



**EPC**

**(ENGINEERING PROCUREMENT AND  
CONSTRUCTION)**

**AGREEMENT for**

**Construction of Eight Lane Expressway starting at Ch.  
47+000 near Khanpur Ghati and ends at Haryana-  
Rajasthan Border (Km 47+000 to Km 78+800) section of  
Delhi – Vadodara Green field Alignment (NH-148N)  
under Bharatmala Pariyojana in the State of Haryana on  
EPC Mode**

**CONTRACT AGREEMENT**

**between**

**National Highways Authority of India)**

G-5 & 6, Sector-10, Dwarka, New Delhi-110075

**And**

**Centrodorstroy India Pvt. Ltd.,**

B-94, Okhla Phase-II, New Delhi-110020,

**VOLUME – I**

*Goopali*



**(CONTRACT AGREEMENT, SCHEDULES &  
ANNEXURES)**

*July, 2019*

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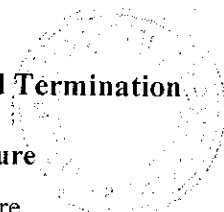
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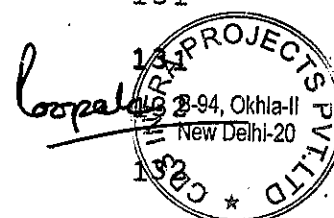
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**Part I**  
**Preliminary**



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### Government of National Capital Territory of Delhi

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Purchased by : CDS INFRA PROJECTS PRIVATE LIMITED  
Description of Document : Article 5 General Agreement  
Property Description : Not Applicable  
Consideration Price (Rs.) : 0  
(Zero)  
First Party : NATIONAL HIGHWAYS AUTHORITY OF INDIA  
Second Party : CDS INFRA PROJECTS PRIVATE LIMITED  
Stamp Duty Paid By : CDS INFRA PROJECTS PRIVATE LIMITED  
Stamp Duty Amount(Rs.) : 100  
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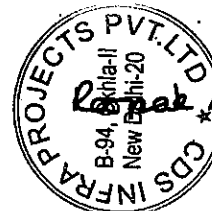
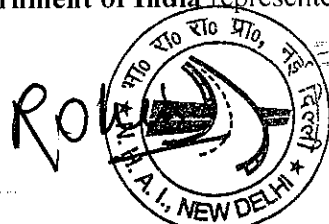
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#### Engineering, Procurement and Construction Agreement

THIS AGREEMENT is entered into on this the <sup>15</sup> day of July, 2019

Between

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



Rajesh Aggarwal

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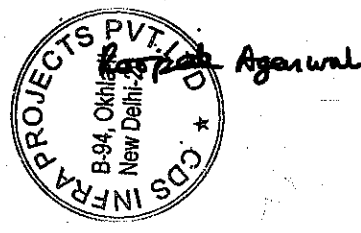
**Chairman, National Highways Authority of India, G-5 & 6, Sector 10, Dwarka, New Delhi-110075** (hereinafter referred to as the “**Authority**” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) of **One Part**;

**And**

**M/s CDS Infra Projects Private Limited (formerly known as M/s Centrodorstroy India Pvt. Ltd.)**, the selected bidder having its registered office at **B-94, Okhla Phase-II, New Delhi-110020**, (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. 148-N including the section from Km 47+000 to Km 78+800 (approx. 31.800 km) to the Authority;
- B. The Authority resolved to Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana 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. **NHAI/BM/Delhi-Vadodara/2018/Pkg.3/135667 dated 28.05.2019** (hereinafter called the “**LOA**”) to the selected bidder for rehabilitation and augmentation of the above section of NH -148-N 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 10 (ten) days of the date of issue of LOA;
  - (ii) submit Performance Security and Additional Performance Security (if any) as per RFP requirements, and
  - (iii) execute this Agreement within 10 days from the receipt of 50% of Performance Security and 50% of Additional Performance Security, if any.
- E. The Contractor has fulfilled the requirements specified in Recital (D) above;





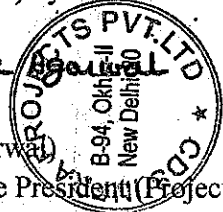
NOW, THEREFORE, in consideration of the foregoing and the respective covenants set forth in this Agreement, the sufficiency and adequacy of which is hereby acknowledged, the Authority hereby covenants to pay the Contractor, in consideration of the obligations specified herein, the Contract Price or such 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:

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DAY, MONTH AND YEAR FIRST ABOVE WRITTEN

SIGNED, SEALED AND DELIVERED For and on SIGNED, SEALED AND DELIVERED For and on behalf of

THE NATIONAL HIGHWAYS AUTHORITY OF INDIA by: M/s CDS Infra Projects Private Limited (formerly known as M/s Centrodorstroy India Pvt. Ltd.) by:

  
रोहित कुमार गुप्ता / Rohin Kumar Gupta  
महाप्रबंधक (तकनीकी) / GM (Tech.)  
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
National Highways Authority of India  
General Manager (Tech.) और राजमार्ग मंत्रालय  
(Ministry of Road Transport & Highways)  
Bharatmala Division, सेक्टर-10, द्वारका, नई दिल्ली-75  
National Highways Authority of India  
G-5 & 6, Sector 10, Dwarka, New Delhi - 75


  
Rooapak Agarwal  
  
(Roopak Agarwal)  
Assistant Vice President (Projects)  
M/s CDS Infra Projects Private Limited  
(formerly known as M/s Centrodorstroy India Pvt. Ltd.)


G- 5&6, Sector 10, Dwarka,  
New Delhi 110 075, India


B-94, Okhla Phase-II,  
New Delhi-110020


In the presence of Witnesses:

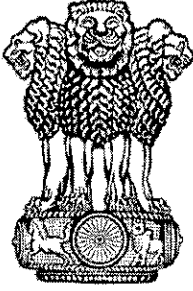
In the presence of Witnesses:

1. Signature:   
Name: R. K. PANDEY  
Address: MEMBER (P)  
NHAI

1. Signature:   
Name: VIJAY KUMAR  
Address: H.N. 80 Ambhrai Village  
Dwarka MB

2. Signature:   
Name: मनोज कुमार / Manoj Kumar  
Address: मुख्य महाप्रबंधक (तक.) / CGM (Tech.)  
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
National Highways Authority of India  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
(Ministry of Road Transport & Highways)  
सेक्टर-10, द्वारका, नई दिल्ली-75  
G-5 & 6, Sector 10, Dwarka, New Delhi - 75

2. Signature:   
Name: KOUSTUBH MADHUSUDAN  
Address: D-10, SHYAM VIHAR  
PHASE-II, NEW DELHI-43



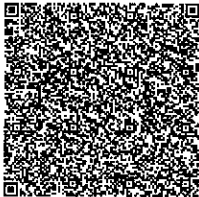
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Purchased by : CDS INFRA PROJECTS PRIVATE LIMITED  
Description of Document : Article 5 General Agreement  
Property Description : Not Applicable  
Consideration Price (Rs.) : 0  
(Zero)  
First Party : NATIONAL HIGHWAYS AUTHORITY OF INDIA  
Second Party : CDS INFRA PROJECTS PRIVATE LIMITED  
Stamp Duty Paid By : CDS INFRA PROJECTS PRIVATE LIMITED  
Stamp Duty Amount(Rs.) : 100  
(One Hundred only)



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#### इंजीनियरी प्रापण और निर्माण करार

यह करार आज दिनांक <sup>15</sup>....., जुलाई 2019 को निम्नलिखित के बीच किया गया

सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार के जरिए भारत के राष्ट्रपति जिनका, प्रतिनिधित्व अध्यक्ष, भारतीय राष्ट्रीय राजमार्ग प्राधिकरण, जी-5 और 6,सेक्टर-10 द्वारका, नई दिल्ली-110075 करते हैं (जिसे इसमें इसके पश्चात् "प्राधिकरण" कहा गया है और जिसकी अभिव्यक्ति में, जब तक इसके संदर्भ अथवा अर्थ से असंगत न हो, इसके प्रशासक, उत्तराधिकारी और सम्बन्धित शामिल होंगे) एक पक्ष:



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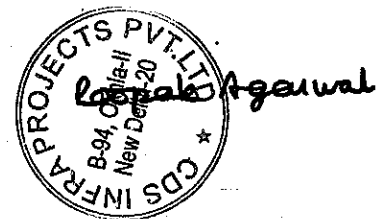
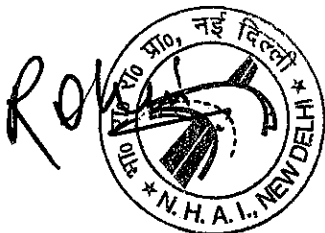
और

मेसर्स सीडीएस इन्फ्रा प्रोजेक्ट्स प्राइवेट लिमिटेड (पूर्व मेसर्स सेंट्रोडोरस्ट्राय इंडिया प्राइवेट लिमिटेड) अर्थात् चयनित बोलीदाता जिसका पंजीकृत कार्यालय- बी- 94, ओखला फेज-II, नई दिल्ली -110020 में है; (जिसे इसमें इसके पश्चात् "संविदाकार" कहा गया है और जिसकी अभिव्यक्ति में, जब तक इसके संदर्भ अथवा अर्थ से असंगत न हो, इसके उत्तराधिकारी और अनुमत समनुदेशिती शामिल होंगे) दूसरा पक्ष।

यतः

- क) भारत सरकार ने 47+000 किमी से चेनेज 78+800 किमी (लगभग 31.800 किमी) सेक्शन सहित राष्ट्रीय राजमार्ग सं.148-एन के विकास, अनुरक्षण और प्रबंधन का कार्य प्राधिकरण को सौंपा था।
- ख) प्राधिकरण ने किए जाने वाले करार में विहित शर्तों के अनुसार हरियाणा राज्य में भारतमाला परियोजना के अंतर्गत, खानपुर घाटी गाँव के निकट चेनेज 47+000 किमी से आरंभ होते हुए और दिल्ली-वडोदरा हरितक्षेत्र संरक्षण (सारा-148 एन) के हरियाणा-राजस्थान सीमा (47+000 किमी से चेनेज 78+800 किमी) सेक्शन पर समाप्त, 8 लेन एक्सप्रेसवे के निर्माण को इंजीनियरी, प्रापण, निर्माण ("ईपीसी") आधार पर बनाने का संकल्प लिया था।
- ग) प्राधिकरण ने तकनीकी और वाणिज्यिक शर्तें निर्धारित की थीं और परियोजना को हाथ में लेने के लिए बोलीदाताओं से बोलियां ("प्रस्तावों के लिए अनुरोध" अथवा "आरएफपी") आमंत्रित की थीं।
- घ) प्राप्त बोलियों के मूल्यांकन के बाद प्राधिकरण ने चयनित बोलीदाता की बोली को स्वीकार कर लिया और इसके पश्चात् विनिर्दिष्ट संविदा मूल्य पर सारा-148-एन के उपर्युक्त सेक्शन के पुनरुद्धार और संवर्द्धन हेतु स्वीकृति पत्र संख्या NHAI/BM/Delhi-Vadodara/2018/Pkg.3/135667 तारीख 28.05.2019 (जिसे इसमें इसके पश्चात् "एलओए" कहा गया है) जारी कर दिया जिसमें अन्यों के साथ-साथ चयनित बोलीदाता से निम्नलिखित अपेक्षित था:
- एलओए के जारी होने की तारीख से (10 दस) दिन के अंदर यह करार किए जाने और उसके प्रावधानों की प्रवर्तनीयता के संबंध में सहमति देना;
  - आर एफ पी की आवश्यकताओं के अनुसार निष्पादन प्रतिभूति और अतिरिक्त निष्पादन प्रतिभूति (यदि कोई हो) प्रस्तुत करना; और
  - 50% निष्पादन प्रतिभूति और 50 %अतिरिक्त निष्पादन प्रतिभूति यदि कोई हो प्राप्ति होने की तारीख से 10 दिन के अंदर इस करार को निष्पादित करना,
- च) संविदाकार ने ऊपर (ड) में विनिर्दिष्ट अपेक्षाओं को पूरा कर लिया है:

अतः अब पूर्वोक्त तथा संबंधित प्रसंविदाओं और इस करार में उल्लिखित करारों को ध्यान में रखते हुए जिसकी पर्याप्तता और उपयुक्तता को एतद्वारा स्वीकार किया जाता है प्राधिकरण एतद्वारा इसमें विनिर्दिष्ट दायित्वों के मद्देनजर संविदा मूल्य अथवा ऐसी कोई अन्य राशि जो करार के प्रावधानों में विनिर्दिष्ट विधि तथा समय पर देय हो तथा कानूनी तौर पर बाध्यकारी हो का संविदाकार को भुगतान करने के लिए वचनबद्ध होता है। दोनों पक्ष निम्नलिखित के लिए सहमत हो गए हैं:



## Article 1

### Definitions and Interpretations

#### 1.1 Definitions

(i) 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.

(ii) 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;

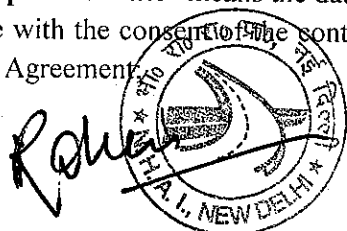
**“Affiliate”** means, in relation to either Party and/or Members, a person who controls, is controlled by, or is under the common control with such Party or Member (as used in this definition, the expression “control” means, with respect to a person which is a company or corporation, the ownership, 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;

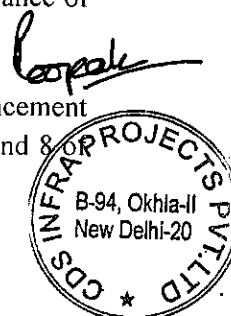
**“Applicable Laws”** means all laws, brought into force and effect by the GOI or the State Government including rules, regulations and notifications made thereunder, and judgements, decrees, injunctions, writs and orders of any court of record, applicable to this Agreement and the exercise, performance 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.



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**“Arbitration Act”** means the Arbitration and Conciliation Act, 1996, with all its subsequent amendments;

**“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’s 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 in response to the Request for Proposal in accordance with the provisions thereof;

**“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;

**“Change in Law”** means the occurrence of any of the following after the Base Date:

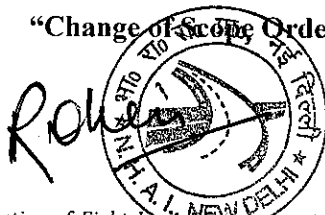
- (a) the enactment of any new Indian law;
- (b) the repeal, modification or re-enactment of any existing Indian law;
- (c) the commencement of any Indian law which has not come into effect until the Base Date; or
- (d) a change in the interpretation or application of any Indian law by a judgement of 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 12.2;

“**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**” shall have the meaning set forth in Clause 8.3 (i);

“**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 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’s Engineer hereunder, the applicable Cure Period shall be extended by the period taken by the Authority or the Authority’s Engineer to accord their approval;

“**Damages**” shall have the meaning set forth in paragraph (w) of Clause 1.2;

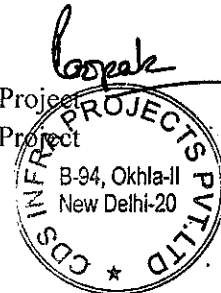
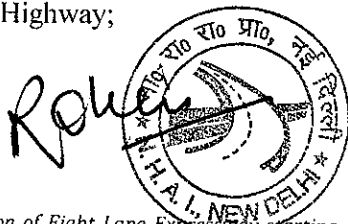
“**Defect**” means any defect or deficiency in Construction of the Works or any part thereof, which does not conform with the Specifications and Standards, and in the case of Maintenance, means any Defect or deficiency which is specified in Schedule-E;

“**Defects Liability Period**” shall have the meaning set forth in Clause 17.1;

“**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;

**“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 Clause 21.1;

**“GAD” or “General Arrangement Drawings”** shall have the meaning set forth in Clause 3.1 (iii) (b);

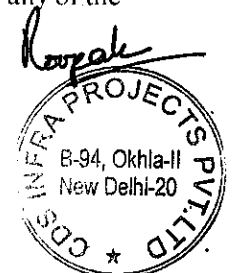
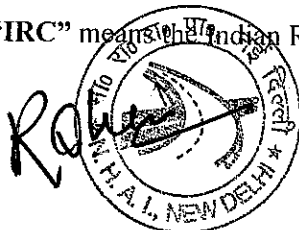
**“GOI” or “Government”** means the Government of India;

**“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;

**“Handover Memorandum”** shall have the meaning set forth in Clause 8.2;

**“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, semiconductor, 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;

**“Interim Payment Certificate”** or **“IPC”** means the interim payment certificate issued by the Authority’s 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;

**“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;

**“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;

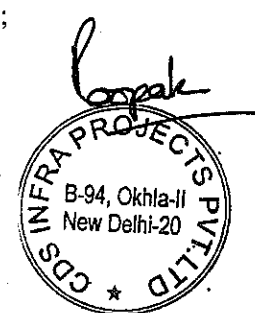
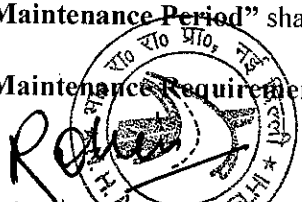
**“Maintenance Inspection Report”** shall have the meaning set forth in Clause 15.2;

**“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 used by the Contractor used in the Works or for the maintenance of the Project Highway;

**“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;

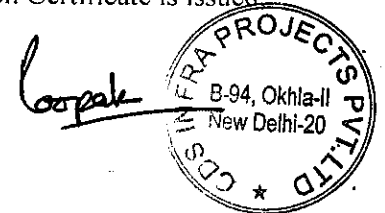
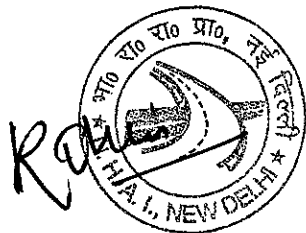
**“Political Event”** shall have the meaning set forth in Clause 21.4;

**“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 the date on which the Completion Certificate is issued;



**“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;

**“Project Highway”** means the Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana and all Project Assets, and its subsequent development and augmentation in accordance with this Agreement;

**“Project Milestone”** means the project milestone set forth in Schedule-J;

**“Proof Consultant”** shall have the meaning set forth in Clause 10.2;

**“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;

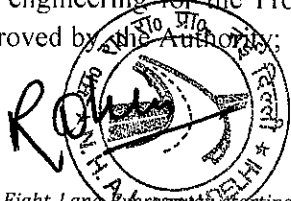
**“Scheduled Construction Period”** means the period commencing from the Appointed Date and ending on Scheduled Completion Date;

**“Scope of the Project”** shall have the meaning set forth in Clause 2.1;

**“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;

"**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;

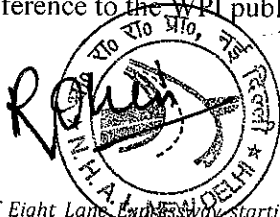
"**Time Extension**" shall have the meaning set forth in Clause 10.5;

"**User**" means a person who travels or intends to travel on the Project Highway or any part thereof in/on any vehicle;

"**Valuation of Unpaid works**" shall have the meaning set forth in Clause 23.5;

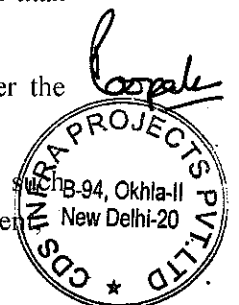
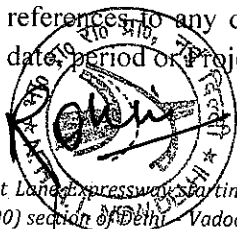
"**Works**" means all works including survey and investigation, design, engineering, procurement, construction, Plant, Materials, maintenance, temporary works and other things necessary to complete the Project Highway in accordance with this Agreement; and

"**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.

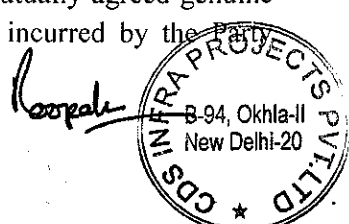
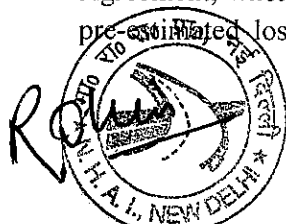


## 1.2 Interpretation

- (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 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 and 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 to the construction and "construct" or "build" shall be construed accordingly;
  - (g) references to "development" include, unless the context otherwise requires, construction, 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 law 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 seeking of liquidation, winding-up, reorganisation, dissolution, arrangement, protection or relief of debtors;
- (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 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 or report required under or pursuant to this Agreement from or by any Party or the Authority’s Engineer shall be valid and effective only if it is in writing under the hand of a duly authorised representative of such Party or the Authority’s 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 of them, as set forth in 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

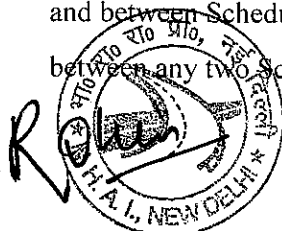
- (x) time shall be of the essence in the performance of the Parties' respective obligations. If any time period specified herein is extended for the reasons specified in the Agreement, such extended time shall also be of the essence.
- (ii) Unless expressly provided otherwise in this Agreement, any Documentation required to be provided or furnished by the Contractor to the Authority shall be provided free of cost and in three copies, and if the Authority is required to return any such Documentation with its comments and/or approval, it shall be entitled to retain two copies thereof.
- (iii) The rule of construction, if any, that a contract should be interpreted against the parties responsible for the drafting and preparation thereof, 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 up and below 5 (five) being rounded down.

### 1.4 Priority of agreements and errors/discrepancies

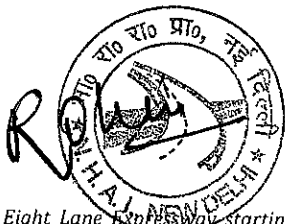
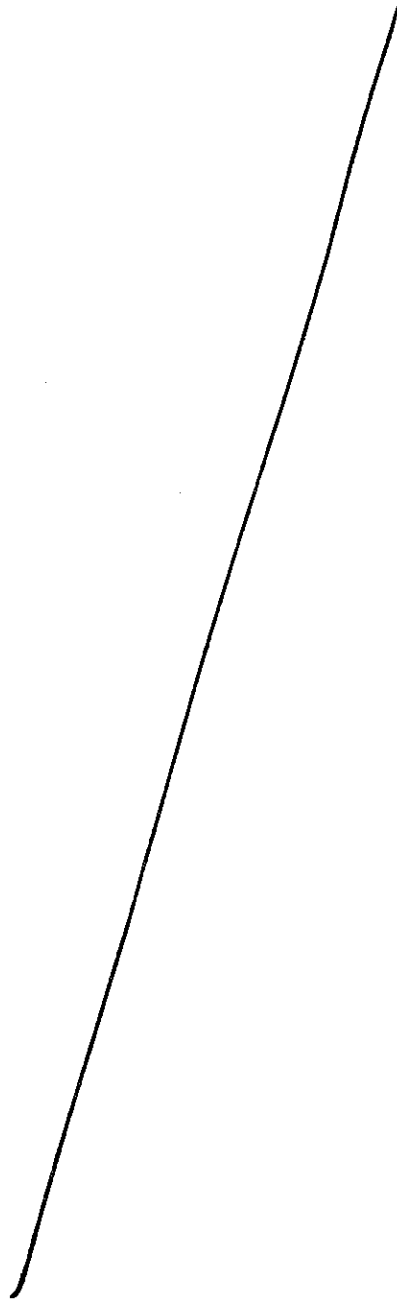
- (i) This Agreement, and all other agreements and documents forming part of or referred to in this Agreement are to be taken as mutually explanatory and, unless otherwise expressly provided elsewhere in this Agreement, the priority of this Agreement and other documents and agreements forming part hereof 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 ambiguities or discrepancies 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;





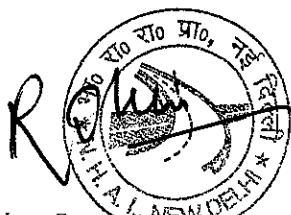
- (d) between the written description on the Drawings and the Specifications and Standards, the latter shall prevail;
- (e) between the dimension scaled from the Drawing and its specific written dimension, the latter shall prevail; and
- (f) between any value written in numerals and that in words, the latter shall prevail.

