12; and

(e) amount towards deduction of taxes

3. Contractor's claim for Damages

Note: The Contractor shall submit its claims in a form acceptable to the Authority.

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Schedule - P

(See Clause 20.1)

Insurance

1. Insurance during Construction Period

(i) The Contractor shall effect and maintain at its own cost, from the Appointed Date till the date of issue of the Completion Certificate, the following insurances for any loss or damage occurring on account of Non Political Event of Force Majeure, malicious act, accidental damage, explosion, fire and terrorism:

(a) insurance of Works, Plant and Materials and an additional sum of [15 (fifteen)] per cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and

(b) insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.

(ii) The insurance under sub para (a) and (b) of paragraph 1(i) above shall cover the Authority and the Contractor against all loss or damage from any cause arising under paragraph 1.1 other than risks which are not insurable at commercial terms.

2. Insurance for Contractor's Defects Liability

The Contractor shall effect and maintain insurance cover of not less than 15% of the Contract Price for the Works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and which arises from a cause occurring prior to the issue of the Completion Certificate. The Contractor shall also maintain other insurances for maximum sums as may be required under the Applicable Laws and in accordance with Good Industry Practice.

3. Insurance against injury to persons and damage to property

(i) The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damage to any property (except things insured under Paragraphs 1 and 2 of this Schedule or to any person (except persons insured under Clause 20.9), which may arise out of the Contractor's performance of this Agreement. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences.

The insurance cover shall be not less than: Rs. [*****]

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(ii) The insurance shall be extended to cover liability for all loss and damage to the Authority's property arising out of the Contractor's performance of this Agreement excluding:

(a) the Authority's right to have the construction works executed on, over, under, in or through any land, and to occupy this land for the Works; and

(b) damage which is an unavoidable result of the Contractor's obligations to execute the Works.

4. Insurance to be in joint names

The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority.

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Schedule-Q

(See Clause 14.10)

Tests on Completion of Maintenance Period

1. Riding Quality test:

Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be [2,200 (two thousand and two hundred only)] mm for each kilometre.

2. Visual and physical test:

The Authority Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include measurement of cracking, rutting, stripping and potholes and shall be as per the requirement of maintenance mentioned in Schedule-E.

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Schedule-R

(See Clause 14.10)

Taking Over Certificate

I, …….. (Name and designation of the Authority Representative) under and in accordance with the Agreement dated …….. (the "**Agreement**"), for [construction of the ****section (km ** to km **) of

****] (the "**Project Highway**") on Engineering, Procurement and Construction (EPC) basis through …….. (Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project highway from the Contractor on this day.....

SIGNED, SEALED AND DELIVERED

(Signature)

(Name and designation of Authority Representative)

(Address)

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Schedule-S

(See Clause 4.4)

Qualifications of Contractor's Personnels

Professionals	Minimum Qualifications	Experience
Project Manager	• Graduate in Civil Engineering and preferably Management Post-Graduation /Construction in /Transportation/ Highway Engineering/ Structural Engineering or equivalent specialized stream of civil engineering • Essential Software experience (MS Projects or primavera)	• At least 15 years of experience in handling road projects, rail, metro high speed rail project. • At least 5 years of experience in handling road projects.
Pavement Engineer	• Graduate in Civil Engineering and preferably Post-Graduation in Highway Engineering	• At least 10 years of experience in design and supervision of road projects.
Quality Manager	• Graduate in Civil Engineering and preferably Post Graduation in Management /Construction /Transportation/ Highway Engineering/ Structural Engineering or equivalent specialized stream of Civil Engineering.	• At least 10 years of experience in supervision of road projects, rail, metro high speed rail project.
Bridge Engineer	• Graduate in Civil Engineering and preferably Post-Graduation in Structural Engineering or bridge Engineering	• At least 10 years of experience in supervision of Structures in road projects, rail, metro high speed rail project. • Supervised a bridge/structure of length at least 75% of largest structure.
Design Director	• Graduate in Civil Engineering and preferably Post-Graduation in Civil Engineering (Highways / structures /Traffic and transportation/ soil mechanics and foundation engineering Construction Management Transportation) {AICTE Approved} /	• At least 15 years of experience in supervision of road projects. • At least 5 years of experience in designing in road projects. Presence in design of at least 1 project with 50%

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	• Essential Software experience at least 2 (MX Road, 3D Civil, 12 D, Staad Pro, BIM, IIT Pave)	of length or minimum of 25 km.
Safety Manager	• Graduate in Civil Engineering and preferably Post-Graduation in Traffic/ Transportation/ Safety Engineering or equivalent.	• At least 10 years of experience in supervision of safety in road projects, rail, metro high speed rail project.

******* End of the Document *******

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