**1.5 Joint and several liability- Deleted**



## Part II

### Scope of Project



## Article 2

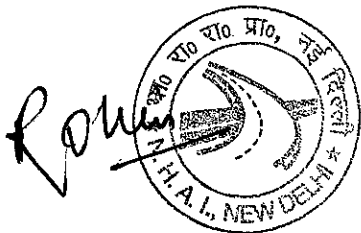
### Scope of the Project

#### 2.1 Scope of the Project

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

- (a) 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;
- (b) 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
- (c) performance and fulfilment of all other obligations of the Contractor in accordance with the provisions of this Agreement 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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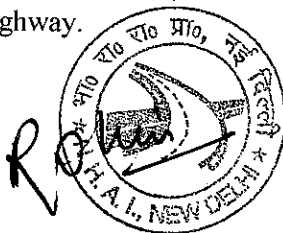


## Article 3

### 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 shall be responsible for the correctness of the Scope of the Project, Project Facilities, Specifications and Standards and the criteria for testing of the completed Works.
- (iii) The Authority shall, upon submission of the Performance Security as per the RFP by the Contractor, shall provide to the Contractor:
  - (a) No less than 90% (ninety per cent) of the required Right of Way of the Construction Zone of total length of the Project Highway within a period of 30 (thirty) days from the date of this Agreement, which shall be in contiguous stretches of length not less than 5 (five) kilometre.
  - (b) approval of the general arrangement drawings (the "GAD") from railway authorities to enable the Contractor to construct road over- bridges/ under-bridges at level crossings on the Project Highway in accordance with the Specifications and Standards, and subject to the terms and conditions specified in such approval, within a period of 60 (sixty) days from the Appointed Date, and reimbursement of all the costs and expenses paid by the Contractor to the railway authorities for and in respect of the road over-bridges/ under bridges; and
  - (c) all environmental clearances as required under Clause 3.3.
- (iv) Delay in providing the Right of Way or approval of GAD by railway authorities, as the case may be, in accordance with the provisions of Clause 3.1 (iii) shall entitle the Contractor to Damages in a sum calculated in accordance with the provisions of Clause 8.3 of this Agreement and Time Extension in accordance with the provisions of Clause 10.5 of this Agreement. For the avoidance of doubt, the Parties agree that the Damages for delay in approval of GAD by the railway authorities for a particular road over-bridge/ under-bridge shall be deemed to be equal to the Damages payable under the provisions of Clause 8.3 for delay in providing Right of Way for a length of 2 (two) kilometre for each such road over-bridge/ under-bridge.
- (v) Notwithstanding anything to the contrary contained in this Agreement, the Parties expressly agree that the aggregate Damages payable under Clauses 3.1 (iv), 8.3 and 9.5 shall not exceed 1% (one per cent) of the Contract Price. For the avoidance of doubt, the Damages payable by the Authority under the aforesaid Clauses shall not be additive if they arise concurrently from more than one cause but relate to the same part of the Project Highway.

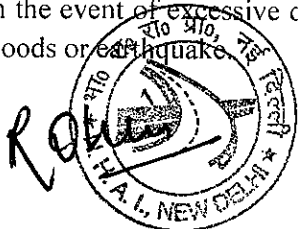


Both the parties agree that payment of such Damages shall be full and final settlement of all claims of the Contractor and such compensation shall be the sole remedy against delays of the Authority and both parties further agree that the payment of Damages shall be the final cure for the Contractor against delays of the Authority, without recourse to any other payments.

- (vi) The Authority agrees to provide support to the Contractor and undertakes to observe, comply with and perform, subject to and in accordance with the provisions of this Agreement and the Applicable Laws, the following:
- (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 at rates and on terms no less favourable than those generally available to commercial customers receiving substantially equivalent services;
  - (c) procure that no barriers that would have a material adverse effect on the works are erected or placed on or about the Project Highway by any Government Instrumentality or persons claiming through or under it, except for reasons of Emergency, national security, law and order or collection of inter-state taxes;
  - (d) not do or omit to do any act, deed or thing which may in any manner violate any provisions of this Agreement;
  - (e) support, cooperate with and facilitate the Contractor in the implementation of the Project in accordance with the provisions of this Agreement; and
  - (f) upon written request from the Contractor and subject to the provisions of Clause 4.3, provide reasonable assistance to the Contractor and any expatriate personnel of the Contractor or its Sub-contractors to obtain the applicable visas and the requisite work permits for the purposes of discharge by the Contractor or its Sub-contractors of their obligations under this Agreement and the agreements with the Sub-contractors.

### 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 10 (ten) days prior to the last date for submission of the Bid, 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.

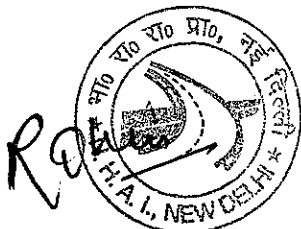


### 3.3 Environmental Clearances

The Authority represents and warrants that the environmental clearances required for construction of the Project shall be procured by the Authority prior to the date of issue of LOA. For the avoidance of doubt, the present status of environmental clearances is specified in Schedule-A.

### 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 any reason whatsoever, within 90 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. 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.

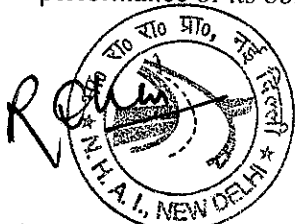


## Article 4

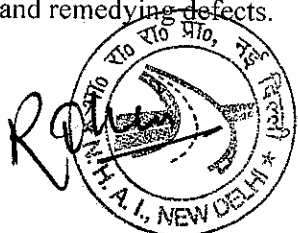
### Obligations of the Contractor

#### 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, save and except to the extent that any such loss, defect, or damage shall have arisen from any wilful default or neglect of the Authority.
- (v) The Contractor shall remedy any and all loss, defect or damage to the Project Highway during the Defects Liability Period at the Contractor's cost to the extent that such loss, defect or damage shall have arisen out of the reasons specified in Clause 17.3.
- (vi) The Contractor shall remedy any and all loss or damage to the Project Highway during the Maintenance Period at the Contractor's cost, including those stated in Clause 14.1 (ii), save and except to the extent that any such loss or damage shall have arisen on account of any wilful default or neglect of the Authority or on account of a Force Majeure Event.
- (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) 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;
  - (b) procure, as required, the appropriate proprietary rights, licences, agreements and permissions for Materials, methods, processes and systems used or incorporated into the Project Highway;
  - (c) make reasonable efforts to maintain harmony and good industrial relations among the personnel employed by it or its Sub-contractors in connection with the performance of its obligations under this Agreement;



- (d) 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;
  - (e) not do or omit to do any act, deed or thing which may in any manner violate any provisions of this Agreement;
  - (f) support, cooperate with and facilitate the Authority in the implementation and operation of the Project in accordance with the provisions of this Agreement;
  - (g) 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;
  - (h) 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's Engineer and its authorised personnel shall have the right of access to all these documents at all reasonable times;
  - (i) cooperate with other contractors employed by the Authority and personnel of any public authority; and
  - (j) 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. 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's 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.

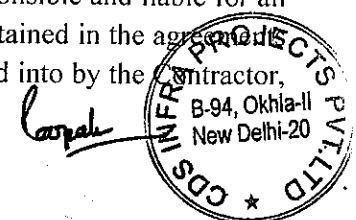




- (xi) The Contractor shall perform the Works in conformity with the Project requirements and other requirements and standards prescribed under or pursuant to the Agreement.
- (xii) The Contractor shall carry out such work incidental and contingent to the original Scope of the Project to comply with 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.

#### 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 **49% (forty nine 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 51% (fifty one 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. 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.
- (ii) In the event any sub-contract for Works, or the aggregate of such sub-contracts with 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 agreement entered into with its Sub-contractors or any other agreement that may be entered into by the Contractor,



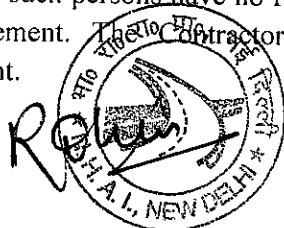
and no default under any such agreement shall excuse the Contractor from its obligations or liability under this Agreement. However, in case of non-compliance of the Contractor towards his obligations for payments to the approved Sub-contractor(s), which is likely to affect the progress of works, the 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.

#### 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 and their 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 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 Contractor will try to hire at least 10% (ten percent) trained workmen as per the National Skills Qualifications Framework. If necessary, the requisite workmen may be got trained by the Contractor at his cost through authorized training centres of the Directorate General of Training (DGT). The Contractor will organize training at project site/ sites for the trainees as and when required as per the training schedule finalized in consultation with the training centres. The trainees shall be paid stipend by the Contractor (subject to a maximum of Rs. 15,000/- per person) on the basis of minimum wages to compensate for loss of income during the training period.
- (ii) The Authority's 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's Engineer shall specify the reasons for the removal of such person.
- (iii) The Contractor shall on receiving such a direction from the Authority's 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) replacement.



#### 4.5 Advertisement on Project Highway

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.

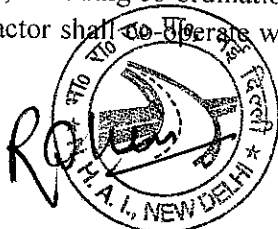
#### 4.8 Unforeseeable difficulties

Except as otherwise stated in the Agreement:

- (a) the Contractor accepts complete responsibility for having foreseen all difficulties and costs of successfully completing the Works;
- (b) the Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs; and
- (c) the Scheduled Completion Date shall not be adjusted to take account of any unforeseen difficulties or costs.

#### 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-ordinate 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:

- (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

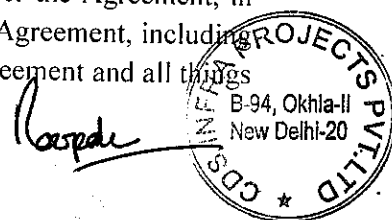
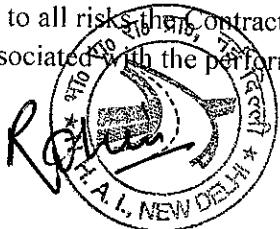
- (i) The Contractor agrees to conduct its activities in connection with the Agreement in such a manner so as to comply with the environmental requirements which includes, *inter alia*, all the conditions required to be satisfied under the environmental clearances and applicable law, and assumes full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

#### 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

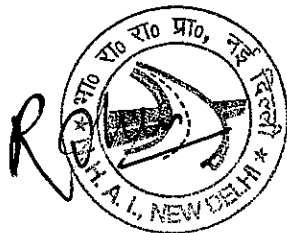
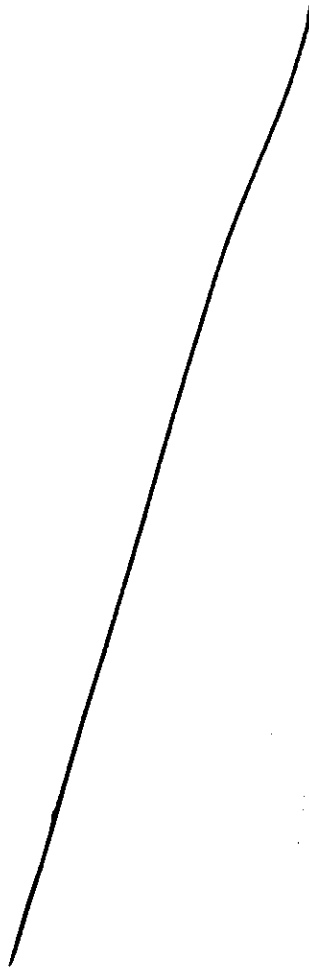
The Contractor shall have satisfied itself as to the correctness and sufficiency of the Contract Price. The Contract Price shall cover all its obligations under the Agreement, in addition to all risks that the Contractor has agreed to undertake under the Agreement, including those associated with the 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.

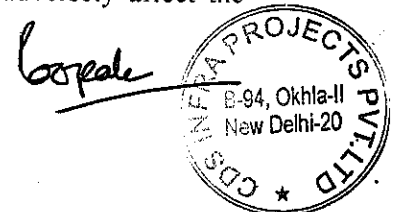
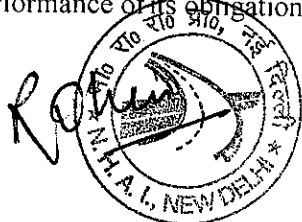


## Article 5

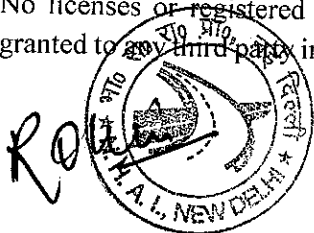
### Representations and Warranties

#### 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 Qualification and Request for Proposals or otherwise and as updated on or before the date of this Agreement is true and accurate in all respects as on the date of this Agreement;
  - (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 adversely affect the performance of its obligations under this Agreement;

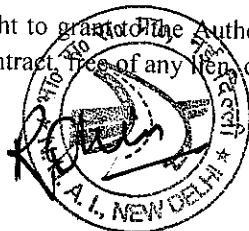


- (i) it has complied with Applicable Laws in all material respects and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have a material adverse effect on its ability to perform its obligations under this Agreement;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



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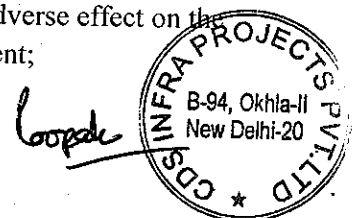
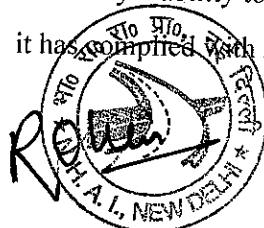


- (b) The Contractor has granted (or, if the technology does not currently exist, will grant at the time of passing to the Authority the property and title in and to the equipment, materials, goods, Works, spares, Contractor's documents, Drawings and Manuals in which it is used) to the Authority the 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 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;

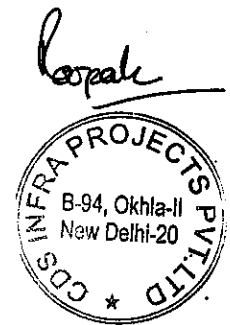


- (g) it has good and valid right to the Site and has the power and authority to grant the Right of Way in respect thereof to the Contractor; and
- (h) it has procured Right of Way and environment clearances such that the Contractor can commence construction forthwith on 90% (ninety per cent) of the 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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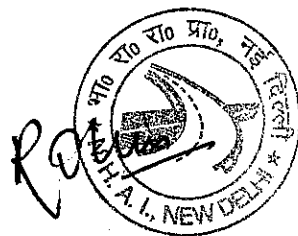


## Article 6

### Disclaimer

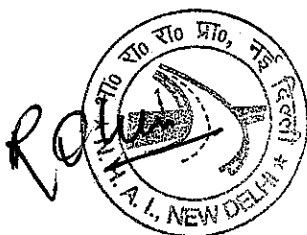
#### 6.1 Disclaimer

- (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 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.



# Part III

## Construction and Maintenance



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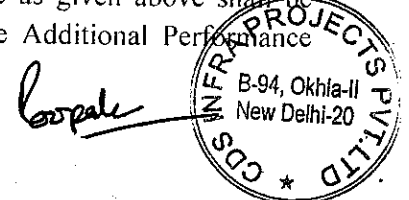
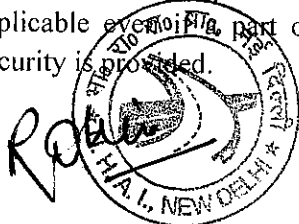


## Article 7

### 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 an irrevocable and unconditional guarantee from a Bank in the form set forth in Annex-I of Schedule-G (the "Performance Security") for an amount equal to 5% (five percent) of its Bid Price. In case of bids mentioned below, the Selected Bidder, along with the Performance Security, shall also furnish to the Authority an irrevocable and unconditional guarantee 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 as under:
- (a) If the Bid Price offered by the Selected Bidder is lower than 10% but upto 20% of the estimated Project Cost, then the Additional Performance Security shall be calculated @20% of the difference in the (i) Estimated Project Cost (as mentioned in RFP)-10% of the Estimated Project Cost and (ii) the Bid Price offered by the selected Bidder.
- (b) If the Bid Price offered by the Selected Bidder is lower than 20% of the Estimated Project Cost, then the Additional Performance Security shall be calculated @ 30% of the difference in the (i) Estimated Project Cost (as mentioned in RFP)-10% of the Estimated Project Cost and (ii) the Bid Price offered by the Selected Bidder.
- (c) This Additional Performance Security shall be treated as part of the Performance Security.
- (B) The Performance Security shall be valid until 60(sixty) days after the Defects Liability Period. The Additional Performance Security shall be valid until 28 (twenty eight) days after Project Completion Date.
- (ii) The Selected Bidder has the option to provide 50% of the Performance Security and 50% of the Additional Performance Security, if any, within 30 (thirty) days of receipt of Letter of Acceptance, in any case before signing of the Contract Agreement and the remaining Performance Security and Additional Performance Security, if any, shall be submitted within 30 days of signing of this agreement.
- (iii) In the event the Selected Bidder fails to provide the remaining 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 Bid 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 period, the award shall be deemed to be cancelled/ withdrawn 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

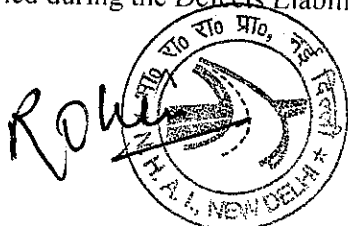
The Contractor may initially provide the Performance Security for a period of 2 (two) years; provided that it shall procure the extension of the validity of the Performance Security, as necessary, at least 2 (two) months prior to the date of expiry thereof. Upon the Contractor providing an extended Performance Security, the previous Performance Security 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.

## 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 as Damages for such Contractor's Default.
- (ii) Upon such encashment and appropriation from the Performance Security, the Contractor shall, within 30 (thirty) days thereof, replenish, in case of partial appropriation, to its original level the Performance Security, and in case of appropriation of the entire Performance Security provide a fresh Performance Security, as the case may be, and the Contractor shall, within the time so granted, replenish or furnish fresh Performance Security 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, 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 as Damages, and to terminate this Agreement in accordance with Article 23.

## 7.4 Release of Performance Security

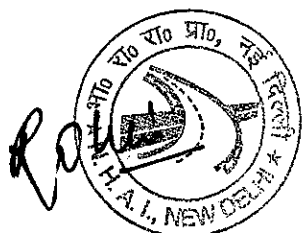
- (i) The Authority shall return the Performance Security to the Contractor within 60 (sixty) days of the expiry of the Maintenance Period or the Defects Liability Period, whichever is later, under this Agreement. Notwithstanding the aforesaid, the Parties agree that the Authority shall not be obliged 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 within 28 (twenty eight) days from the date of issue of Completion Certificate under Article 12 of this Agreement.
- (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) 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.
- (iii) Within 15 (fifteen) days of the date of issue of the Completion Certificate, the Authority shall refund the balance of Retention Money remaining with the Authority after adjusting the amounts appropriated under the provisions of Clause 7.5 (ii).
- (iv) 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.



## Article 8

### Right of Way

#### 8.1 The Site

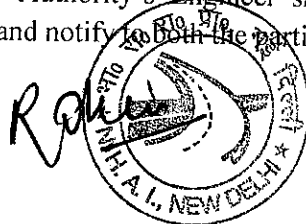
The site of the Project Highway (the "Site") shall comprise the site described in Schedule-A in respect of which the Right of Way shall be provided by the Authority to the Contractor. The Authority shall be responsible for:

- (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's Engineer shall, within 10 (ten) days of the date of this Agreement, inspect the Site and prepare a detailed memorandum containing an inventory of the Site including the vacant and unencumbered land, buildings, structures, road works, trees and any other immovable property on or attached to the Site (hereinafter referred to as the "**Handover Memorandum**"). Subject to the provisions of Clause 8.2 (iii), the Handover Memorandum shall have appended thereto an appendix (the "**Appendix**") specifying in reasonable detail those parts of the Site to which vacant access and Right of Way has not been given to the Contractor along with details of hindrances in the Construction Zone. For sake of clarity the Handover Memorandum shall clearly specify the parts of Site where work can be executed. Signing of the Handover Memorandum, in three counterparts (each of which shall constitute an original), by the authorized representatives of the Authority, Contractor and Authority's 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 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's 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.





parties agree that such notification of the Authority's 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) of the total length of the Project Highway. The Parties also acknowledge and agree that the conditions specified in this Clause 8.2 (iii) 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 Handover Memorandum under clause 8.2 (i), Contractor shall submit to the Authority's Engineer, a monthly land possession report till expiry of 180 (one hundred and eighty) days from Appointed Date, in respect of those parts of the site to which vacant access and right of way was not given to the contractor 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.

### 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:

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

Where,

C = the Contractor



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.

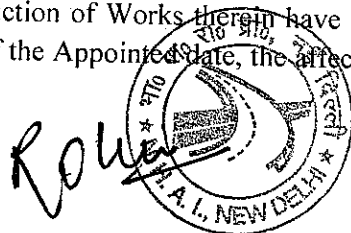
For the avoidance of doubt, the Parties expressly agree that the Damages specified hereunder and the Time Extension specified in Clause 10.5 shall be restricted only to failure of the Authority to provide the Right of Way for and in respect of the "Construction Zone" which shall comprise the following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

- Main in carriageway
- Median (for 4 lane carriageway or more)
- Paved and earthen shoulders
- Area for Structures including ROB/RUBs.
- Safety measures including Roadside Drains and Furniture.
- A parallel working space for accommodating slopes/retaining structures etc.

(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, 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 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 vacant access and 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 180 (one hundred and eighty) days of the Appointed Date, the affected Works shall be deemed to be withdrawn under the



provisions of this Clause 8.3 (iii) (a) 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 90 (ninety) per cent of the value of the Works withdrawn and the Contractor shall not be entitled to any other compensation or Damages for the withdrawal of Works.

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's Engineer.

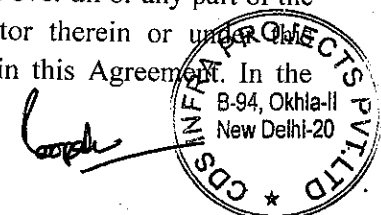
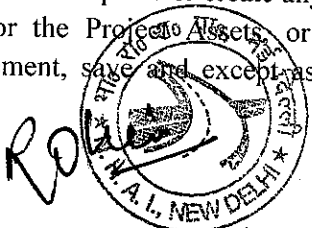
The parties expressly agree that the value of the Works withdrawn shall be determined from the details available in Schedule-H. In the event that it is impossible to determine the value from Schedule-H, then the value shall be determined in accordance with the provisions of Clause 13.2 (iii).

#### 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 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 the Agreement, save and except as otherwise expressly set forth in this Agreement.



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

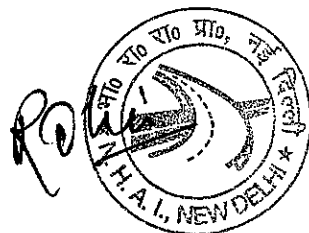
The Contractor shall bear all costs and charges for any special or temporary right of way required by it in connection with access to the Site. The Contractor shall obtain at its cost such facilities on or outside the Site as may be required by it for the purposes of the Project Highway and the performance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

#### 8.7 Access to the Authority and the Authority's 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's 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's 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 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.



## 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 diversions with the authority of the controlling body of that road, right of way or utility.

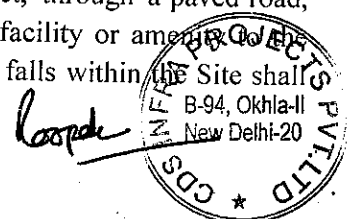
#### 9.2 Shifting of obstructing utilities

The Contractor shall, in accordance with Applicable Laws and with assistance of the Authority, undertake the work of shifting of any utility (including electric lines, water pipes, gas pipelines 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. The cost of such shifting, as per estimates prepared by the entity owning the utility and approved by the Authority, shall be reimbursed by the Authority to the Contractor. The scope of work of such shifting of Utilities shall be as indicated in Schedule-B. In the event of any delay of such shifting on the part of the contractor, no extension of time for completion of the project and no claims, in any manner, shall be admissible on this account against the Authority.

The work of shifting of Utilities can be taken up by the Contractor any time after signing of the Agreement.

#### 9.3 New utilities

- (i) The Contractor shall allow, subject to the permission from the Authority and such conditions as the Authority may specify, access to, and use of the Site for laying telephone lines, water pipes, electricity lines/ cables or other public utilities. 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 as per Applicable Laws. For the avoidance of doubt, it is agreed that use of the Site under this Clause 9.3 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 by such use shall be restored forthwith at the cost of the Authority.
- (ii) The Authority may, by notice, require the Contractor to connect any adjoining road to the Project Highway, and the connecting portion thereof falling within the Site shall be constructed by the Contractor at the Authority's cost in accordance with Article 10.
- (iii) The Authority may by notice require the Contractor to connect, through a paved road, any adjoining service station, hotel, motel or any other public facility or amenity to the Project Highway, whereupon the connecting portion thereof that falls within the Site shall



be constructed by the Contractor on payment of the cost. The cost to be paid by the Authority to the Contractor shall be determined by the Authority's Engineer. For the avoidance of doubt, in the event such road is to be constructed for the benefit of any entity, the Authority may require such entity to make an advance deposit with the Contractor or the Authority, as the case may be, of an amount equal to the estimated cost as determined by the Authority's Engineer and such advance shall be adjusted against the cost of construction as determined by the Authority's Engineer hereunder.

- (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's Engineer.

#### 9.4 Felling of trees

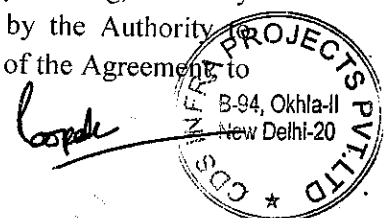
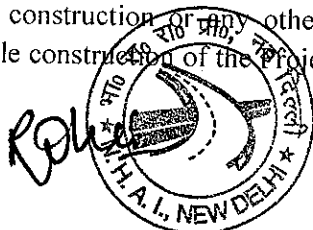
The Authority shall assist the Contractor in obtaining the Applicable Permits for felling of trees in non-forest area to be identified by the Authority for this purpose if, and only if, such trees cause a Material Adverse Effect on the construction or maintenance of the Project Highway. The Contractor 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 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

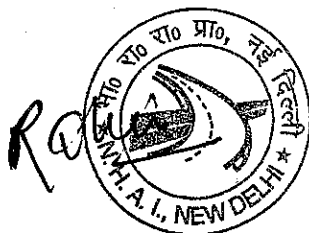
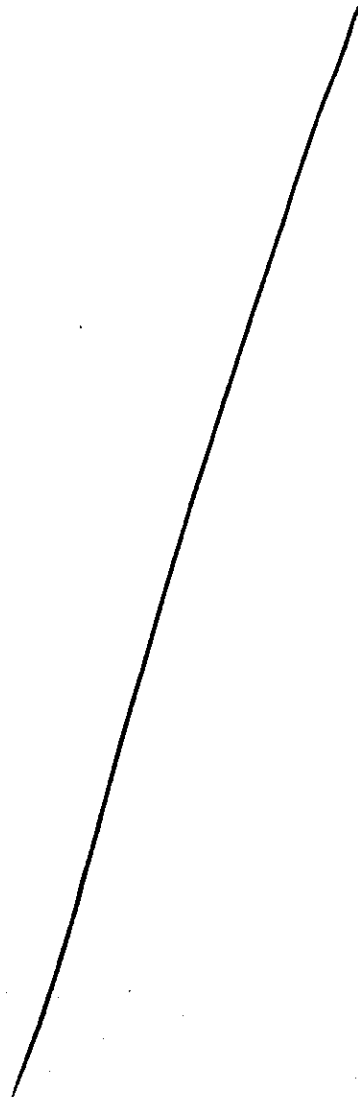
The Contractor shall at its own cost dismantle the structures in the acquired lands including those on patta lands, abadi lands, assigned lands, etc. the compensation for which, was paid by the Authority to the land owners and the lands were handed over to the Contractor. The Contractor shall, at its own cost, dispose off the dismantled material in its sole discretion as deemed appropriate, while complying with all environmental guidelines and regulations and clear the Site for undertaking construction. In the event of any delay in dismantling of structures thereof for reasons beyond the control of the Contractor, the Contractor shall be entitled to Damages in a sum calculated in accordance with the formula specified in Clause 8.3 (i) for the period of delay, and to the Time Extension in accordance with Clause 10.5 for and in respect of the part(s) of the Works affected by such delay; provided that if the delays involve any time overlaps, the overlaps shall not be additive.

#### 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.

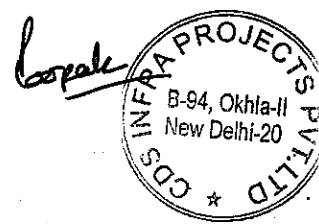
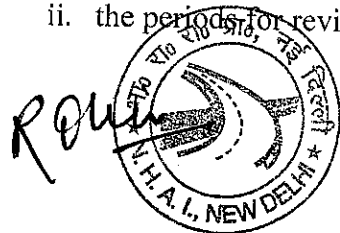


## Article 10

### Design and Construction of the Project Highway

#### 10.1 Obligations prior to commencement of Works

- (i) Within 20 (twenty) days of the Appointed Date, 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’s 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’s Engineer forthwith.
- (iii) Within 30 (thirty) days of the Appointed Date, the Contractor shall submit to the Authority and the Authority’s 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;



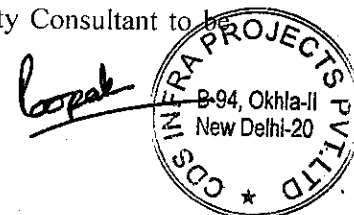
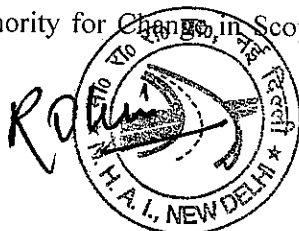


- iii. the sequence and timing of inspections and tests specified in this Agreement; and
- iv. the particulars for the pre-construction reviews and for any other submissions, approvals and consents specified in the Agreement.

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.

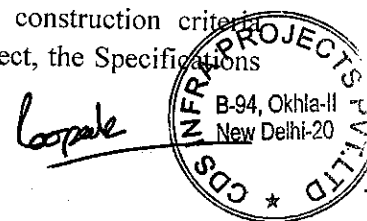
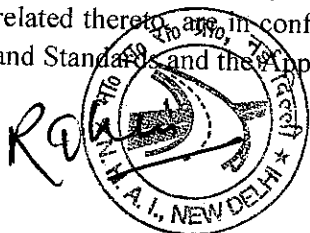
- (iv) The Contractor shall compute, on the basis of the Drawings prepared in accordance with Clause 10.2 (iv), and provide to the Authority's Engineer, the length, area and numbers, as the case may be, in respect of the various items of work specified in Schedule-H and comprising the Scope of the Project. 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 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's 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



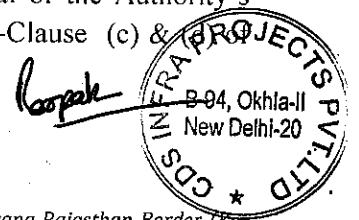
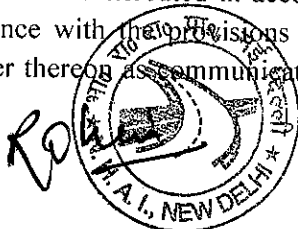
engaged by the Contractor shall be independent of the design and implementation team of the Contractor.

## 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's 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 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's Engineer for its approval. Provided, however, that in respect of Major Bridges and Structures, the Authority's 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's 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;



- (c) within 15 (fifteen) days of the receipt of the Drawings, the Authority's 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's 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's Engineer for review and approval. The Authority's 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's Engineer for review/approval as aforesaid, the Authority's 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's Engineer hereunder, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure;
- (e) no review/approval and/or observation of the Authority's 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's 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's Engineer within 90 days (ninety) from the Appointed Date.
- (v) Any cost or delay in construction arising from review/approval by the Authority's Engineer shall be borne by the Contractor.
- (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's Engineer thereon as communicated pursuant to the provisions of sub-Clause (c) &



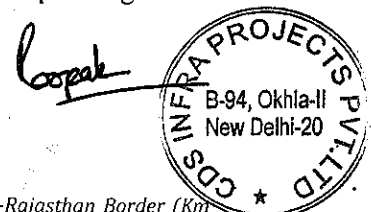
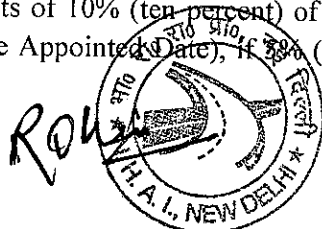
Clause 10.2 (iv). Such Drawings shall not be amended or altered without prior written notice to the Authority's Engineer. If a Party becomes aware of an error or defect of a technical nature in the design or Drawings, that Party shall promptly give notice to the other Party of such error or defect.

- (vii) Within 90 (ninety) days of the Project Completion Date, the Contractor shall furnish to the Authority and the Authority's 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 730th (seven hundred and thirtieth) 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 0.05% (zero point zero five percent) of the Contract Price 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 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 180<sup>th</sup> (one hundred and eighty) day from the Appointed Date), if 5% (five percent) of the project length corresponding to the



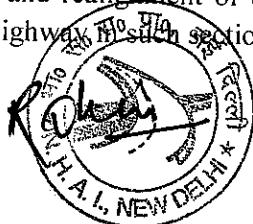
Project Milestone-I is not handed over or lately handed over resulting in the extension of completion of this 5% (five percent) length beyond Scheduled Completion Date, Stage Payment of 10% X 0.95 = 9.5% only is to be achieved by 180<sup>th</sup> (one hundred and eighty) day.

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) In the event that the Contractor fails to achieve the Project Completion within a period of 90 (ninety) 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 contractor shall be deemed to be ineligible for bidding any future projects of the Authority, both as the sole party or as one of the parties of Joint Venture/ Consortium during the period from Scheduled Completion Date to issuance of Completion Certificate. This restriction is applicable if the contract value of the delayed project is not less than Rs. 300 Crore.

#### 10.4 Maintenance during Construction Period

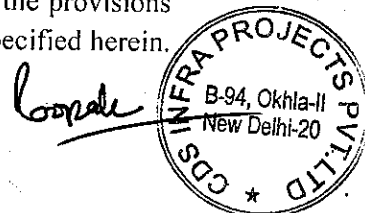
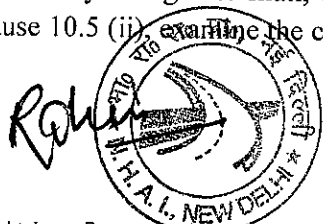
- (i) During the Construction Period, the Contractor shall maintain, at its cost, the existing lane(s) of the Project Highway so that the traffic worthiness and safety thereof are at no time materially inferior as compared to their condition on Appointed Date, and shall undertake the necessary repair 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's 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. It is further agreed that in the event the Project includes construction of a bypass or tunnel and realignment of the existing carriageway, the Contractor shall maintain the existing highway, up to such sections until the new Works are open to traffic.



- (ii) Notwithstanding anything to the contrary contained in this Agreement, in the event of default by the Contractor in discharging the obligations specified in Clause 10.4 (i) above, the Authority shall get these maintenance works completed in the manner recommended by the Authority's Engineer to avoid public inconvenience at the risk and cost of the Contractor in order to keep the road in traffic worthy condition.

#### 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 Project Milestone is or will be delayed by any of the following, namely:
- (a) delay in providing the Right of Way of Construction Zone, environmental clearances or approval of railway authorities, specified in Clause 3.1 (iv);
  - (b) Change of Scope (unless an adjustment to the Scheduled Completion Date has been agreed under Article 13);
  - (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's 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's 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's 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's Engineer requires any clarifications to examine the claim, the Authority's 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's Engineer requesting for clarification, furnish the same to the Authority's Engineer within 10 (ten) days thereof. The Authority's 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 Authority's 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's 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.

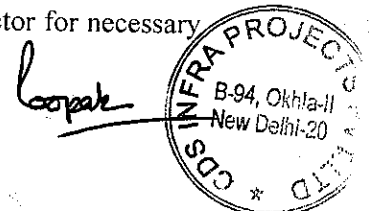
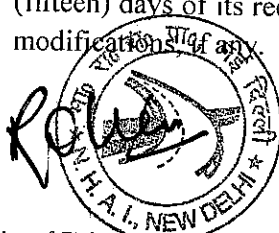
Upon receipt of the claim hereunder, the Authority's Engineer shall examine the same in accordance with the provisions of Clause 10.5 (iv) within a period of 30 (thirty) days of the receipt thereof

#### 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, 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's 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's Engineer. The Authority's Engineer shall review the Maintenance Manual within 15 (fifteen) days of its receipt and communicate its comments to the Contractor for necessary modifications.



### 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's 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.





## 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

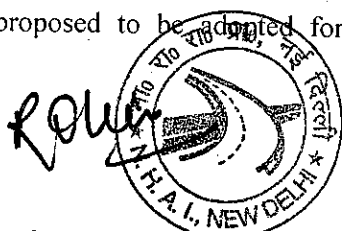
- (i) The Contractor shall establish a quality control mechanism to ensure compliance with the provisions of this Agreement (the "Quality Assurance Plan" or "QAP").
- (ii) The Contractor shall, within 30 (thirty) days of the Appointed Date, submit to the Authority's Engineer its Quality Assurance Plan which shall include the following:
  - (a) organisation, duties and responsibilities, procedures, inspections and documentation;
  - (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's 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's Engineer for review and consent the methodology proposed to be adopted for executing the Works, giving details of equipment to



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deployed, traffic management and measures for ensuring safety. The Authority's 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's 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's 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's 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's Engineer under this Agreement.

#### 11.6 Inspection of construction records

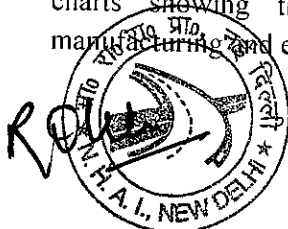
The Authority shall have the right to inspect the records of the Contractor relating to the Works.

#### 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's Engineer a monthly report on progress of the Works and shall promptly give such other relevant information as may be required by the Authority's Engineer.

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:

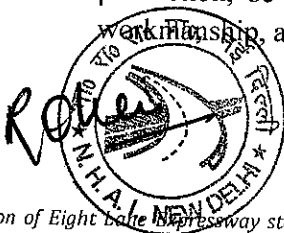
- (a) an executive summary;
- (b) charts showing the status of Contractor's documents, construction and manufacturing and environmental works;



- (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;
- (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's 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's Engineer and its authorised agents access, facilities and safety equipment for carrying out their obligations under this Agreement.
- (iii) The Authority's Engineer 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 by the Authority's Engineer shall not relieve or absolve the Contractor of its obligations and liabilities under this Agreement in any manner whatsoever.

### 11.9 Samples

The Contractor shall submit the following samples of Materials and relevant information to the Authority's 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's Engineer may require.

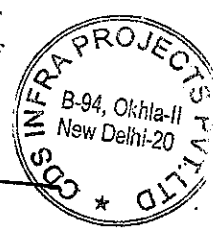
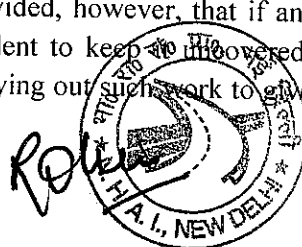
### 11.10 Tests

- (i) For determining that the Works conform to the Specifications and Standards, the Authority's 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 this Agreement, and in accordance with Good Industry Practice for quality assurance. The test checks by the Authority's 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's Engineer in this behalf. The Authority's 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's 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's Engineer whenever any such work is ready and before it is covered up. The Authority's Engineer shall then either carry out the examination, inspection or testing without unreasonable delay, or promptly give notice to the Contractor that the Authority's 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

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days' notice, to the Authority's 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's Engineer within a period of 3 (three) business days from the date on which the Contractor's notice hereunder is delivered to the Authority's Engineer, the Contractor shall be entitled to assume that the Authority's Engineer would not undertake the said inspection.

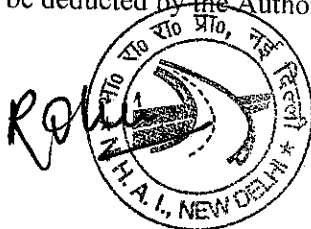
#### 11.12 Rejection

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's 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's 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; 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's 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's Engineer under Clause 11.13 (i), within the time specified in the Authority's Engineer's notice or as mutually agreed, the Authority's 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.



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#### 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's 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, by a communication inform the Authority's Engineer in reasonable detail about the steps it proposes to take to expedite progress and the period within which it shall achieve the Project Completion Date.

#### 11.15 Quality control records and Documents

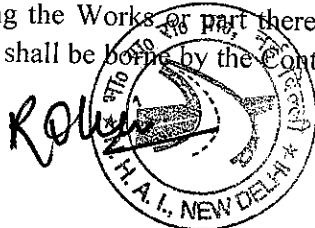
The Contractor shall hand over a copy of all its quality control records and documents to the Authority's Engineer before the Completion Certificate is issued pursuant to Clause 12.2. The Contractor shall submit Road Signage Plans to the Authority Engineer for approval at least 6 (six) months prior to expected completion of Project Highway.

#### 11.16 Video recording

During the Construction Period, the Contractor shall provide to the Authority for every calendar quarter, a video recording, which will be compiled into a 3 (three)-hour compact disc or digital video disc, as the case may be, covering the status and progress of Works in that quarter. The video recording shall be provided to the Authority no later than 15 (fifteen) days after the close of each quarter after the Appointed Date.

#### 11.17 Suspension of unsafe Construction Works

- (i) Upon recommendation of the Authority's 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's 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's 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's 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.
- (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



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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's Engineer shall determine any Time Extension to which the Contractor is reasonably entitled.

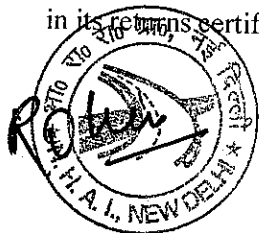
### 11.18 Staff and Labour

(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 conduct pre-employment police verification of the employees and other staffs and shall furnish the police verification report of all such staff/ employees, if requested by the Employer who shall be performing the Works or any part thereof;
- (d) The Contractor hereby confirms that the Contractor shall not engage any person with a criminal record / conviction and shall bar any such person from participating directly or indirectly in performing the Works.
- (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 our 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 Employer. 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.



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(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-Sub-Clause 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 out 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 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 this Sub-Clause, as may be required from time to time, shall be provided to the Employer's Representative.

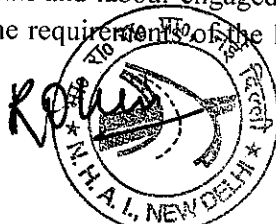
(e) The Employer shall not be liable for any delay/default of the Contractor in compliance of the labour laws.

(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



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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

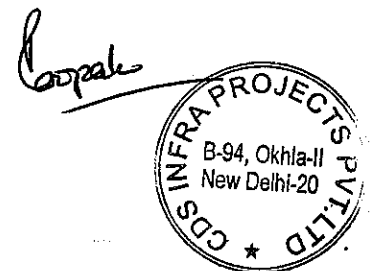
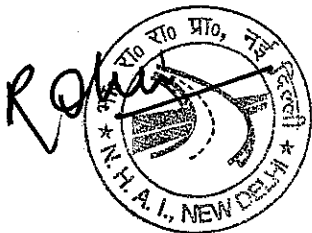
The Contractor shall employ only personnel who are appropriately qualified, skilled and experienced in their respective trades or occupations. The Authority may require the Contractor to remove any personnel engaged for the Works, who in the opinion of the Authority:

- (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.



## Article 12

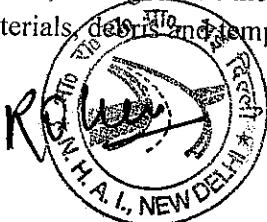
### Completion Certificate

#### 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's Engineer 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's 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's Engineer or provide such assistance as the Authority's Engineer may reasonably require for conducting the Tests. In the event of the Contractor and the Authority's Engineer failing to mutually agree on the dates for conducting the Tests, the Contractor shall fix the dates by giving not less than 10 (ten) days' notice to the Authority's Engineer.
- (ii) All Tests shall be conducted in accordance with Schedule-K. The Authority's Engineer shall either conduct or observe, monitor and review the Tests conducted by the Contractor, as the case may be, and 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's 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's 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's 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.

#### 12.2 Completion Certificate

- (i) Upon completion of all Works forming part of the Project Highway, and the Authority's 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



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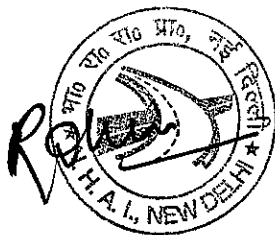


120% (one hundred and twenty per cent) of the actual cost of removal incurred by the Authority.

- (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.

### 12.3 Rescheduling of Tests

If the Authority's Engineer certifies to the Authority and the Contractor that it is unable to issue the Completion 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.



## Article 13

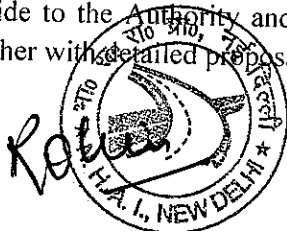
### Change of Scope

#### 13.1 Change of Scope

- (i) The Authority may, notwithstanding anything to the contrary contained in this Agreement, require the Contractor to make modifications/ alterations to the Works (“Change of Scope”) within a period of six 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.
- (ii) Provided that any such Change of Scope, excluding major structures (e.g. Major Bridge/ ROB/ RUB/ Flyover/ elevated road of more than 50 m length) may be required and agreed to be executed between the parties beyond the period of six months of the Appointed Date but before expiry of 50% of the original Scheduled Construction Period of the Project Highway, subject to the condition that it shall not entail any claims (e.g. Extension of Time/ Prolongation related claims), against the Authority.
- (iii) The Change of Scope shall mean the following:
- (a) change in specifications of any item of Works;
  - (b) omission of any work from the Scope of the Project except under Clause 8.3 (iii); provided that, subject to Clause 13.5, the Authority shall not omit any Work under this Clause in order to get it executed by any other authority; 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’s 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’s Engineer such information as is necessary together with a detailed proposal in support of:



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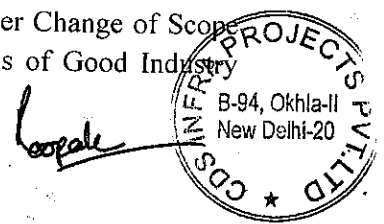
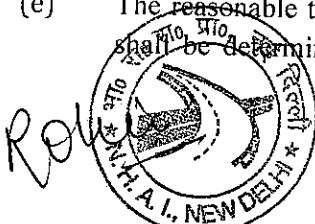


- (a) the impact, if any, which the Change of Scope is likely to have on the Project Completion Schedule if the works or services are required to be carried out during the Construction Period; and
- (b) the options for implementing the proposed Change of Scope and the effect, if any, each such option 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; and
  - ii. proposed design for the Change of Scope;
  - 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 works where Schedule of Rates (SOR) of concerned circle of State's Public Works Department are applicable at the Base Date are available, the same shall be applicable for determination of costs. In case of non-availability of Schedule of Rates at the Base Date, the available Schedule of Rates shall be applied by updating the same based on WPI. In case the Contract Price is lower/ higher than the Estimated Project Cost as per RFP, then the SOR rates shall be reduced/ increased in the same proportion accordingly.
  - (b) For item of Works not included in Schedule of Rates as mentioned in sub-para (a) of Clause 13.2 (iv) above, the cost of same shall be derived on the basis of MORTH Standard Data Book and the Authority's Engineer shall determine the prevailing market rates and discount the same considering WPI to achieve the prevailing rate at the Base Date, and for any item in respect of which MORTH Standard Data Book does not provide the requisite details, the Authority's Engineer shall determine the rate in accordance with Good Industry Practice.
 

For the avoidance of doubt, in case the cost as determined by the Contractor and the Authority reveals a difference of more than 10% (ten per cent), the cost as determined by the Authority shall be considered as final and binding on the Contractor.
  - (c) The design charges shall be considered only for new works or items (i.e. the Works or items not similar to the works or items in the original scope) @ 1% (one per cent) of cost of such new works or items.
  - (d) The costs of existing works or items, which are being changed/ omitted shall also be valued as per above procedure and only net cost shall be considered.
  - (e) The reasonable time for completion of works to be taken under Change of Scope shall be determined by the Authority's Engineer on the basis of Good Industry Practice.



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 consideration of the detailed proposal submitted by the Contractor under the Clause 13.2 (iii), the Authority, within 15 (fifteen) days of receipt of such proposal, may in its sole discretion either accept such Change of Scope with modifications, if any, and initiate proceedings thereof in accordance with this Article 13 or reject the proposal and inform the Contractor of its decision and shall issue an order (the "Change of Scope Order") requiring the Contractor to proceed with the performance thereof.

For the avoidance of doubt, the Parties agree that the Contractor shall not undertake any Change of Scope without the express consent of the Authority, save and except any works necessary for meeting any Emergency, that too with verbal approval of Authority which shall be confirmed in writing in next 3 (three) days. In the event that the Parties are unable to agree, the Authority may:

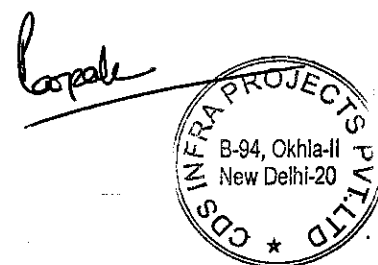
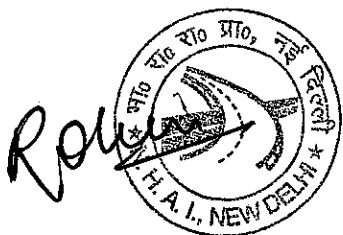
- (a) issue a Change of Scope Order requiring the Contractor to proceed with the performance thereof at the rates and conditions approved by the Authority till the matter is resolved in accordance with Article 26;
- or
- (b) proceed in accordance with Clause 13.5.
- (vi) The provisions of this Agreement, 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

Payment for Change of Scope shall be made in accordance with the payment schedule specified in the Change of Scope Order.

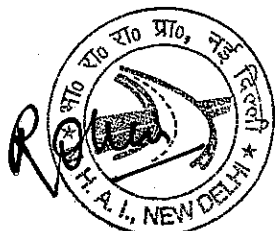
### 13.4 Restrictions on Change of Scope

- (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 10% (ten 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 on the basis of open competitive bidding. 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.



## Article 14

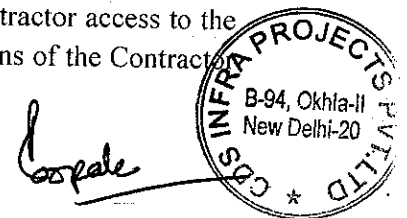
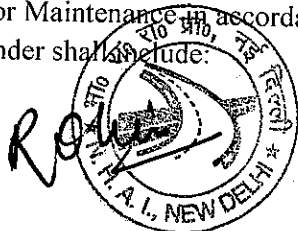
### Maintenance

#### 14.1 Maintenance obligations of the Contractor

- (i) The Contractor shall maintain the Project Highway for a period of 10 (ten) years, corresponding to the Defects Liability Period, commencing from the date of the Completion Certificate (the "Maintenance Period"). For the performance of its Maintenance obligations, the Contractor shall be paid:
- (a) For flexible pavement with 5 years Maintenance Period including structures: 0.25% of the Contract Price each for the first and second year; 0.5% of the Contract Price each for the third and fourth year and 1% of the Contract Price for the fifth year
  - (b) For rigid pavement with 10 years Maintenance Period including structures: 0.25% of the Contract Price each for the first, second and third year, 0.5% of the Contract Price each for fourth, fifth, sixth and seventh year, and 0.75% of the Contract Price each for eighth, ninth and tenth year.
  - (c) For flexible perpetual pavement with 10 years maintenance period including structures: 0.25% of the Contract Price each for the first, second and third year; 0.5% of the Contract Price each for the fourth, fifth and sixth year. The Contractor shall provide a renewal layer over the existing carriageway in the seventh year from issue of completion certificate. The requirement for this renewal layer shall be worked out based on the survey and investigation of the existing pavement and the cost of such renewal works shall be determined based on the principles defined under clause 13.2(iii). After the laying of the renewal layer in the 7th year, the Contractor shall be paid @ 0.25% of the original Contract Price each for the seventh, eighth, ninth and tenth year.
  - (d) For stand-alone 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.

Above amount for the performance of Contractors' Maintenance obligations shall be, inclusive of all taxes. 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) During the Maintenance Period, the Authority shall provide to the Contractor access to the Site for Maintenance in accordance with this Agreement. The obligations of the Contractor hereunder shall include:





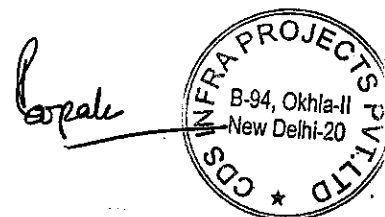
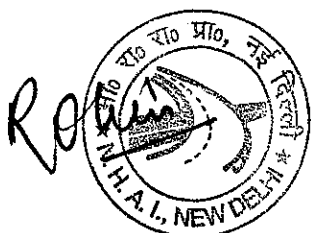
- (a) permitting safe, smooth and uninterrupted flow of traffic on the Project Highway;
  - (b) undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs and other traffic control devices;
  - (c) undertaking repairs to structures;
  - (d) informing the Authority of any unauthorised use of the Project Highway;
  - (e) informing the Authority of any encroachments on the Project Highway; and
  - (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 this Agreement.
- (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.

#### 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's Engineer and submit the same to the Authority's 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's Engineer shall be undertaken. The Maintenance Programme shall contain the following:
- (a) The condition of the road in the format prescribed by the Authority's Engineer;
  - (b) the proposed maintenance Works; and
  - (c) deployment of resources for maintenance Works.



#### 14.4 Safety, vehicle breakdowns and accidents

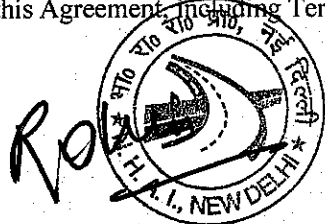
- (i) The Contractor shall ensure safe conditions for the Users, and in the event of unsafe conditions, lane closures, diversions, vehicle breakdowns and accidents, it shall follow the relevant operating procedures for removal of obstruction and debris without delay. Such procedures shall conform to 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 1 (one) mobile crane having the capacity to lift a truck with a Gross Vehicle Weight of 30,000 (thirty thousand) kilograms; and such post shall be located at At wayside amenities i.e. at Ch. 63+140 on Left side & Ch. 69+900 on right side. 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.

#### 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's Engineer. Such approval shall be sought by the Contractor through a written request to be made at least 10 (ten) days before the proposed closure of lane and shall be accompanied by particulars thereof. Within 5 (five) business days of receiving such request, the Authority's Engineer shall grant permission with such modifications as it may deem necessary and a copy of such permission shall be sent to the Authority.
- (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 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's Engineer and conveyed to the Contractor and the Authority with reasons thereof.

#### 14.7 Authority's right to take remedial measures

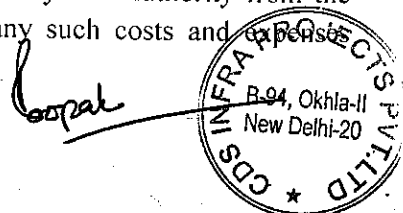
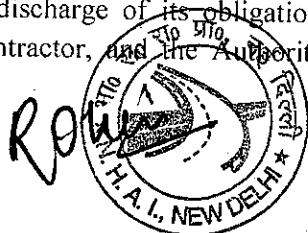
In the event the Contractor does not maintain and/or repair the Project Highway or any part thereof in conformity with the Maintenance Requirements, the Maintenance Manual or the Maintenance Programme, as the case may be, and fails to commence remedial works within 15 (fifteen) days of receipt of the Maintenance Inspection Report under Clause 15.2 or a notice in this behalf from the Authority or the Authority's 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 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 (ii), 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 Maintenance Requirements set forth in Schedule-E having been duly carried out, Maintenance Period as set forth in Clause 14.1 (i) having been expired and Authority's 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

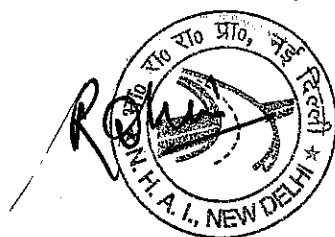
### Supervision and Monitoring during Maintenance

#### 15.1 Inspection by the Contractor

- (i) The Authority's 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's Engineer forthwith. The Contractor shall complete the proposed maintenance works before the onset of the monsoon and send a compliance report to the Authority's 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's Engineer forthwith.

#### 15.2 Inspection and payments

- (i) The Authority's Engineer may inspect 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.
- (ii) After the Contractor submits to the Authority's Engineer the Monthly Maintenance Statement for the Project Highway pursuant to Clause 19.6, the Authority's Engineer shall carry out an inspection within 10 (ten) days to certify the amount payable to the Contractor. The Authority's 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's 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's Engineer, the Authority's 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 made every month until the compliance is procured.



### 15.3 Tests

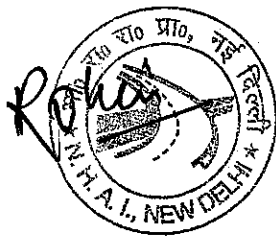
For determining that the Project Highway conforms to the Maintenance Requirements, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, Tests specified by it in accordance with Good Industry Practice. The Contractor shall, with due diligence, carry out or cause to be carried out all such Tests in accordance with the instructions of the Authority's Engineer and furnish the results of such Tests forthwith to the Authority's Engineer.

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's 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's 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's 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's Engineer, by facsimile or 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.



## 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 MORTH 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. 'ROBOTS' may be used for diversion and control of traffic during Construction. The Contractor shall take prior approval of the Authority's 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 of commencing from the date of Completion Certificate (the "Defects Liability Period") as specified below:
- (a) 5 (five) years from the date of completion in case of a road being constructed with flexible pavement;
  - (b) 10 (ten) years from the date of completion in case of road being constructed with rigid pavement;
  - (c) 10 (ten) years from the date of completion in case of road being constructed with flexible pavement using perpetual design;
  - (d) 10 (ten) years from the date of completion in case of all stand-alone structures, e.g. Major Bridges/ and Tunnels;
  - (e) 10 (ten) years from the date of completion for the stretches where new technology/ material has been/ is proposed to be used.

The Defects Liability Period shall commence from the date of the Completion Certificate. 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.

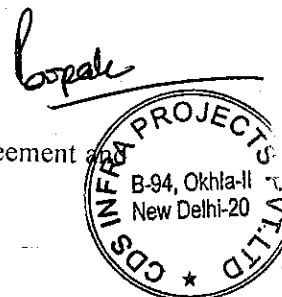
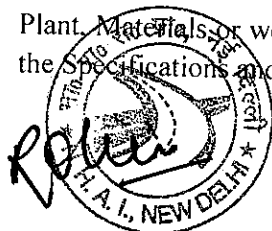
#### 17.2 Remedying Defects

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's Engineer during the Defects Liability Period within a period of 15 (fifteen) days from the date of notice issued by the Authority or Authority's Engineer in this behalf, or within such reasonable period as may be determined by the Authority or Authority's 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:

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





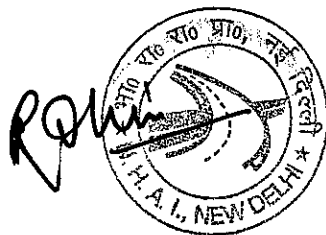
- (c) improper maintenance during construction of the Project Highway by the Contractor; and/ or
- (d) failure by the Contractor to comply with any other obligation under this Agreement.

**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's 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

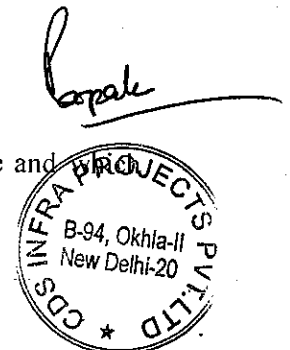
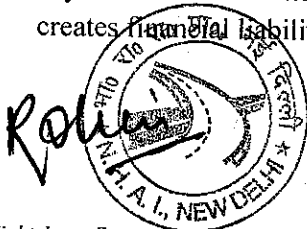
### Authority's Engineer

#### 18.1 Appointment of the Authority's Engineer

- (i) The Authority shall appoint a firm of Consulting Engineers or a Project Monitoring Committee (PMC) substantially in accordance with the selection criteria set forth in Schedule-N, to be the engineer under this Agreement (the "Authority's Engineer"). In unavoidable circumstances, Authority may appoint an officer to act as Authority's 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 NHA; RO/CE/ADG in the case of MORTH projects executed through the State PWDs and PD/ED/Director in 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's 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's Engineer and is fully competent to issue any instructions for proper monitoring and supervision of the project, either by himself or through the Authority's Engineer. Instructions issued by the concerned officer of the Authority shall have the same effect as that of the Authority's 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's Engineer.
- (iii) The Authority's Engineer should be appointed within 10 days from the date of this Agreement or before declaration of Appointed Date, whichever is earlier. The Authority shall notify the appointment or replacement of the Authority's Engineer to the Contractor.
- (iv) The staff of the Authority's Engineer shall include suitably qualified engineers and other professionals who are competent to assist the Authority's Engineer to carry out its duties.

#### 18.2 Duties and authority of the Authority's Engineer

- (i) The Authority's 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;
  - (d) issuance of Completion Certificate; or
  - (e) any other matter which is not specified in (a), (b), (c) or (d) above and creates financial liability on either Party.



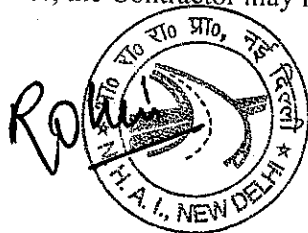
- (ii) No decision or communication of the Authority's Engineer shall be effective or valid unless it is accompanied by an attested true copy of the approval of the Authority for and in respect of any matter specified in Clause 18.2 (i).
- (iii) The Authority's Engineer shall submit regular periodic 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's Engineer within 10 (ten) days of the beginning of every month. For the avoidance of doubt, the Authority's Engineer shall include in its report, compliance of the recommendations of the Safety Consultant.

**18.3 Delegation by the Authority's Engineer**

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

- (i) The Authority's Engineer may issue instructions for remedying any Defect(s) to the Contractor. The Contractor shall take such instructions from the Authority's Engineer, or from an assistant to whom appropriate authority has been delegated under Clause 18.3.
- (ii) The instructions issued by the Authority's Engineer shall be in writing. However, if the Authority's Engineer issues any oral instructions to the Contractor, it shall confirm the 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's Engineer. The Contractor shall obtain acknowledgement from the Authority's Engineer of the communication seeking written confirmation. In case of failure of the Authority's 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's 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's Engineer

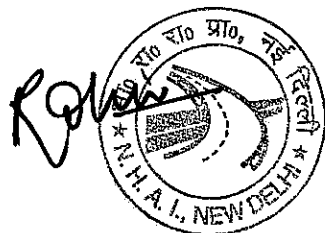
- (i) The Authority's Engineer shall consult with each Party in an endeavour to reach agreement wherever this Agreement provides for the determination of any matter by the Authority's Engineer. If such agreement is not achieved, the Authority's Engineer shall make a fair determination in accordance with this Agreement having due regard to all relevant circumstances. The Authority's 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's 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's Engineer, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure.

### 18.6 Remuneration of the Authority's Engineer

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

### 18.7 Termination of the Authority's Engineer

- (i) The Authority may, in its discretion, replace the Authority's Engineer at any time. However, the Authority shall ensure that alternative arrangements for appointment of another Authority's 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's 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's Engineer. Upon receipt of such representation, the Authority shall hold a tripartite meeting with the Contractor and the Authority's Engineer and make best efforts for an amicable resolution of the representation. In the event that the appointment of the Authority's Engineer is terminated hereunder, the Authority shall appoint forthwith another Authority's Engineer in accordance with Clause 18.1 and 18.7 (i).



## Part IV

### Financial Covenants



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Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode

## Article 19

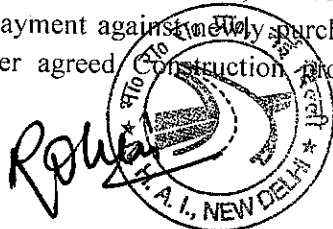
### Payments

#### 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 **Rs. 780,88,00,000/- (Rs. Seven Hundred Eighty Crore and Eighty Eight Lakh only)** (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, which shall be paid separately in accordance with the provisions of Clause 19.7. 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, 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.
- (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 make an interest-bearing advance payment (the "Advance Payment") @ "**Bank Rate + 3%**", 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.
- (ii) In addition to above, the Authority shall make an additional interest-bearing Advance Payment against the key purchased key Construction equipment required for the works as per agreed Construction programme and brought to the site, if so requested by the Contractor.



Contractor subject to the same terms and conditions specified for Advance Payment for mobilisation expenses in this Agreement. The maximum of such advance shall be 5% (five per cent) of the Contract Price against Bank Guarantee. This advance shall be further subject to the condition that:

- (a) such new equipment are considered by the Authority's Engineer to be necessary for the works and
- (b) these new equipment should be procured in the name of Contractor and is verified by Authority's Engineer to have been brought to site.

The Advance Payment for mobilization expenses and for acquisition of key new Construction equipment would be deemed as interest bearing advance at the applicable interest rate (@ "Bank rate + 3%"), to be compounded annually. The interest would be recovered along with the recovery of mobilization Advance Payment as per provision laid down for the mobilization advance recovery.

- (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 guarantee 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 guarantee 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 Bank Guarantee 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 Bank Guarantee shall be returned to the 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's 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

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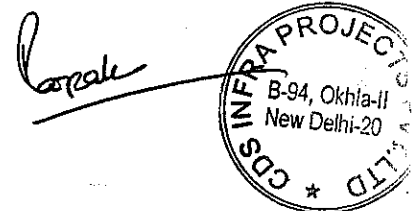
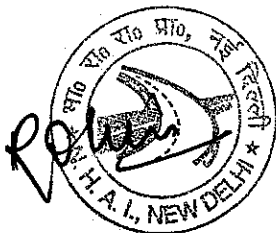


the advance payment shall be completely repaid prior to the time when 80% (eighty percent) of the Schedule Construction Period is over;

- (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 50% of the Scheduled Construction Period from the Appointed Date then the Advance Payment including interest shall be recovered by encashment of the Bank Guarantee 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 at @ "Bank Rate+5%" per annum from the date of Advance Payment to the date of recovery by encashment of the Bank Guarantee for the Advance Payment. For the avoidance of doubt, the aforesaid interest shall be payable on each instalment of the Advance Payment, regardless of whether the instalment or any part thereof has been repaid to the Authority prior to Termination.

### 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's 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.
- (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

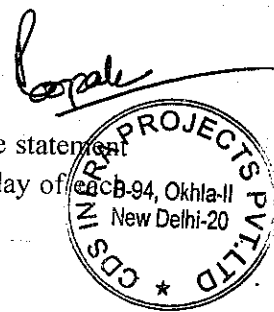
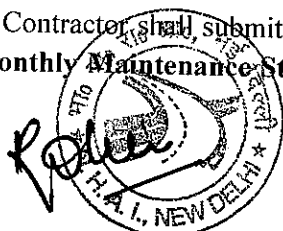
The Contractor shall submit a statement (the "Stage Payment Statement"), in 3 (three) copies, by the 7<sup>th</sup> (seventh) day of the month to the Authority's Engineer in the form set forth in Schedule-O, showing the amount calculated in accordance with Clause 19.3 to which the Contractor considers 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's 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's Engineer. Within 10 (ten) days of the receipt of recommendation of the Authority's 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's 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.
- (iii) In cases where there is a difference of opinion as to the value of any stage, the Authority's 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's 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's 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's Engineer a monthly maintenance statement ("Monthly Maintenance Statement") in 3 (three) copies by the 7<sup>th</sup> (seventh) day of



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  $1/12^{\text{th}}$  (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 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, the Authority's Engineer shall verify the Contractor's monthly maintenance statement and certify the amount to be paid to the Contractor taking into account:

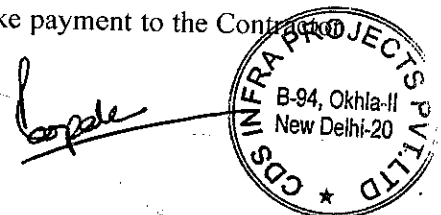
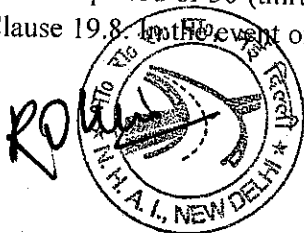
- (a) Compliance with the Maintenance Requirements; and  
(b) reduction for non-compliance with the Maintenance Requirement in accordance with Clause 19.7 (ii).

The Authority's 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 monthly 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's Engineer.
- (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's 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



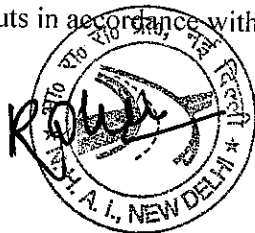
within the specified time, the Authority shall be liable to pay to the Contractor interest thereon and the provisions of Clause 19.9 shall apply *mutatis mutandis* thereto.

### 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's 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's 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's 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's 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 @ 9% (nine per cent) per annum, on all sums remaining unpaid from the date on which 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

- (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's 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:



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- (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:

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

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

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).

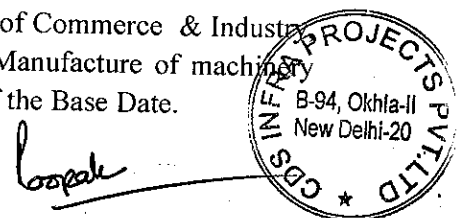
VBR = Increase or decrease in the cost of Major Bridges and Structures during the period under consideration due to changes in the rates for relevant components as stated in sub-paragraph (e).

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<sub>0</sub> = The wholesale price index as published by the Ministry of Commerce & Industry, Government of India (hereinafter called "WPI") for "Manufacture of machinery (excluding mining, quarrying and construction)" for the month of the Base Date.



$A_1 =$  The WPI for construction machinery for the month three months prior to the month to which the IPC relates.

$B_0 =$  The official retail price of bitumen at the nearest refinery at Mathura on the Base Date.

$B_1 =$  The official retail price of bitumen at nearest refinery at Mathura, on the first day of the month three months prior to the month to which the IPC relates.

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

$C_1 =$  The WPI for Ordinary Portland Cement for the month three months 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 Haryana on the Base Date.

$F_1 =$  The official retail price of HSD at the existing consumer pumps of IOC in the State of Haryana on the first day of the month three months prior to the month to which the IPC relates.

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

$L_1 =$  The CPI for the month three months prior to the month to which the IPC relates.

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

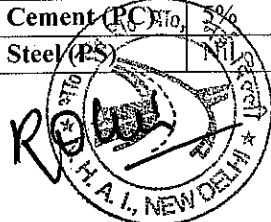
$M_1 =$  The WPI for all commodities for the month three months prior to the month to which the IPC relates.

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

$S_1 =$  The WPI for Mild Steel -Long Products for the month three months prior to the month to which the IPC relates.

(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%	20%	20%	15%	15%
Cement (PC)	20%	Nil	20%	15%	15%
Steel (PS)	20%	Nil	Nil	15%	20%



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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	
Bitumen (PB)	Nil	15%	Nil	Nil	Nil
Fuel and lubricants (PF)	10%	10%	10%	10%	10%
Other Materials (PM)	50%	40%	35%	30%	25%
Plant, machinery and spares. (PA)	15%	15%	15%	15%	15%
<b>Total</b>	100%	100%	100%	100%	100%

### 19.11 Restrictions on price adjustment

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 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.

### 19.12 Price adjustment for Maintenance of Project Highway

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:

$$V = P \times \frac{W_1 - W_0}{W_0}$$

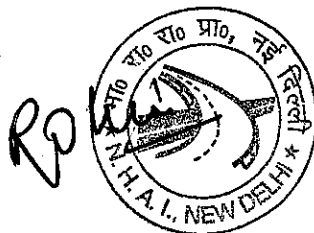
Where

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<sub>0</sub>= The wholesale price index (all commodities) for the month of the Base Date.

W<sub>1</sub>= The wholesale price index (all commodities) for the first day of the quarter under consideration for determining the price adjustment.



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### 19.13 Final Payment Statement

- (i) Within 60 (sixty) days after receiving the Completion Certificate under Clause 12.2, the Contractor shall submit to the Authority's 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's 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's Engineer disagrees with or cannot verify any part of the Final Payment Statement, the Contractor shall submit such further information as the Authority's Engineer may reasonably require. The Authority's Engineer shall deliver to the Authority:

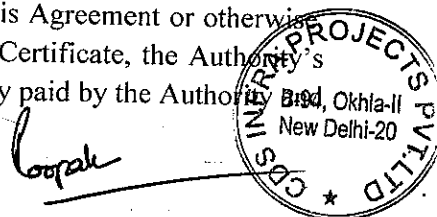
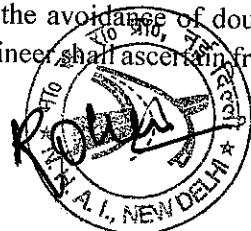
- i. an IPC for those parts of the Final Payment Statement which are not in dispute, along with a list of disputed items which shall then be settled in accordance with the provisions of Article 26; or
  - ii. a Final Payment Certificate in accordance with Clause 19.15 if there are no disputed items.
- (ii) If the Authority's 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's 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's Engineer shall deliver to the Authority, with a copy to the Contractor, a final payment certificate (the "**Final Payment Certificate**") stating the amount which, in the opinion of the Authority's Engineer, is finally due under this Agreement or otherwise. For the avoidance of doubt, before issuing the Final Payment Certificate, the Authority's Engineer shall ascertain from the Authority all amounts previously paid by the Authority.



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.

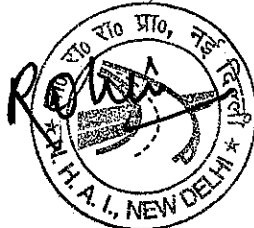
- (ii) The Authority shall, in accordance with the provisions of Clause 19.9, pay to the Contractor the amount which is stated as being finally due in the Final Payment Certificate.

#### 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's 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's 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's 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's Engineer within a period of 30 (thirty) days of the receipt of the Final Payment Statement from the Authority's Engineer.
- (iii) If the Authority's Engineer does not prescribe the form within 15 (fifteen) days of the date of issue of the Completion Certificate, 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's 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's Engineer of such reduction in cost due to Change in Law.
- (iii) The Authority's Engineer shall, within 15 (fifteen) days from the date of receipt of the 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.



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### 19.18 Correction of Interim Payment Certificates

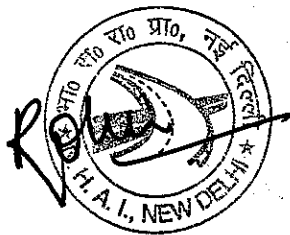
The Authority's Engineer may by an Interim Payment Certificate make any correction or modification in any previous Interim Payment Certificate issued by the Authority's Engineer.

### 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 payment of bonus, if any, shall be made only after the issue of the Completion Certificate. 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. The Parties also agree that bonus shall be payable only if each work for which Time Extension has been granted is completed within respective Extended Time.



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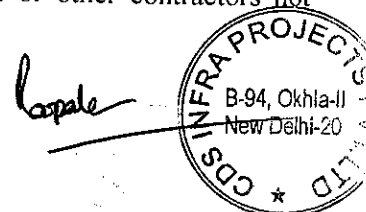
## Article 20

### 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.



- (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

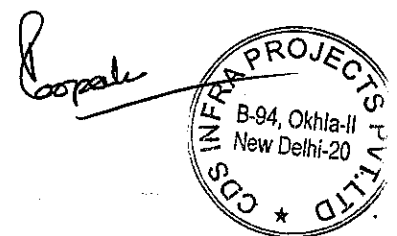
No later than 15 (fifteen) days after the date of this Agreement, the Contractor shall by notice furnish to the Authority, in reasonable detail, information in respect of the insurances that it proposes to effect and maintain in accordance with this Article 20. Within 15 (fifteen) days of receipt of 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.



## 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

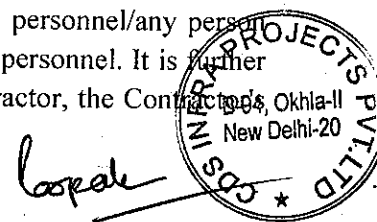
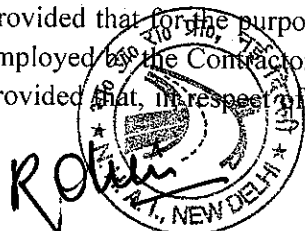
Any such insurance maintained or effected in pursuance of this Article 20 shall include a cross liability clause such that the insurance shall apply to the Contractor and to the Authority as separately insured.

## 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 employed by any Sub-contractor, the Contractor



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.

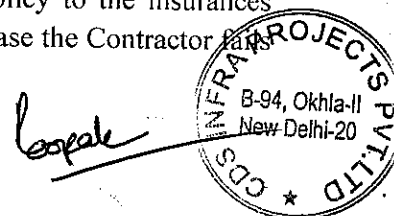
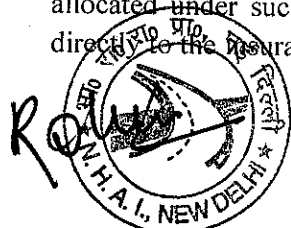
#### 20.11 Compliance with policy conditions

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

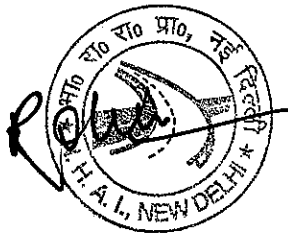
The Contractor must:

- (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 the insurances directly to the insurance provider promptly on demand. In case the Contractor fails

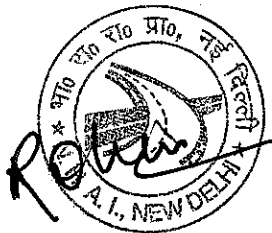


to make such payment in time, the Authority may elect to pay the Contractor's share and adjust it against amounts payable to the Contractor under this Agreement;

- (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.



**Part V**  
**Force Majeure and Termination**



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## Article 21

### Force Majeure

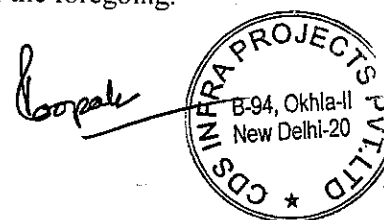
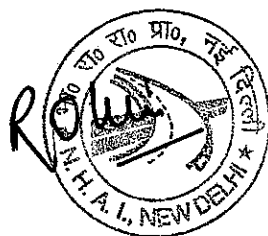
#### 21.1 Force Majeure

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 prevented or overcome by exercise of due diligence and following Good Industry Practice, and (iii) has Material Adverse Effect on the Affected Party.

#### 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);
- (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 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) 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.





### 21.3 Indirect Political Event

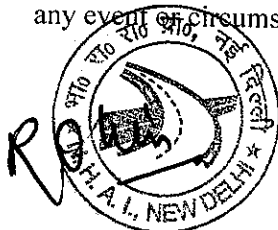
An Indirect Political Event shall mean one or more of the following acts or events:

- (a) an act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage;
- (b) industry-wide or State-wide strikes or industrial action for a continuous period of 24 (twenty-four) hours and exceeding an aggregate period of 10 (ten) days in an Accounting Year;
- (c) any civil commotion, boycott or political agitation 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) any Indirect Political Event that causes a Non-Political Event; or
- (f) any event or circumstances of a nature analogous to any of the foregoing.

### 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;
- (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.



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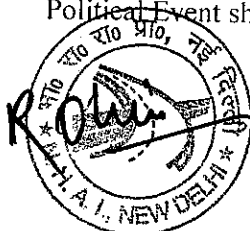


## 21.5 Duty to report Force Majeure Event

- (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.

## 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.



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- (d) For the avoidance of doubt, Force Majeure costs may include costs directly attributable to the Force Majeure Event, but shall not include debt repayment obligations, if any, of the Contractor.
- (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 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.

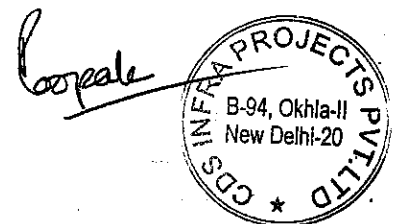
#### 21.8 Termination Payment for Force Majeure Event

- (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's 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's 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's 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.

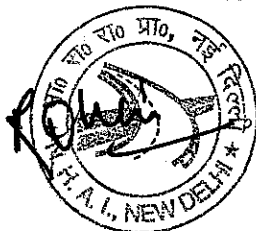
### 21.9 Dispute resolution

In the event that the Parties are unable to agree in good faith about the occurrence or existence of a Force Majeure Event, such Dispute shall be finally settled in accordance with the Dispute Resolution Procedure; provided that the burden of proof as to the occurrence or existence of such Force Majeure Event shall be upon the Party claiming relief and/ or excuse on account of such Force Majeure Event.

### 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.



## 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

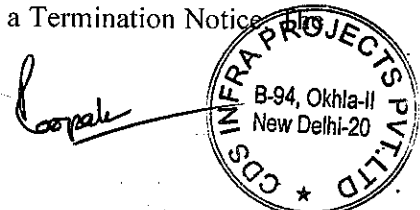
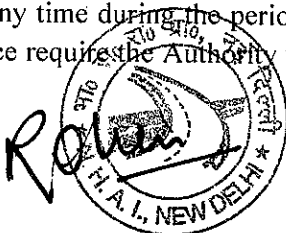
During the period of Suspension hereunder, all rights and liabilities vested in the Contractor in accordance with the provisions of this Agreement shall continue to vest therein and all things done or actions taken, including expenditure incurred by the Authority for discharging the obligations of the 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 Notice.



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.

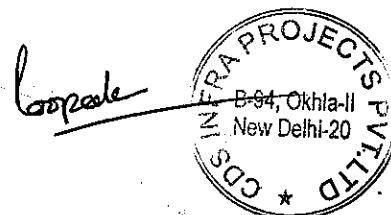


## Article 23

### Termination

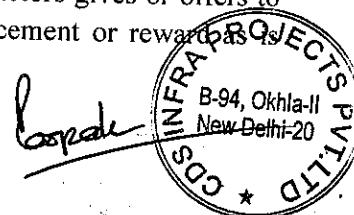
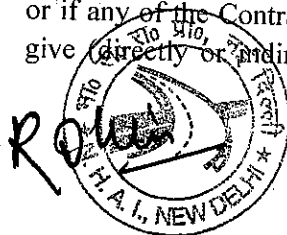
#### 23.1 Termination for Contractor Default

- (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 in accordance with this Agreement;
  - (b) after the replenishment or furnishing of fresh Performance Security 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) 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's 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's 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;
  - (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



- (k) the Contractor is adjudged bankrupt or insolvent, 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, as of the date hereof, 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
- (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



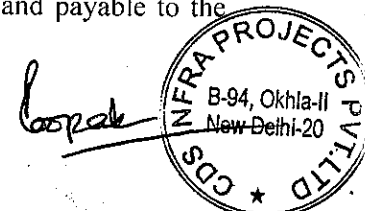
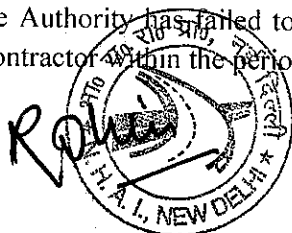


described in this sub-paragraph (s). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.

- (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 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) the Authority has failed to provide, within a period of 180 (one hundred and eighty) days from the Appointed Date, the environmental clearances required for construction of the Project Highway;
  - (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's 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.

If on the consideration of the Authority's representation or otherwise, the contractor does not issue the Termination Notice on such 15<sup>th</sup> (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.

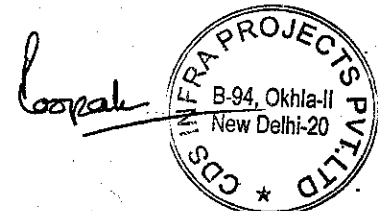
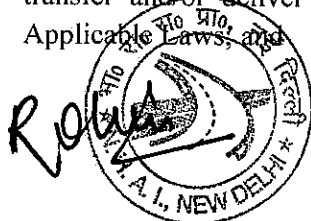
### 23.3 Termination for Authority's convenience

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;
- (b) transfer and/or deliver all Applicable Permits to the extent permissible under Applicable Laws;



- (c) vacate the Site within 15 (fifteen) days.

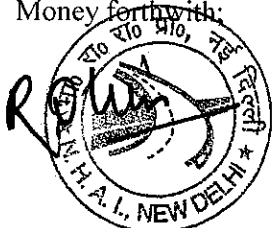
### 23.5 Valuation of Unpaid Works

- (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's 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 30 (thirty) days from the date of Termination.

### 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; and
  - (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.
- (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's 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 9% (nine per cent) 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.

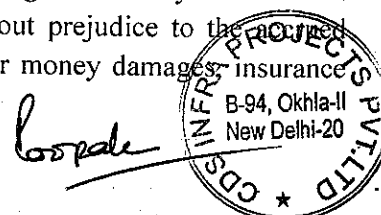
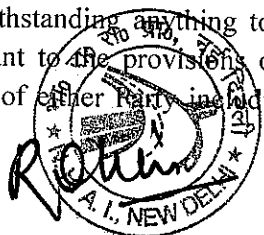
### 23.7 Other rights and obligations of the Parties

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

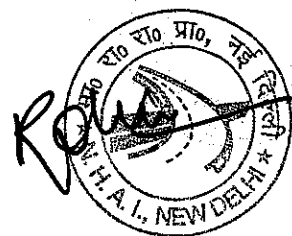
Notwithstanding anything to the contrary contained in this Agreement any Termination pursuant to the provisions of this Agreement shall be without prejudice to the accrued rights of either Party including its right to claim and recover money damages, insurance



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.
- (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 Contract 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.



## Part VI

### Other Provisions



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Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vaodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode

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.



## Article 25

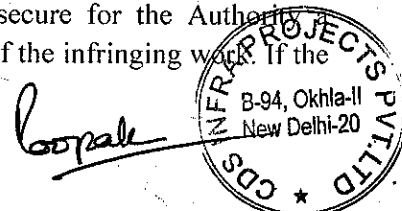
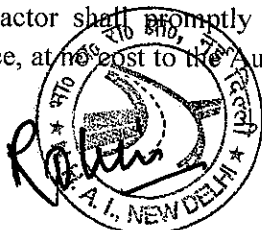
### Liability and Indemnity

#### 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 preliminary 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 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, the Contractor shall promptly make every reasonable effort to secure for the Authority 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 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

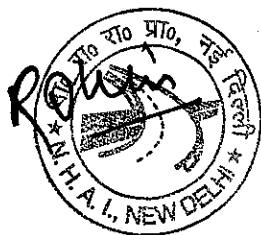


- (b) the Indemnified Party shall have reasonably concluded that there may be a conflict of interest between the Indemnifying Party and the Indemnified Party in the conduct of the defence of such action; or
- (c) the Indemnifying Party shall not, in fact, have employed independent counsel reasonably 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

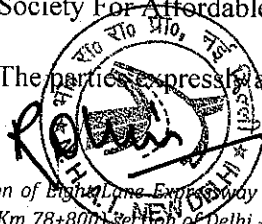
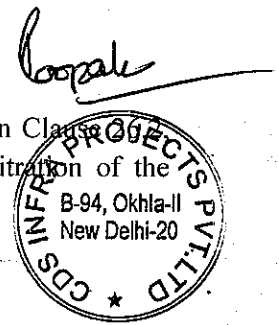
- (i) Any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "Dispute") shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure set forth in Clause 26.2.
- (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 Conciliation

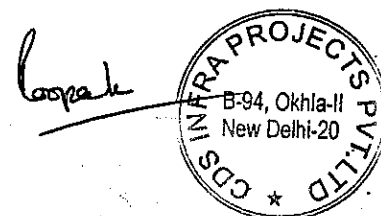
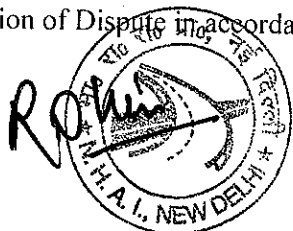
In the event of any Dispute between the Parties, either Party may call upon the Authority's Engineer, or such other person as the Parties may mutually agree upon (the "Conciliator") to mediate and assist the Parties in arriving at an amicable settlement thereof. Failing mediation by the Conciliator or without the intervention of the Conciliator, either Party may require such Dispute to be referred to the Chairman of the Authority and the Chairman of the Board of Directors of the Contractor for amicable settlement, and upon such reference, the said persons shall meet no later than 7 (seven) business days from the date of reference to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the 7 (seven) business day period or the Dispute is not amicably settled within 15 (fifteen) days of the meeting or the Dispute is not resolved as evidenced by the signing of written terms of settlement within 30 (thirty) days of the notice in writing referred to in Clause 26.1.1 or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to arbitration in accordance with the provisions of Clause 26.3 but before resorting to such arbitration, the parties agree to explore conciliation by the Conciliation Committees of Independent Experts set up by the Authority in accordance with the procedure decided by the panel of such experts and notified by the Authority on its website including its subsequent amendments. In the event of the conciliation proceedings being successful, the parties to the dispute would sign the written settlement agreement and the conciliators would authenticate the same. Such settlement agreement would then be binding on the parties in terms of Section 73 of the Arbitration Act. In case of failure of the conciliation process even at the level of the Conciliation Committee, either party may refer the Dispute to arbitration in accordance with the provisions of Clause 26.3.

#### 26.3 Arbitration

- (i) Any Dispute which is not resolved amicably by conciliation, as provided in Clause 26.2 shall be finally settled by arbitration in accordance with the rules of arbitration of the Society For Affordable Redressal of Disputes (SAROD).
- (ii) The parties expressly agree as under in case of arbitration of disputes:



- (a) There shall be no arbitration for a dispute involving a claim value upto INR 50 Lakh (INR fifty lakh). The Authority's Engineer shall give a reasoned decision in case of such dispute and the same shall be binding on both the parties.
- (b) In case of a dispute involving claim value of above INR 50 Lakh (INR fifty lakh), but upto INR 50 Crore (INR fifty crore), the same shall be referred to a Sole Arbitrator. Authority shall within 30 (thirty) days propose names of 5 (five) Arbitrators from the list of Arbitrators maintained by SAROD (Society for Affordable Redressal of Disputes) and the Contractor shall within 30 (thirty) days select one name from the list of five and the name so selected by the Contractor shall be the Sole Arbitrator for the matter in dispute. In case Authority delays in providing the list of 5 (five) names, President, SAROD will provide 5 names within 30 (thirty) days of receipt of reference from aggrieved party in this regard. In case the Contractor fails in selecting one from the list of five, President, SAROD shall select one from the list of five provided by Authority within 30 (thirty) days of receipt of reference from aggrieved party in this regard.
- (c) In case of a dispute involving a claim value of more than INR 50 Crore (INR fifty crore), the same shall be referred to an Arbitral Tribunal comprising 3 (three) Arbitrators. The Dispute shall be settled in accordance with the rules of Arbitration of the Society for Affordable Redressal of Disputes (SAROD).
- (d) The venue of arbitration shall be Delhi, and the language of arbitration proceedings shall be English.
- (e) The fees of the Arbitrators shall be as per the rates fixed by the Authority from time to time. The cost of arbitration shall be shared equally by the parties.
- (f) Neither Party shall be entitled for any pre-reference or pendent lite interest, i.e., interest from date of cause of action till date of Award by Arbitral Tribunal. The parties specifically agree that claim for any such interest shall not be considered and shall be void. The Arbitrator or Arbitral Tribunal shall have no power/ jurisdiction to award pre-reference or pendent lite interest in case of disputes.
- (iii) The Arbitrators shall make a reasoned award (the "Award"). Any Award made in any arbitration held pursuant to this Article 26 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.
- (iv) The Contractor and the Authority agree that an Award may be enforced against the Contractor and/or the Authority, as the case may be, and their respective assets wherever situated.
- (v) This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pending the Award in any arbitration proceedings 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.



- (vi) In the event the Party against whom the Award has been granted challenges the Award for any reason in a court of law, it shall make an interim payment to the other Party for an amount equal to 75% (seventy five per cent) of the Award, pending final settlement of the Dispute. The aforesaid amount shall be paid forthwith upon furnishing an irrevocable Bank Guarantee for a sum equal to 120 % (one hundred and twenty per cent) of the aforesaid amount. Upon final settlement of the Dispute, the aforesaid interim payment shall be adjusted and any balance amount due to be paid or returned, as the case may be, shall be paid or returned with interest calculated at the rate of 10% (ten per cent) per annum from the date of interim payment to the date of final settlement of such balance.

#### 26.4 Adjudication by Regulatory Authority, Tribunal or Commission

In the event of constitution of a statutory regulatory authority, tribunal or commission, as the case may be, with powers to adjudicate upon disputes between the Contractor and the Authority, all Disputes arising after such constitution shall, instead of reference to arbitration under Clause 26.3, be adjudicated upon by such regulatory authority, tribunal or commission in accordance with the Applicable Law and all references to Dispute Resolution Procedure shall be construed accordingly. For the avoidance of doubt, the Parties hereto agree that the adjudication hereunder shall not be final and binding until an appeal against such adjudication has been decided by an appellate tribunal or court of competent jurisdiction, as the case may be, or no such appeal has been preferred within the time specified in the Applicable Law.



## 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:

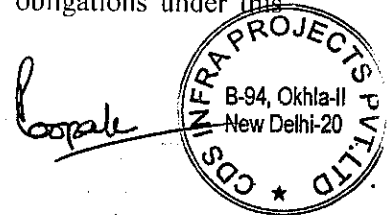
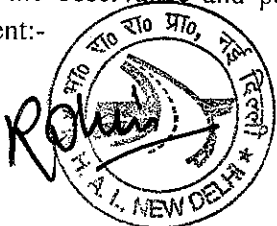
- (a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;
- (b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement 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 Base Rate plus 2 (two) percent, calculated at quarterly rests, and recovery thereof shall be without prejudice to the rights of the Parties under this Agreement including Termination thereof.

#### 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:

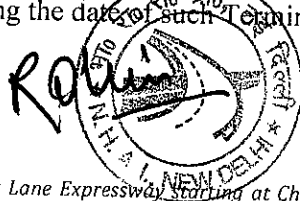
- (a) no review, comment or approval by the Authority or the Authority's Engineer of any Document or Drawing submitted by the Contractor nor any observation or inspection of the construction, or maintenance of the Project Highway nor the failure to review, approve, comment, observe or inspect hereunder 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.

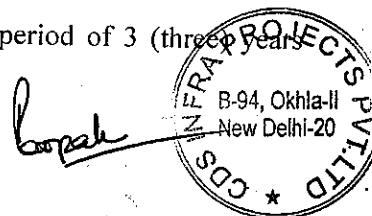
This Agreement expressly excludes any warranty, condition or other undertaking implied at law or by custom or otherwise arising out of any other agreement between the Parties or any representation by either Party not contained in a binding legal agreement executed by both Parties.

### 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 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.



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## 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. For the avoidance of doubt, the Parties hereto agree that any obligations of the Contractor arising from the Request for Qualification or Request for Proposals, as the case may be, 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

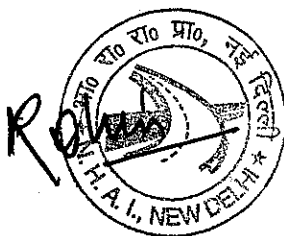
This Agreement shall not be interpreted or construed to create an association, joint venture or partnership between the Parties, or to impose any partnership obligation or liability upon either Party, and neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, 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.

## 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 facsimile or 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 facsimile or e-mail to the person as the Contractor may from time to time designate by notice to the Authority;

**Address:- CDS Infra Projects Pvt. Ltd.,  
B-94, Okhla Phase-II, New Delhi-110020,**

- (b) in the case of the Authority, be given by facsimile or 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 facsimile or 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.

### 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:

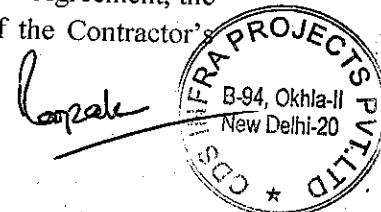
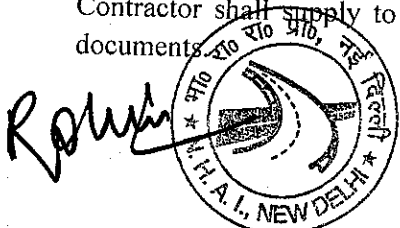
- (a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works;
  - (b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's documents for the purposes of completing, operating, maintaining, 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

- (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.**

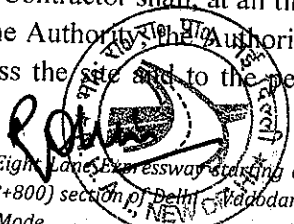
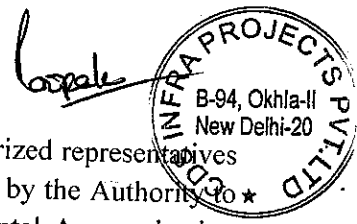
- (i) As between the Parties, the Contractor shall retain the copyright and other Intellectual Property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.
- (ii) The Contractor hereby gives to the Authority a non-terminable transferable nonexclusive 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.
- (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's 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.

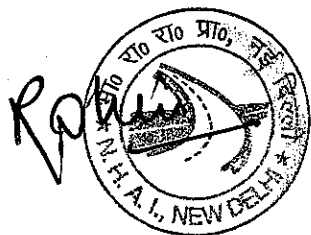
### 27.25 Representation and Bribes

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 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.



**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:

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DAY, MONTH AND YEAR FIRST ABOVE WRITTEN

SIGNED, SEALED AND DELIVERED For and on behalf of

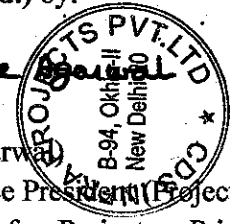
SIGNED, SEALED AND DELIVERED For and on behalf of

**THE NATIONAL HIGHWAYS AUTHORITY OF INDIA** by:

**M/s CDS Infra Projects Private Limited** (formerly known as M/s Centrodorstroy India Pvt. Ltd.) by:

*Rohin*  
 रोहिन कुमार गुप्ता / Rohin Kumar Gupta  
 महाप्रबंधक (तकनीकी) / GM (Tech.)  
 भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
 National Highways Authority of India  
 General Manager (Tech.) और राजमार्ग मंत्रालय  
 (Ministry of Road Transport & Highways)  
 Bharatmala Division, सेक्टर-10, द्वारका, नई दिल्ली-75  
 G-5 & 6, Sector-10 Dwarka, New Delhi - 75  
 National Highways Authority of India

*Roopak*  
 (Roopak Agarwal)  
 Assistant Vice President (Projects)  
 M/s CDS Infra Projects Private Limited  
 (formerly known as M/s Centrodorstroy India Pvt. Ltd.)



G- 5&6, Sector 10, Dwarka,  
 New Delhi 110 075, India

B-94, Okhla Phase-II,  
 New Delhi-110020

In the presence of Witnesses:

In the presence of Witnesses:

1. Signature: *R.K. Pandey*  
 Name: R. K. PANDEY  
 Address: MEMBER (P)  
 NHA I

1. Signature: *Vijay Kumar*  
 Name: VIJAY KUMAR  
 Address: H. P. 80 Ambhrai Village  
 Dwarka A B

2. Signature: *Manoj Kumar*  
 Name: मनोज कुमार / Manoj Kumar  
 Address: मुख्य महाप्रबंधक (तक.) / OGM (Tech.)  
 भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
 National Highways Authority of India  
 (सड़क परिवहन और राजमार्ग मंत्रालय)  
 Ministry of Road Transport & Highways  
 सेक्टर-10, द्वारका, नई दिल्ली-75  
 G- 5 & 6, Sector-10 Dwarka, New Delhi - 75

2. Signature: *Koustubh Madhusudan*  
 Name: KOUSTUBH MADHUSUDAN  
 Address: D-10, SHYAM VIHAR  
 PHASE-II, NEW DELHI-43

इसके साक्ष्यस्वरूप दोनों पक्षों ने इस करार को ऊपर लिखी तिथि माह और वर्ष को निष्पादित किया और सौंप दिया।

हस्ताक्षर किए मुहरबंद किया और सौंप दिया  
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण के लिए  
और उसकी ओर से  
द्वारा:

*Rohin*

रोहिन कुमार गुप्ता / Rohin Kumar Gupta  
महाप्रबंधक (तकनीकी) / GM (Tech.)  
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
(रोहिन कुमार गुप्ता) National Highways Authority of India  
सड़क परिवहन और राजमार्ग मंत्रालय  
महाप्रबंधक (तकनीकी) Ministry of Road Transport & Highways  
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
जी-5 एवं 6, सेक्टर-10 द्वारका, नई दिल्ली-75  
जी-5 और 6, सेक्टर-10 द्वारका,  
नई दिल्ली - 110075

हस्ताक्षर किए मुहरबंद किया और सौंप दिया  
मेसर्स सीडीएस इन्फ्रा प्रोजेक्ट्स प्राइवेट लिमिटेड (पूर्व  
मेसर्स सेंट्रोडोरस्ट्राय इंडिया प्राइवेट लिमिटेड) के लिए  
और उसकी ओर से  
द्वारा:



(रूपक अग्रवाल)

असिस्टेंट वाइस प्रेसिडेंट (प्रोजेक्ट्स)  
मेसर्स सीडीएस इन्फ्रा प्रोजेक्ट्स प्राइवेट लिमिटेड  
(पूर्व मेसर्स सेंट्रोडोरस्ट्राय इंडिया प्राइवेट लिमिटेड)  
बी- 94, ओखला फेज-II, नई दिल्ली -110020

निम्नलिखित की उपस्थिति में:

1. हस्ताक्षर : *R.K. Pandey*  
नाम: R. K. PANDEY  
पता: MEMBER (P)  
NHAI

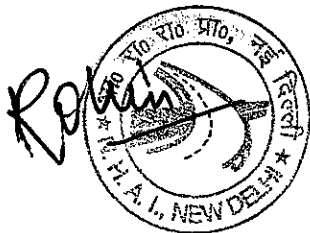
2. हस्ताक्षर : *Manoj Kumar*  
नाम: मनोज कुमार / Manoj Kumar  
मुख्य महाप्रबंधक (तक.) / CGM (Tech.)  
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
पता: National Highways Authority of India  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
(Ministry of Road Transport & Highways)  
जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-75  
G - 5 & 6, Sector - 10, Dwarka, New Delhi - 75

निम्नलिखित की उपस्थिति में:

1. हस्ताक्षर : *Vijay Kumar*  
नाम: VIJAY KUMAR  
पता: H.No 80, Anshraai Village  
Dwarka Sector 19 B

2. हस्ताक्षर : *Roustabh*  
नाम: ROUSTABH MADHUSUDAN  
पता: D-10, SHYAM VIHAR  
PHASE-II, NEW DELHI 43

## Schedules

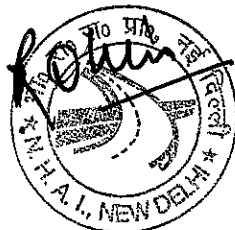


**Schedule - A**  
(See Clause 2.1 and 8.1)

**SITE OF THE PROJECT**

**1 THE SITE**

- 1.1 Site of the Eight-Lane 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 8.2.1 of this Agreement.
- 1.4 The alignment plans of the Project Highway are specified in Annex-III. The proposed levels (minimum FRL) as indicated in the alignment plan shall be followed by the contractor. The contractor, however, improve/upgrade the Road Profile as indicated in Annexure-III based on site/design requirement.
- 1.5 The status of the environment clearances obtained or awaited is given in Annex IV.





**Annex – I  
(Schedule-A)**

**Site for Eight Laning**

**1.1 The Site**

The Site of the project highway is a section of Delhi – Vadodara National Highway No. 148N commencing at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Ch. 47+000 to 78+800) passing through greenfield area in the State of Haryana. The land, carriageway and structures comprising the site are described below.

**1.2 Description of the Project Highway**

The project highway is a Greenfield alignment passing through Khanpur Ghati, Marora, Jhimrawat, Khedi kalan, Gujjar Nangla, Bai Khara, Mathun, Chitora, Naharika, rawa, Baghola, Hirwadi Bamantheri, Alipur Tigra, Ghata Samsabad, Akhnaka, Rigar, Agon, Pathrali, Shahpur, Khedia Kalan, Bhakroji, Bariabas, Ibrahambas, Smirbas & Koilgaon villages. Latitude and longitude of the project corridor lies between 27°55'29.24"N, 77°4'40.14"E and 27°39'31.39"N, 76°57'53.30"E. An index map showing the existing features of the Project Highway is given at Appendix A-I.

**1.3 Terrain**

The terrain along the project stretch is predominantly plain terrain.

**2 Land**

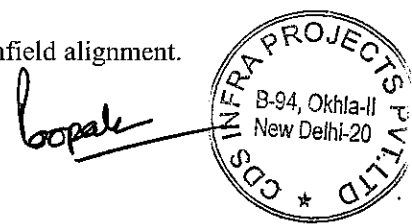
The site of the project highway comprises the land (sum total of land already in possession and land to be possessed) is detailed in Annex-II of this Schedule A.

**3 Carriageway**

There is no existing alignment as the proposed project is a new Greenfield alignment.

**4 Major Bridges**

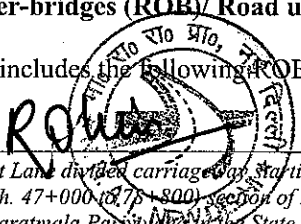
The Site includes the following existing Major Bridges:



S. No.	Existing Chainage (Km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Superstructure		
Nil						

**5 Road over-bridges (ROB)/ Road under-bridges (RUB)**

The Site includes the following ROB (road over railway line)/RUB (road under railway line):



S. No.	Existing Chainage (Km)	Type of Structure		No. of Spans with span length (m)	Width (m)	ROB/RUB
		Foundation	Superstructure			
Nil						

## 6 Grade separators

The Site includes the following grade separators

S. No.	Chainage (km)	Type of Structure		No. of Spans with span length (m)	Width (m)
		Foundation	Superstructure		
Nil					

## 7 Minor bridges

The Site includes the following existing minor bridges:

S. No.	Existing Chainage (Km)	Type of structure			No. of Spans x length (m)	Overall Width (m)
		Type of Foundation	Sub Structure	Super Structure		
Nil						

## 8 Railway level crossings

The Site includes the following railway level crossings:

S. No.	Existing Chainage (Km)	Railway Chainage	Level Crossing No.	Remarks
Nil				

## 9 Underpasses (vehicular, non-vehicular)

The Site includes the following underpasses:

S. No.	Existing Chainage (Km)	Type of Structure	No. of Spans with span length (m)	Width (m)
Nil				

## 10 Culverts

The Site has the following existing culverts:

S. No.	Existing Chainage (Km)	Type of Culvert	Spans/Opening x span length/Pipe dia. (m)	Overall Width (m)
Nil				



S. No.	Existing Chainage (Km)	Type of Culvert	Spans/Opening x span length/Pipe dia. (m)	Overall Width (m)
Nil				

**11 Bus bays**

The Stretch has the following Bus Bays /Bus Shelters:

S. No.	Chainage (km)	Bus Stop Name	Side	Remarks
Nil				

**12 Truck Lay byes**

The details of truck lay byes are as follows:

S. No.	Chainage (km)	Length (m)	Left Hand Side	Right Hand Side
Nil				

**13 Road side drains**

The Road Side Drains along the Project Highway is as follows:

S. No.	Location		Type	
	From km	to km	Masonry/cc (Pucca)	Earthen (Kutchha)
Nil				

**14 Major junctions**

The details of major junctions are as follows:

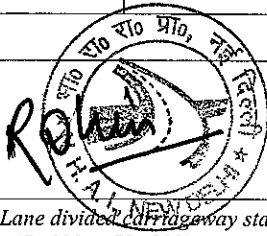
S. No.	Existing Chainage (Km)	At grade	Separated	Category of Cross Road			
				NH	SH	MDR	Others
Nil							

(NH: National Highway, SH: State Highway, MDR: Major District Road)

**15 Minor junctions**

The details of the minor junctions are as follows:

S. No.	Existing km	Type of Junction	Direction	Width of Road	Name of Place
Nil					



**16 Bypasses**

The details of the bypasses are as follows:

S. No.	Name of bypass (town)	Chainage (km)		Length (in Km)
		From km	to km	
Nil				

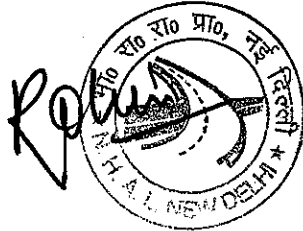
**17 Details of any other Structures**

S. No	Existing Chainage (Km)	Type of Structure	Height (m)	Remarks
Nil				

**18 Submergence Locations**

No existing road has been utilized as part of the project alignment hence submergence location is not applicable.

S. No.	Existing Chainage (Km)		Overtopping above the existing road (m)
	From	To	
Nil			

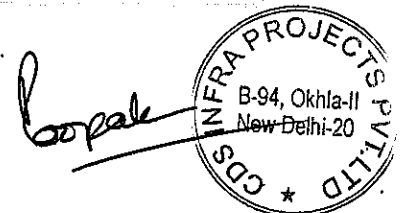
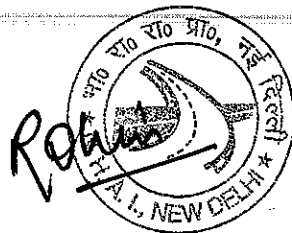
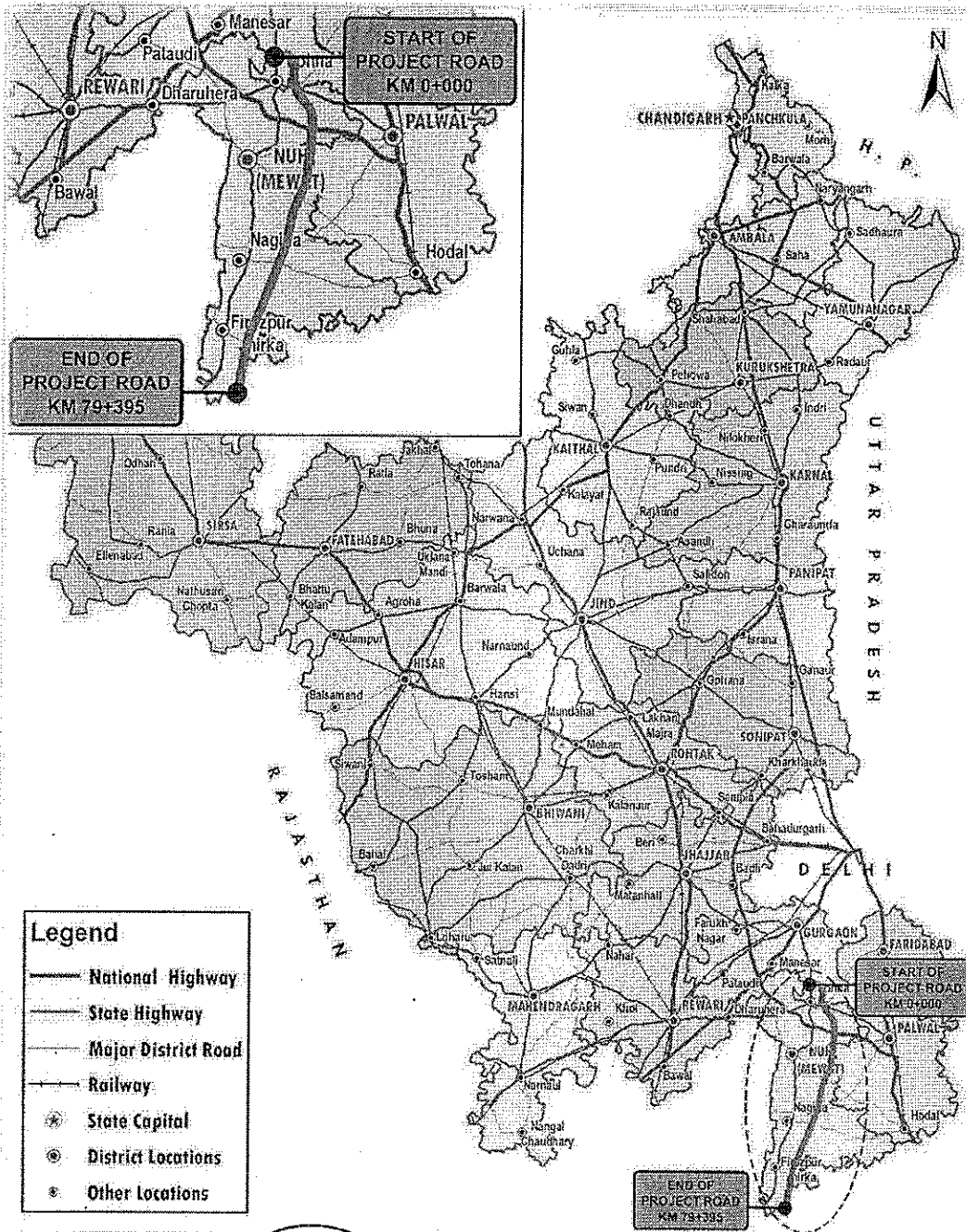


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**Appendix A-I**

**Index map of Project Highway**



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

**Annex II  
(Schedule-A)**

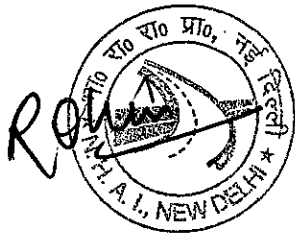
**Dates for providing Right of Way**

The dates on which the Authority shall provide Right of Way to the Contractor on different stretches of the Site are stated below:

Sl. No	Chainage (Km)		Length (km)	Width (m)	Date of providing ROW*
	From	To			
1	2	3	4	5	6
(i) Full Right of Way (full width) (a) Stretch	47+000	78+800	31.800	100.0	On Appointed Date
(ii) Part Right of Way (part width)	-	-	-	-	-
(iii) Balance Right of Way (width)	-	-	-	-	-

Additional Land at interchanges, toll plaza/booths, wayside amenities shall be provided on the appointed date as per Agreement.

The co-ordinates of the ROW are annexed.



## Coordinates of Center Line &amp; Right of Way

Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
1	47000	704463.052	3090607.846	704508.844	3090587.77	704417.26	3090627.923
2	47050	704442.975	3090562.054	704488.768	3090541.977	704397.183	3090582.13
3	47100	704422.899	3090516.262	704468.691	3090496.185	704377.107	3090536.338
4	47150	704402.823	3090470.469	704448.615	3090450.393	704357.03	3090490.546
5	47200	704382.746	3090424.677	704428.538	3090404.6	704336.954	3090444.753
6	47250	704362.67	3090378.885	704408.462	3090358.808	704316.877	3090398.961
7	47300	704342.593	3090333.092	704388.386	3090313.016	704296.801	3090353.169
8	47350	704322.517	3090287.3	704368.309	3090267.224	704276.724	3090307.376
9	47400	704302.44	3090241.508	704348.233	3090221.431	704256.648	3090261.584
10	47450	704282.364	3090195.715	704328.156	3090175.639	704236.572	3090215.792
11	47500	704262.287	3090149.923	704308.08	3090129.847	704216.495	3090169.999
12	47550	704242.211	3090104.131	704288.003	3090084.054	704196.419	3090124.207
13	47600	704222.135	3090058.338	704267.927	3090038.262	704176.342	3090078.415
14	47650	704202.058	3090012.546	704247.85	3089992.47	704156.266	3090032.623
15	47700	704181.982	3089966.754	704227.774	3089946.677	704136.189	3089986.83
16	47750	704161.905	3089920.961	704207.697	3089900.885	704116.113	3089941.038
17	47800	704141.829	3089875.169	704187.621	3089855.093	704096.036	3089895.246
18	47850	704121.752	3089829.377	704167.545	3089809.3	704075.96	3089849.453
19	47900	704101.516	3089783.655	704147.089	3089763.085	704055.943	3089804.225
20	47950	704080.567	3089738.256	704125.791	3089716.93	704035.343	3089759.583
21	48000	704058.865	3089693.212	704103.727	3089671.135	704014.003	3089715.289
22	48050	704036.415	3089648.536	704080.902	3089625.714	703991.927	3089671.358
23	48100	704013.223	3089604.241	704057.324	3089580.681	703969.122	3089627.801
24	48150	703989.297	3089560.338	704032.999	3089536.046	703945.594	3089584.63
25	48200	703964.642	3089516.84	704007.933	3089491.823	703921.35	3089541.857
26	48250	703939.265	3089473.759	703982.134	3089448.024	703896.397	3089499.494
27	48300	703913.174	3089431.107	703955.608	3089404.661	703870.741	3089457.552
28	48350	703886.376	3089388.895	703928.364	3089361.746	703844.389	3089416.044
29	48400	703859.062	3089347.015	703900.924	3089319.675	703817.199	3089374.356
30	48450	703831.721	3089305.153	703873.583	3089277.812	703789.858	3089332.494
31	48500	703804.38	3089263.29	703846.242	3089235.949	703762.517	3089290.631
32	48550	703777.039	3089221.428	703818.902	3089194.087	703735.176	3089248.769
33	48600	703749.698	3089179.565	703791.561	3089152.224	703707.835	3089206.906
34	48650	703722.357	3089137.703	703764.22	3089110.362	703680.495	3089165.044
35	48700	703695.016	3089095.84	703736.879	3089068.499	703653.154	3089123.181
36	48750	703667.675	3089053.978	703709.538	3089026.637	703625.813	3089081.318
37	48800	703640.334	3089012.115	703682.197	3088984.774	703598.472	3089039.456

Construction of Eight Lane divided carriage way starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
38	48850	703612.993	3088970.252	703654.856	3088942.911	703571.131	3088997.593
39	48900	703585.653	3088928.39	703627.515	3088901.049	703543.79	3088955.731
40	48950	703558.312	3088886.527	703600.174	3088859.186	703516.449	3088913.868
41	49000	703530.971	3088844.665	703572.833	3088817.324	703489.108	3088872.006
42	49050	703503.63	3088802.802	703545.492	3088775.461	703461.767	3088830.143
43	49100	703476.289	3088760.94	703518.151	3088733.599	703434.426	3088788.281
44	49150	703448.948	3088719.077	703490.81	3088691.736	703407.085	3088746.418
45	49200	703421.607	3088677.214	703463.47	3088649.874	703379.744	3088704.555
46	49250	703394.266	3088635.352	703436.129	3088608.011	703352.404	3088662.693
47	49300	703366.925	3088593.489	703408.788	3088566.148	703325.063	3088620.83
48	49350	703339.584	3088551.627	703381.447	3088524.286	703297.722	3088578.968
49	49400	703312.243	3088509.764	703354.106	3088482.423	703270.381	3088537.105
50	49450	703284.902	3088467.902	703326.765	3088440.561	703243.04	3088495.243
51	49500	703257.561	3088426.039	703299.424	3088398.698	703215.699	3088453.38
52	49550	703230.221	3088384.177	703272.083	3088356.836	703188.358	3088411.517
53	49600	703202.88	3088342.314	703244.742	3088314.973	703161.017	3088369.655
54	49650	703175.539	3088300.451	703217.407	3088273.119	703133.671	3088327.784
55	49700	703148.198	3088258.588	703190.066	3088231.261	703106.325	3088285.922
56	49750	703121.157	3088216.725	703162.725	3088189.403	703078.979	3088244.064
57	49800	703094.116	3088174.862	703135.384	3088147.545	703051.633	3088199.7
58	49850	703067.075	3088133.001	703108.043	3088105.687	703024.287	3088156.474
59	49900	703040.034	3088091.140	703080.702	3088063.829	703000.941	3088112.988
60	49950	703012.993	3088049.279	703053.361	3088021.971	702975.595	3088069.599
61	50000	702985.952	3088007.418	703026.020	3087980.113	702950.249	3088026.336
62	50050	702958.911	3087965.557	703000.079	3087938.255	702925.903	3087983.073
63	50100	702931.870	3087923.696	702974.138	3087896.400	702900.557	3087939.811
64	50150	702904.829	3087881.835	702948.197	3087854.547	702875.211	3087896.548
65	50200	702877.788	3087839.974	702922.256	3087812.694	702850.065	3087853.285
66	50250	702850.747	3087798.113	702896.315	3087770.841	702824.919	3087810.022
67	50300	702823.706	3087756.252	702870.374	3087728.988	702800.073	3087766.759
68	50350	702796.665	3087714.391	702844.433	3087687.135	702775.227	3087723.497
69	50400	702769.624	3087672.530	702818.492	3087645.282	702750.081	3087680.234
70	50450	702742.583	3087630.669	702792.551	3087603.429	702725.235	3087636.971
71	50500	702715.542	3087588.808	702766.610	3087561.576	702700.089	3087593.708
72	50550	702688.501	3087546.947	702740.669	3087519.723	702675.243	3087550.445
73	50600	702661.460	3087505.086	702714.728	3087477.870	702650.097	3087507.183
74	50650	702634.419	3087463.225	702688.787	3087436.017	702624.951	3087463.92
75	50700	702607.378	3087421.364	702662.846	3087394.164	702599.805	3087420.657
76	50750	702580.337	3087379.503	702636.905	3087352.311	702574.659	3087377.394

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) Section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
77	50800	702592.946	3087309.065	702636.209	3087283.998	702549.683	3087334.131
78	50850	702567.88	3087265.802	702611.142	3087240.736	702524.617	3087290.869
79	50900	702542.813	3087222.539	702586.076	3087197.473	702499.55	3087247.606
80	50950	702517.769	3087179.263	702561.1	3087154.315	702474.438	3087204.212
81	51000	702493.149	3087135.746	702536.92	3087111.576	702449.379	3087159.915
82	51050	702469.656	3087091.611	702514.173	3087068.846	702425.139	3087114.376
83	51100	702447.638	3087046.723	702492.889	3087025.454	702402.387	3087067.991
84	51150	702427.127	3087001.126	702473.062	3086981.377	702381.193	3087020.874
85	51200	702408.148	3086954.871	702454.715	3086936.664	702361.581	3086973.077
86	51250	702390.721	3086908.008	702437.869	3086891.364	702343.572	3086924.653
87	51300	702374.865	3086860.592	702422.542	3086845.527	702327.188	3086875.656
88	51350	702360.598	3086812.673	702408.75	3086799.206	702312.446	3086826.139
89	51400	702347.936	3086764.305	702396.511	3086752.45	702299.362	3086776.159
90	51450	702336.893	3086715.542	702385.836	3086705.313	702287.951	3086725.771
91	51500	702327.468	3086666.44	702376.709	3086657.759	702278.227	3086675.121
92	51550	702319.281	3086617.116	702368.664	3086609.286	702269.898	3086624.946
93	51600	702311.547	3086567.718	702360.949	3086560.005	702262.146	3086575.43
94	51650	702303.835	3086518.316	702353.236	3086510.604	702254.433	3086526.028
95	51700	702296.122	3086468.914	702345.524	3086461.202	702246.721	3086476.627
96	51750	702288.41	3086419.513	702337.812	3086411.8	702239.008	3086427.225
97	51800	702280.698	3086370.111	702330.099	3086362.399	702231.296	3086377.824
98	51850	702272.985	3086320.71	702322.387	3086312.997	702223.583	3086328.422
99	51900	702265.273	3086271.308	702314.674	3086263.596	702215.871	3086279.02
100	51950	702257.56	3086221.906	702306.962	3086214.194	702208.159	3086229.619
101	52000	702249.848	3086172.505	702299.249	3086164.792	702200.446	3086180.217
102	52050	702242.135	3086123.103	702291.537	3086115.391	702192.734	3086130.816
103	52100	702234.419	3086073.702	702283.816	3086065.959	702185.023	3086081.445
104	52150	702226.507	3086024.332	702275.836	3086016.168	702177.178	3086032.496
105	52200	702217.931	3085975.074	702267.106	3085966.028	702168.756	3085984.12
106	52250	702208.394	3085925.993	702257.379	3085915.965	702159.41	3085936.02
107	52300	702197.878	3085877.112	702246.652	3085866.107	702149.104	3085888.117
108	52350	702186.386	3085828.452	702234.93	3085816.473	702137.842	3085840.43
109	52400	702173.923	3085780.03	702222.218	3085767.084	702125.628	3085792.977
110	52450	702160.495	3085731.868	702208.521	3085717.959	702112.468	3085745.778
111	52500	702146.191	3085683.959	702194.006	3085669.341	702098.375	3085698.576
112	52550	702131.419	3085636.19	702179.164	3085621.345	702083.674	3085651.036
113	52600	702116.574	3085588.445	702164.319	3085573.599	702068.828	3085603.291
114	52650	702101.748	3085540.7	702149.473	3085525.854	702053.983	3085555.546
115	52700	702086.882	3085492.955	702134.627	3085478.109	702039.137	3085507.881

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+000) Section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
116	52750	702072.036	3085445.21	702119.782	3085430.364	702024.291	3085460.055
117	52800	702057.191	3085397.464	702104.936	3085382.619	702009.445	3085412.31
118	52850	702042.345	3085349.719	702090.09	3085334.873	701994.6	3085364.565
119	52900	702027.499	3085301.974	702075.244	3085287.128	701979.754	3085316.82
120	52950	702012.653	3085254.229	702060.399	3085239.383	701964.908	3085269.075
121	53000	701997.808	3085206.484	702045.553	3085191.638	701950.062	3085221.329
122	53050	701982.962	3085158.738	702030.707	3085143.893	701935.217	3085173.584
123	53100	701968.116	3085110.993	702015.861	3085096.147	701920.371	3085125.839
124	53150	701953.27	3085063.248	702001.016	3085048.402	701905.525	3085078.094
125	53200	701938.425	3085015.503	701986.17	3085000.657	701890.679	3085030.349
126	53250	701923.579	3084967.758	701971.324	3084952.912	701875.834	3084982.603
127	53300	701908.733	3084920.012	701956.478	3084905.167	701860.988	3084934.858
128	53350	701893.887	3084872.267	701941.633	3084857.421	701846.142	3084887.113
129	53400	701879.042	3084824.522	701926.787	3084809.676	701831.296	3084839.368
130	53450	701864.196	3084776.777	701911.941	3084761.931	701816.451	3084791.623
131	53500	701849.35	3084729.032	701897.095	3084714.186	701801.605	3084743.877
132	53550	701834.504	3084681.286	701882.25	3084666.441	701786.759	3084696.132
133	53600	701819.659	3084633.541	701867.404	3084618.695	701771.913	3084648.387
134	53650	701804.813	3084585.796	701852.558	3084570.95	701757.068	3084600.642
135	53700	701789.967	3084538.051	701837.712	3084523.205	701742.222	3084552.897
136	53750	701775.121	3084490.306	701822.867	3084475.46	701727.376	3084505.151
137	53800	701760.276	3084442.56	701808.021	3084427.715	701712.53	3084457.406
138	53850	701745.43	3084394.815	701793.175	3084379.969	701697.685	3084409.661
139	53900	701730.584	3084347.07	701778.329	3084332.224	701682.839	3084361.916
140	53950	701715.738	3084299.325	701763.484	3084284.479	701667.993	3084314.171
141	54000	701700.893	3084251.58	701748.638	3084236.734	701653.148	3084266.425
142	54050	701686.047	3084203.834	701733.792	3084188.989	701638.302	3084218.68
143	54100	701671.201	3084156.089	701718.946	3084141.243	701623.456	3084170.935
144	54150	701656.355	3084108.344	701704.101	3084093.498	701608.61	3084123.19
145	54200	701641.51	3084060.599	701689.255	3084045.753	701593.765	3084075.445
146	54250	701626.664	3084012.854	701674.409	3083998.008	701578.919	3084027.699
147	54300	701611.818	3083965.108	701659.563	3083950.263	701564.073	3083979.954
148	54350	701596.973	3083917.363	701644.718	3083902.517	701549.227	3083932.209
149	54400	701582.127	3083869.618	701629.872	3083854.772	701534.382	3083884.464
150	54450	701567.281	3083821.873	701615.026	3083807.027	701519.536	3083836.719
151	54500	701552.435	3083774.128	701600.18	3083759.282	701504.69	3083788.973
152	54550	701537.59	3083726.382	701585.335	3083711.537	701489.844	3083741.228
153	54600	701522.607	3083678.68	701570.205	3083663.369	701475.009	3083693.992
154	54650	701506.9	3083631.212	701554.236	3083615.109	701459.564	3083647.111

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) near Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
155	54700	701490.403	3083584.012	701537.464	3083567.123	701443.342	3083600.902
156	54750	701473.123	3083537.094	701519.896	3083519.423	701426.349	3083554.766
157	54800	701455.062	3083490.471	701501.534	3083472.022	701408.59	3083508.919
158	54850	701436.228	3083444.154	701482.386	3083424.934	701390.069	3083463.375
159	54900	701416.624	3083398.158	701462.455	3083378.172	701370.792	3083418.145
160	54950	701396.257	3083352.495	701441.77	3083331.793	701350.744	3083373.197
161	55000	701375.555	3083306.982	701421.068	3083286.28	701330.042	3083327.684
162	55050	701354.853	3083261.469	701400.366	3083240.767	701309.34	3083282.171
163	55100	701334.151	3083215.956	701379.664	3083195.254	701288.638	3083236.658
164	55150	701313.449	3083170.443	701358.962	3083149.741	701267.936	3083191.145
165	55200	701292.748	3083124.93	701338.261	3083104.228	701247.235	3083145.632
166	55250	701272.046	3083079.417	701317.559	3083058.715	701226.533	3083100.119
167	55300	701251.344	3083033.904	701296.857	3083013.202	701205.831	3083054.606
168	55350	701230.642	3082988.391	701276.155	3082967.689	701185.129	3083009.093
169	55400	701209.94	3082942.878	701255.453	3082922.176	701164.427	3082963.58
170	55450	701189.238	3082897.365	701234.751	3082876.663	701143.725	3082918.067
171	55500	701168.536	3082851.852	701214.049	3082831.15	701123.023	3082872.554
172	55550	701147.834	3082806.339	701193.347	3082785.637	701102.321	3082827.041
173	55600	701127.133	3082760.826	701172.646	3082740.124	701081.62	3082781.528
174	55650	701106.431	3082715.313	701151.944	3082694.611	701060.918	3082736.015
175	55700	701085.729	3082669.8	701131.242	3082649.098	701040.216	3082690.502
176	55750	701065.027	3082624.287	701110.54	3082603.585	701019.514	3082644.989
177	55800	701044.325	3082578.774	701089.838	3082558.072	700998.812	3082599.476
178	55850	701023.623	3082533.261	701069.136	3082512.559	700978.11	3082553.963
179	55900	701002.921	3082487.748	701048.434	3082467.046	700957.408	3082508.45
180	55950	700982.219	3082442.235	701027.732	3082421.533	700936.706	3082462.937
181	56000	700961.518	3082396.722	701007.031	3082376.02	700916.005	3082417.424
182	56050	700940.816	3082351.209	700986.329	3082330.507	700895.303	3082371.911
183	56100	700920.114	3082305.696	700965.627	3082284.994	700874.601	3082326.398
184	56150	700899.412	3082260.183	700944.925	3082239.481	700853.899	3082280.885
185	56200	700878.71	3082214.67	700924.223	3082193.968	700833.197	3082235.372
186	56250	700858.008	3082169.157	700903.521	3082148.455	700812.495	3082189.859
187	56300	700837.306	3082123.644	700882.819	3082102.942	700791.793	3082144.346
188	56350	700816.604	3082078.131	700862.117	3082057.429	700771.091	3082098.833
189	56400	700795.903	3082032.618	700841.415	3082011.916	700750.39	3082053.32
190	56450	700775.201	3081987.105	700820.714	3081966.403	700729.688	3082007.807
191	56500	700754.499	3081941.592	700800.012	3081920.89	700708.986	3081962.294
192	56550	700733.797	3081896.079	700779.31	3081875.377	700688.284	3081916.781
193	56600	700713.095	3081850.566	700758.608	3081829.864	700667.582	3081871.268

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
194	56650	700692.393	3081805.053	700737.906	3081784.351	700646.88	3081825.755
195	56700	700671.691	3081759.54	700717.204	3081738.838	700626.178	3081780.242
196	56750	700650.989	3081714.027	700696.502	3081693.325	700605.476	3081734.729
197	56800	700630.287	3081668.514	700675.8	3081647.812	700584.774	3081689.216
198	56850	700609.586	3081623.001	700655.099	3081602.3	700564.073	3081643.703
199	56900	700588.884	3081577.488	700634.397	3081556.787	700543.371	3081598.19
200	56950	700568.182	3081531.975	700613.695	3081511.274	700522.669	3081552.677
201	57000	700547.48	3081486.462	700592.993	3081465.76	700501.967	3081507.165
202	57050	700526.55	3081441.054	700571.854	3081419.897	700481.247	3081462.21
203	57100	700505.168	3081395.857	700550.257	3081374.249	700460.078	3081417.465
204	57150	700483.334	3081350.876	700528.206	3081328.818	700438.463	3081372.934
205	57200	700461.052	3081306.116	700505.701	3081283.61	700416.404	3081328.622
206	57250	700438.324	3081261.581	700482.745	3081238.629	700393.902	3081284.532
207	57300	700415.318	3081217.187	700459.71	3081194.178	700370.927	3081240.196
208	57350	700392.31	3081172.796	700436.701	3081149.787	700347.918	3081195.805
209	57400	700369.301	3081128.405	700413.692	3081105.396	700324.909	3081151.413
210	57450	700346.292	3081084.013	700390.683	3081061.004	700301.9	3081107.022
211	57500	700323.283	3081039.622	700367.674	3081016.613	700278.892	3081062.631
212	57550	700300.274	3080995.23	700344.665	3080972.222	700255.883	3081018.239
213	57600	700277.265	3080950.839	700321.657	3080927.83	700232.874	3080973.848
214	57650	700254.256	3080906.448	700298.648	3080883.439	700209.865	3080929.457
215	57700	700231.248	3080862.056	700275.639	3080839.048	700186.856	3080885.065
216	57750	700208.239	3080817.665	700252.63	3080794.656	700163.847	3080840.674
217	57800	700185.23	3080773.274	700229.621	3080750.265	700140.838	3080796.283
218	57850	700162.221	3080728.882	700206.612	3080705.873	700117.83	3080751.891
219	57900	700139.212	3080684.491	700183.603	3080661.482	700094.821	3080707.5
220	57950	700116.203	3080640.1	700160.595	3080617.091	700071.812	3080663.108
221	58000	700093.194	3080595.708	700137.586	3080572.699	700048.803	3080618.717
222	58050	700070.186	3080551.317	700114.577	3080528.308	700025.794	3080574.326
223	58100	700047.177	3080506.926	700091.568	3080483.917	700002.785	3080529.934
224	58150	700024.168	3080462.534	700068.559	3080439.525	699979.776	3080485.543
225	58200	700001.159	3080418.143	700045.55	3080395.134	699956.768	3080441.152
226	58250	699978.15	3080373.751	700022.542	3080350.743	699933.759	3080396.76
227	58300	699955.141	3080329.36	699999.533	3080306.351	699910.75	3080352.369
228	58350	699932.132	3080284.969	699976.524	3080261.96	699887.741	3080307.978
229	58400	699909.124	3080240.577	699953.515	3080217.569	699864.732	3080263.586
230	58450	699886.115	3080196.186	699930.506	3080173.177	699841.723	3080219.195
231	58500	699863.106	3080151.795	699907.497	3080128.786	699818.715	3080174.804
232	58550	699840.097	3080107.403	699884.488	3080084.394	699795.706	3080130.412

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi-Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
233	58600	699817.088	3080063.012	699861.48	3080040.003	699772.697	3080086.021
234	58650	699794.079	3080018.621	699838.471	3079995.612	699749.688	3080041.629
235	58700	699771.07	3079974.229	699815.462	3079951.22	699726.679	3079997.238
236	58750	699748.062	3079929.838	699792.453	3079906.829	699703.67	3079952.847
237	58800	699725.053	3079885.447	699769.444	3079862.438	699680.661	3079908.455
238	58850	699702.044	3079841.055	699746.435	3079818.046	699657.653	3079864.064
239	58900	699679.035	3079796.664	699723.426	3079773.655	699634.644	3079819.673
240	58950	699656.026	3079752.272	699700.418	3079729.264	699611.635	3079775.281
241	59000	699633.017	3079707.881	699677.409	3079684.872	699588.626	3079730.89
242	59050	699610.008	3079663.49	699654.4	3079640.481	699565.617	3079686.499
243	59100	699587	3079619.098	699631.391	3079596.09	699542.608	3079642.107
244	59150	699563.991	3079574.707	699608.382	3079551.698	699519.599	3079597.716
245	59200	699540.982	3079530.316	699585.373	3079507.307	699496.591	3079553.325
246	59250	699517.973	3079485.924	699562.364	3079462.915	699473.582	3079508.933
247	59300	699494.964	3079441.533	699539.356	3079418.524	699450.573	3079464.542
248	59350	699471.955	3079397.142	699516.347	3079374.133	699427.564	3079420.15
249	59400	699448.946	3079352.75	699493.338	3079329.741	699404.555	3079375.759
250	59450	699425.938	3079308.359	699470.329	3079285.35	699381.546	3079331.368
251	59500	699402.929	3079263.968	699447.32	3079240.959	699358.537	3079286.976
252	59550	699379.92	3079219.576	699424.311	3079196.567	699335.529	3079242.585
253	59600	699356.911	3079175.185	699401.302	3079152.176	699312.52	3079198.194
254	59650	699333.902	3079130.793	699378.294	3079107.785	699289.511	3079153.802
255	59700	699310.894	3079086.402	699355.293	3079063.407	699266.496	3079109.396
256	59750	699288.056	3079041.922	699332.662	3079019.333	699243.45	3079064.512
257	59800	699265.903	3078997.099	699310.979	3078975.464	699220.826	3079018.734
258	59850	699244.833	3078951.757	699290.437	3078931.255	699199.23	3078972.258
259	59900	699224.904	3078905.901	699271.006	3078886.546	699178.802	3078925.257
260	59950	699206.127	3078859.563	699252.698	3078841.366	699159.556	3078877.759
261	60000	699188.514	3078812.769	699235.526	3078795.742	699141.503	3078829.796
262	60050	699172.077	3078765.549	699219.499	3078749.703	699124.654	3078781.396
263	60100	699156.825	3078717.934	699204.629	3078703.278	699109.021	3078732.59
264	60150	699142.768	3078669.952	699190.923	3078656.495	699094.613	3078683.408
265	60200	699129.915	3078621.633	699178.391	3078609.385	699081.438	3078633.882
266	60250	699118.274	3078573.009	699167.041	3078561.976	699069.506	3078584.041
267	60300	699107.822	3078524.114	699156.823	3078514.169	699058.821	3078534.06
268	60350	699098.183	3078475.052	699147.286	3078465.619	699049.081	3078484.485
269	60400	699088.781	3078425.944	699137.89	3078416.546	699039.673	3078435.343
270	60450	699079.383	3078376.835	699128.492	3078367.437	699030.274	3078386.234
271	60500	699069.985	3078327.727	699119.093	3078318.328	699020.876	3078337.125

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi-Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
272	60550	699060.586	3078278.618	699109.695	3078269.22	699011.478	3078288.016
273	60600	699051.188	3078229.509	699100.297	3078220.111	699002.079	3078238.907
274	60650	699041.79	3078180.4	699090.899	3078171.002	698992.681	3078189.799
275	60700	699032.392	3078131.292	699081.5	3078121.893	698983.283	3078140.69
276	60750	699022.993	3078082.183	699072.102	3078072.785	698973.884	3078091.581
277	60800	699013.595	3078033.074	699062.704	3078023.676	698964.486	3078042.472
278	60850	699004.114	3077983.981	699053.171	3077974.316	698955.057	3077993.646
279	60900	698994.061	3077935.003	699042.937	3077924.461	698945.185	3077945.545
280	60950	698982.911	3077886.263	699031.508	3077874.504	698934.313	3077898.022
281	61000	698970.545	3077837.818	699018.834	3077824.848	698922.257	3077850.788
282	61050	698956.973	3077789.697	699004.922	3077775.523	698909.024	3077803.87
283	61100	698942.202	3077741.93	698989.782	3077726.562	698894.622	3077757.297
284	61150	698926.241	3077694.547	698973.422	3077677.995	698879.06	3077711.099
285	61200	698909.101	3077647.578	698955.854	3077629.852	698862.349	3077665.304
286	61250	698890.793	3077601.052	698937.087	3077582.163	698844.498	3077619.941
287	61300	698871.327	3077554.998	698917.135	3077534.957	698825.519	3077575.039
288	61350	698850.715	3077509.445	698896.008	3077488.266	698805.423	3077530.625
289	61400	698828.996	3077464.41	698873.802	3077442.219	698784.191	3077486.601
290	61450	698806.518	3077419.748	698851.083	3077397.076	698761.954	3077442.42
291	61500	698783.815	3077375.2	698828.36	3077352.492	698739.269	3077397.908
292	61550	698761.106	3077330.654	698805.652	3077307.946	698716.56	3077353.362
293	61600	698738.398	3077286.108	698782.944	3077263.4	698693.852	3077308.816
294	61650	698715.69	3077241.562	698760.236	3077218.854	698671.144	3077264.27
295	61700	698692.982	3077197.016	698737.528	3077174.308	698648.436	3077219.724
296	61750	698670.274	3077152.47	698714.82	3077129.762	698625.728	3077175.178
297	61800	698647.565	3077107.924	698692.111	3077085.216	698603.02	3077130.632
298	61850	698624.857	3077063.378	698669.403	3077040.67	698580.311	3077086.087
299	61900	698602.149	3077018.832	698646.695	3076996.124	698557.603	3077041.541
300	61950	698579.441	3076974.287	698623.987	3076951.578	698534.895	3076996.995
301	62000	698556.733	3076929.741	698601.279	3076907.032	698512.187	3076952.449
302	62050	698534.025	3076885.195	698578.571	3076862.487	698489.479	3076907.903
303	62100	698511.316	3076840.649	698555.862	3076817.941	698466.771	3076863.357
304	62150	698488.608	3076796.103	698533.154	3076773.395	698444.062	3076818.811
305	62200	698465.9	3076751.557	698510.446	3076728.849	698421.354	3076774.265
306	62250	698443.192	3076707.011	698487.738	3076684.303	698398.646	3076729.719
307	62300	698420.484	3076662.465	698465.03	3076639.757	698375.938	3076685.173
308	62350	698397.776	3076617.919	698442.322	3076595.211	698353.23	3076640.627
309	62400	698375.067	3076573.373	698419.613	3076550.665	698330.522	3076596.081
310	62450	698352.359	3076528.827	698396.905	3076506.119	698307.813	3076551.536

Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
311	62500	698329.651	3076484.281	698374.197	3076461.573	698285.105	3076506.99
312	62550	698306.943	3076439.736	698351.489	3076417.027	698262.397	3076462.444
313	62600	698284.235	3076395.19	698328.781	3076372.481	698239.689	3076417.898
314	62650	698261.527	3076350.644	698306.073	3076327.935	698216.981	3076373.352
315	62700	698238.818	3076306.098	698283.364	3076283.39	698194.273	3076328.806
316	62750	698216.11	3076261.552	698260.656	3076238.844	698171.564	3076284.26
317	62800	698193.402	3076217.006	698237.948	3076194.298	698148.856	3076239.714
318	62850	698170.694	3076172.46	698215.24	3076149.752	698126.148	3076195.168
319	62900	698147.986	3076127.914	698192.532	3076105.206	698103.44	3076150.622
320	62950	698125.278	3076083.368	698169.823	3076060.66	698080.732	3076106.076
321	63000	698102.569	3076038.822	698147.115	3076016.114	698058.023	3076061.53
322	63050	698079.861	3075994.276	698124.407	3075971.568	698035.315	3076016.984
323	63100	698057.153	3075949.73	698101.699	3075927.022	698012.607	3075972.439
324	63150	698034.445	3075905.184	698078.991	3075882.476	697989.899	3075927.893
325	63200	698011.737	3075860.639	698056.283	3075837.93	697967.191	3075883.347
326	63250	697989.029	3075816.093	698033.574	3075793.384	697944.483	3075838.801
327	63300	697966.32	3075771.547	698010.866	3075748.839	697921.774	3075794.255
328	63350	697943.612	3075727.001	697988.158	3075704.293	697899.066	3075749.709
329	63400	697920.904	3075682.455	697965.45	3075659.747	697876.358	3075705.163
330	63450	697898.196	3075637.909	697942.742	3075615.201	697853.65	3075660.617
331	63500	697875.488	3075593.363	697920.034	3075570.655	697830.942	3075616.071
332	63550	697852.78	3075548.817	697897.325	3075526.109	697808.234	3075571.525
333	63600	697830.071	3075504.271	697874.617	3075481.563	697785.525	3075526.979
334	63650	697807.363	3075459.725	697851.909	3075437.017	697762.817	3075482.433
335	63700	697784.655	3075415.179	697829.201	3075392.471	697740.109	3075437.888
336	63750	697761.947	3075370.633	697806.493	3075347.925	697717.401	3075393.342
337	63800	697739.239	3075326.087	697783.785	3075303.379	697694.693	3075348.796
338	63850	697716.531	3075281.542	697761.076	3075258.833	697671.985	3075304.25
339	63900	697693.822	3075236.996	697738.368	3075214.287	697649.276	3075259.704
340	63950	697671.114	3075192.45	697715.66	3075169.742	697626.568	3075215.158
341	64000	697648.406	3075147.904	697692.952	3075125.196	697603.86	3075170.612
342	64050	697625.698	3075103.358	697670.244	3075080.65	697581.152	3075126.066
343	64100	697602.99	3075058.812	697647.536	3075036.104	697558.444	3075081.52
344	64150	697580.281	3075014.266	697624.827	3074991.558	697535.736	3075036.974
345	64200	697557.573	3074969.72	697602.119	3074947.012	697513.027	3074992.428
346	64250	697534.865	3074925.174	697579.411	3074902.466	697490.319	3074947.882
347	64300	697512.157	3074880.628	697556.703	3074857.92	697467.611	3074903.336
348	64350	697489.449	3074836.082	697533.995	3074813.374	697444.903	3074858.791
349	64400	697466.741	3074791.536	697511.287	3074768.828	697422.195	3074814.245

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
350	64450	697444.032	3074746.991	697488.578	3074724.282	697399.487	3074769.699
351	64500	697421.324	3074702.445	697465.87	3074679.736	697376.778	3074725.153
352	64550	697398.616	3074657.899	697443.162	3074635.191	697354.07	3074680.607
353	64600	697375.908	3074613.353	697420.454	3074590.645	697331.362	3074636.061
354	64650	697353.2	3074568.807	697397.746	3074546.099	697308.654	3074591.515
355	64700	697330.492	3074524.261	697375.038	3074501.553	697285.946	3074546.969
356	64750	697307.783	3074479.715	697352.329	3074457.007	697263.238	3074502.423
357	64800	697285.075	3074435.169	697329.621	3074412.461	697240.529	3074457.877
358	64850	697262.367	3074390.623	697306.913	3074367.915	697217.821	3074413.331
359	64900	697239.659	3074346.077	697284.205	3074323.369	697195.113	3074368.785
360	64950	697216.951	3074301.531	697261.497	3074278.823	697172.405	3074324.239
361	65000	697194.243	3074256.985	697238.789	3074234.277	697149.697	3074279.694
362	65050	697171.534	3074212.439	697216.08	3074189.731	697126.989	3074235.148
363	65100	697148.826	3074167.894	697193.372	3074145.185	697104.28	3074190.602
364	65150	697126.118	3074123.348	697170.664	3074100.639	697081.572	3074146.056
365	65200	697103.41	3074078.802	697147.956	3074056.094	697058.864	3074101.51
366	65250	697080.702	3074034.256	697125.248	3074011.548	697036.156	3074056.964
367	65300	697057.994	3073989.71	697102.54	3073967.002	697013.448	3074012.418
368	65350	697035.285	3073945.164	697079.831	3073922.456	696990.739	3073967.872
369	65400	697012.577	3073900.618	697057.123	3073877.91	696968.031	3073923.326
370	65450	696989.869	3073856.072	697034.415	3073833.364	696945.323	3073878.78
371	65500	696967.161	3073811.526	697011.707	3073788.818	696922.615	3073834.234
372	65550	696944.453	3073766.98	696988.999	3073744.272	696899.907	3073789.688
373	65600	696921.745	3073722.434	696966.29	3073699.726	696877.199	3073745.143
374	65650	696899.036	3073677.888	696943.582	3073655.18	696854.49	3073700.597
375	65700	696876.328	3073633.343	696920.874	3073610.634	696831.782	3073656.051
376	65750	696853.62	3073588.797	696898.166	3073566.088	696809.074	3073611.505
377	65800	696830.912	3073544.251	696875.458	3073521.543	696786.366	3073566.959
378	65850	696808.204	3073499.705	696852.75	3073476.997	696763.658	3073522.413
379	65900	696785.496	3073455.159	696830.041	3073432.451	696740.95	3073477.867
380	65950	696762.787	3073410.613	696807.333	3073387.905	696718.241	3073433.321
381	66000	696740.08	3073366.067	696784.637	3073343.38	696695.523	3073388.753
382	66050	696717.533	3073321.439	696762.231	3073299.032	696672.835	3073343.846
383	66100	696695.266	3073276.671	696740.103	3073254.544	696650.429	3073298.798
384	66150	696673.279	3073231.765	696718.254	3073209.918	696628.304	3073253.612
385	66200	696651.573	3073186.722	696696.683	3073165.157	696606.463	3073208.287
386	66250	696630.149	3073141.545	696675.393	3073120.262	696584.905	3073162.828
387	66300	696609.007	3073096.234	696654.384	3073075.235	696563.631	3073117.234
388	66350	696588.15	3073050.793	696633.056	3073030.077	696542.643	3073071.508

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi-Yamuna Expressway (Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



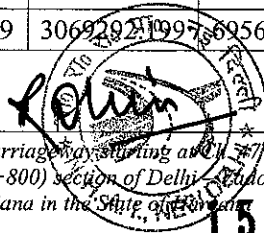


Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
389	66400	696567.576	3073005.222	696613.212	3072984.791	696521.941	3073025.652
390	66450	696547.288	3072959.523	696593.05	3072939.377	696501.526	3072979.668
391	66500	696527.286	3072913.698	696573.173	3072893.839	696481.399	3072933.557
392	66550	696507.571	3072867.749	696553.581	3072848.177	696461.561	3072887.321
393	66600	696488.143	3072821.678	696534.275	3072802.394	696442.011	3072840.961
394	66650	696469.004	3072775.486	696515.255	3072756.491	696422.752	3072794.481
395	66700	696450.154	3072729.176	696496.523	3072710.47	696403.784	3072747.881
396	66750	696431.593	3072682.748	696478.078	3072664.333	696385.108	3072701.164
397	66800	696413.323	3072636.206	696459.922	3072618.081	696366.724	3072654.33
398	66850	696395.344	3072589.55	696442.056	3072571.717	696348.633	3072607.383
399	66900	696377.657	3072542.783	696424.48	3072525.242	696330.835	3072560.324
400	66950	696360.263	3072495.906	696407.194	3072478.659	696313.332	3072513.154
401	67000	696343.162	3072448.922	696390.2	3072431.968	696296.125	3072465.875
402	67050	696326.356	3072401.831	696373.499	3072385.171	696279.213	3072418.491
403	67100	696309.843	3072354.636	696357.09	3072338.272	696262.597	3072371.001
404	67150	696293.627	3072307.339	696340.974	3072291.27	696246.279	3072323.408
405	67200	696277.706	3072259.942	696325.153	3072244.169	696230.259	3072275.715
406	67250	696262.081	3072212.446	696309.626	3072196.97	696214.536	3072227.922
407	67300	696246.754	3072164.853	696294.394	3072149.675	696199.113	3072180.032
408	67350	696231.724	3072117.166	696279.459	3072102.285	696183.99	3072132.046
409	67400	696216.993	3072069.385	696264.819	3072054.803	696169.167	3072083.967
410	67450	696202.561	3072021.513	696250.477	3072007.231	696154.644	3072035.796
411	67500	696188.428	3071973.552	696236.433	3071959.569	696140.423	3071987.535
412	67550	696174.595	3071925.504	696222.687	3071911.821	696126.504	3071939.187
413	67600	696161.063	3071877.37	696209.239	3071863.988	696112.887	3071890.752
414	67650	696147.832	3071829.153	696196.09	3071816.072	696099.573	3071842.233
415	67700	696134.902	3071780.853	696183.242	3071768.075	696086.563	3071793.632
416	67750	696122.275	3071732.474	696170.693	3071719.998	696073.856	3071744.95
417	67800	696109.95	3071684.017	696158.446	3071671.844	696061.455	3071696.19
418	67850	696097.928	3071635.484	696146.499	3071623.614	696049.358	3071647.354
419	67900	696086.21	3071586.876	696134.854	3071575.31	696037.566	3071598.443
420	67950	696074.796	3071538.197	696123.511	3071526.935	696026.081	3071549.459
421	68000	696063.687	3071489.447	696112.471	3071478.49	696014.902	3071500.404
422	68050	696052.862	3071440.633	696101.69	3071429.87	696004.034	3071451.395
423	68100	696042.1	3071391.805	696090.928	3071381.042	695993.272	3071402.567
424	68150	696031.338	3071342.976	696080.166	3071332.214	695982.51	3071353.739
425	68200	696020.576	3071294.148	696069.404	3071283.386	695971.748	3071304.911
426	68250	696009.814	3071245.192	696058.642	3071234.558	695960.986	3071256.083
427	68300	695999.052	3071196.492	696047.88	3071185.73	695950.223	3071207.254

Construction of Eight Lane divided carriageway starting at Sta. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi-Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
428	68350	695988.289	3071147.664	696037.117	3071136.902	695939.461	3071158.426
429	68400	695977.527	3071098.836	696026.355	3071088.074	695928.699	3071109.598
430	68450	695966.765	3071050.008	696015.593	3071039.246	695917.937	3071060.77
431	68500	695956.003	3071001.18	696004.831	3070990.418	695907.175	3071011.942
432	68550	695945.241	3070952.352	695994.069	3070941.59	695896.413	3070963.114
433	68600	695934.479	3070903.524	695983.307	3070892.762	695885.651	3070914.286
434	68650	695923.717	3070854.696	695972.545	3070843.934	695874.889	3070865.458
435	68700	695912.955	3070805.868	695961.783	3070795.106	695864.127	3070816.63
436	68750	695902.193	3070757.04	695951.021	3070746.278	695853.365	3070767.802
437	68800	695891.43	3070708.212	695940.258	3070697.45	695842.602	3070718.974
438	68850	695880.668	3070659.384	695929.496	3070648.622	695831.84	3070670.146
439	68900	695869.906	3070610.556	695918.734	3070599.794	695821.078	3070621.318
440	68950	695859.144	3070561.728	695907.972	3070550.966	695810.316	3070572.49
441	69000	695848.382	3070512.9	695897.21	3070502.138	695799.554	3070523.662
442	69050	695837.62	3070464.072	695886.448	3070453.31	695788.792	3070474.834
443	69100	695826.858	3070415.244	695875.686	3070404.482	695778.03	3070426.006
444	69150	695816.096	3070366.416	695864.924	3070355.654	695767.268	3070377.178
445	69200	695805.334	3070317.588	695854.162	3070306.826	695756.506	3070328.35
446	69250	695794.571	3070268.76	695843.399	3070257.998	695745.743	3070279.522
447	69300	695783.809	3070219.932	695832.637	3070209.17	695734.981	3070230.694
448	69350	695773.047	3070171.104	695821.875	3070160.342	695724.219	3070181.866
449	69400	695762.285	3070122.276	695811.113	3070111.514	695713.457	3070133.038
450	69450	695751.523	3070073.448	695800.351	3070062.685	695702.695	3070084.21
451	69500	695740.761	3070024.62	695789.589	3070013.857	695691.933	3070035.382
452	69550	695729.999	3069975.792	695778.827	3069965.029	695681.171	3069986.554
453	69600	695719.237	3069926.963	695768.065	3069916.201	695670.409	3069937.726
454	69650	695708.475	3069878.135	695757.303	3069867.373	695659.647	3069888.898
455	69700	695697.712	3069829.307	695746.541	3069818.545	695648.884	3069840.07
456	69750	695686.95	3069780.479	695735.778	3069769.717	695638.122	3069791.241
457	69800	695676.188	3069731.651	695725.016	3069720.889	695627.36	3069742.413
458	69850	695665.426	3069682.823	695714.254	3069672.061	695616.598	3069693.585
459	69900	695654.664	3069633.995	695703.492	3069623.233	695605.836	3069644.757
460	69950	695643.902	3069585.167	695692.73	3069574.405	695595.074	3069595.929
461	70000	695633.14	3069536.339	695681.968	3069525.577	695584.312	3069547.101
462	70050	695622.378	3069487.511	695671.206	3069476.749	695573.55	3069498.273
463	70100	695611.616	3069438.683	695660.444	3069427.921	695562.788	3069449.445
464	70150	695600.854	3069389.855	695649.682	3069379.093	695552.025	3069400.617
465	70200	695590.091	3069341.027	695638.919	3069330.265	695541.263	3069351.789
466	70250	695579.329	3069292.199	695628.157	3069281.437	695530.501	3069302.961

Construction of Eight Lane divided carriage way starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Chandara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Delhi.



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Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
467	70300	695568.567	3069243.371	695617.395	3069232.609	695519.739	3069254.133
468	70350	695557.805	3069194.543	695606.633	3069183.781	695508.977	3069205.305
469	70400	695547.043	3069145.715	695595.871	3069134.953	695498.215	3069156.477
470	70450	695536.281	3069096.887	695585.109	3069086.125	695487.453	3069107.649
471	70500	695525.519	3069048.059	695574.347	3069037.297	695476.691	3069058.821
472	70550	695514.757	3068999.231	695563.585	3068988.469	695465.929	3069009.993
473	70600	695503.995	3068950.403	695552.823	3068939.641	695455.167	3068961.165
474	70650	695493.232	3068901.575	695542.06	3068890.813	695444.404	3068912.337
475	70700	695482.47	3068852.747	695531.298	3068841.985	695433.642	3068863.509
476	70750	695471.708	3068803.919	695520.536	3068793.157	695422.88	3068814.681
477	70800	695460.946	3068755.091	695509.774	3068744.329	695412.118	3068765.853
478	70850	695450.184	3068706.263	695499.012	3068695.5	695401.356	3068717.025
479	70900	695439.422	3068657.435	695488.25	3068646.672	695390.594	3068668.197
480	70950	695428.66	3068608.607	695477.488	3068597.844	695379.832	3068619.369
481	71000	695417.898	3068559.778	695466.726	3068549.016	695369.07	3068570.541
482	71050	695407.136	3068510.95	695455.964	3068500.188	695358.308	3068521.713
483	71100	695396.373	3068462.122	695445.201	3068451.36	695347.545	3068472.885
484	71150	695385.611	3068413.294	695434.439	3068402.532	695336.783	3068424.056
485	71200	695374.849	3068364.466	695423.677	3068353.704	695326.021	3068375.228
486	71250	695364.087	3068315.638	695412.915	3068304.876	695315.259	3068326.4
487	71300	695353.325	3068266.81	695402.153	3068256.048	695304.497	3068277.572
488	71350	695342.563	3068217.982	695391.391	3068207.22	695293.735	3068228.744
489	71400	695331.801	3068169.154	695380.629	3068158.392	695282.973	3068179.916
490	71450	695321.039	3068120.326	695369.867	3068109.564	695272.211	3068131.088
491	71500	695310.277	3068071.498	695359.105	3068060.736	695261.449	3068082.26
492	71550	695299.514	3068022.67	695348.343	3068011.908	695250.686	3068033.432
493	71600	695288.752	3067973.842	695337.58	3067963.08	695239.924	3067984.604
494	71650	695277.99	3067925.014	695326.818	3067914.252	695229.162	3067935.776
495	71700	695267.228	3067876.186	695316.056	3067865.424	695218.4	3067886.948
496	71750	695256.466	3067827.358	695305.294	3067816.596	695207.638	3067838.12
497	71800	695245.704	3067778.53	695294.532	3067767.768	695196.876	3067789.292
498	71850	695234.942	3067729.702	695283.77	3067718.94	695186.114	3067740.464
499	71900	695224.18	3067680.874	695273.008	3067670.112	695175.352	3067691.636
500	71950	695213.418	3067632.046	695262.246	3067621.284	695164.59	3067642.808
501	72000	695202.656	3067583.218	695251.484	3067572.456	695153.827	3067593.98
502	72050	695191.893	3067534.39	695240.721	3067523.628	695143.065	3067545.152
503	72100	695181.131	3067485.562	695229.959	3067474.8	695132.303	3067496.324
504	72150	695170.369	3067437.734	695219.197	3067425.972	695121.541	3067447.496
505	72200	695159.607	3067387.906	695208.435	3067377.144	695110.779	3067398.668

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi-Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
506	72250	695148.845	3067339.078	695197.673	3067328.315	695100.017	3067349.84
507	72300	695138.083	3067290.25	695186.911	3067279.487	695089.255	3067301.012
508	72350	695127.321	3067241.422	695176.149	3067230.659	695078.493	3067252.184
509	72400	695116.559	3067192.594	695165.387	3067181.831	695067.731	3067203.356
510	72450	695105.797	3067143.765	695154.625	3067133.003	695056.968	3067154.528
511	72500	695095.034	3067094.937	695143.862	3067084.175	695046.206	3067105.7
512	72550	695084.272	3067046.109	695133.1	3067035.347	695035.444	3067056.872
513	72600	695073.51	3066997.281	695122.338	3066986.519	695024.682	3067008.043
514	72650	695062.748	3066948.453	695111.576	3066937.691	695013.92	3066959.215
515	72700	695051.986	3066899.625	695100.814	3066888.863	695003.158	3066910.387
516	72750	695041.224	3066850.797	695090.052	3066840.035	694992.396	3066861.559
517	72800	695030.462	3066801.969	695079.29	3066791.207	694981.634	3066812.731
518	72850	695019.7	3066753.141	695068.528	3066742.379	694970.872	3066763.903
519	72900	695008.938	3066704.313	695057.766	3066693.551	694960.11	3066715.075
520	72950	694998.175	3066655.485	695047.003	3066644.723	694949.347	3066666.247
521	73000	694987.413	3066606.657	695036.241	3066595.895	694938.585	3066617.419
522	73050	694976.651	3066557.829	695025.479	3066547.067	694927.823	3066568.591
523	73100	694965.889	3066509.001	695014.717	3066498.239	694917.061	3066519.763
524	73150	694955.127	3066460.173	695003.955	3066449.411	694906.299	3066470.935
525	73200	694944.365	3066411.345	694993.193	3066400.583	694895.537	3066422.107
526	73250	694933.603	3066362.517	694982.431	3066351.755	694884.775	3066373.279
527	73300	694922.841	3066313.689	694971.669	3066302.927	694874.013	3066324.451
528	73350	694912.079	3066264.861	694960.907	3066254.099	694863.251	3066275.623
529	73400	694901.316	3066216.033	694950.145	3066205.271	694852.488	3066226.795
530	73450	694890.554	3066167.205	694939.382	3066156.443	694841.726	3066177.967
531	73500	694879.792	3066118.377	694928.62	3066107.615	694830.964	3066129.139
532	73550	694869.03	3066069.549	694917.858	3066058.787	694820.202	3066080.311
533	73600	694858.268	3066020.721	694907.096	3066009.959	694809.44	3066031.483
534	73650	694847.506	3065971.893	694896.334	3065961.131	694798.678	3065982.655
535	73700	694836.744	3065923.065	694885.572	3065912.302	694787.916	3065933.827
536	73750	694825.982	3065874.237	694874.81	3065863.474	694777.154	3065884.999
537	73800	694815.22	3065825.409	694864.048	3065814.646	694766.392	3065836.171
538	73850	694804.457	3065776.58	694853.286	3065765.818	694755.629	3065787.343
539	73900	694793.695	3065727.752	694842.523	3065716.99	694744.867	3065738.515
540	73950	694782.933	3065678.924	694831.761	3065668.162	694734.105	3065689.687
541	74000	694772.171	3065630.096	694820.999	3065619.334	694723.343	3065640.858
542	74050	694761.409	3065581.268	694810.237	3065570.506	694712.581	3065592.03
543	74100	694750.647	3065532.44	694799.475	3065521.678	694701.819	3065543.202
544	74150	694739.885	3065483.612	694788.713	3065472.85	694691.057	3065494.37

Construction of Eight Lane divided carriage way starting at Chk. 74+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi Gurgaon Yamudera Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
545	74200	694729.123	3065434.784	694777.951	3065424.022	694680.295	3065445.546
546	74250	694718.361	3065385.956	694767.189	3065375.194	694669.533	3065396.718
547	74300	694707.599	3065337.128	694756.427	3065326.366	694658.77	3065347.89
548	74350	694696.836	3065288.3	694745.664	3065277.538	694648.008	3065299.062
549	74400	694686.074	3065239.472	694734.902	3065228.71	694637.246	3065250.234
550	74450	694675.313	3065190.644	694724.148	3065179.911	694626.479	3065201.377
551	74500	694664.824	3065141.757	694713.764	3065131.513	694615.885	3065152.001
552	74550	694654.825	3065092.767	694703.865	3065083.013	694605.786	3065102.521
553	74600	694645.317	3065043.68	694694.451	3065034.416	694596.182	3065052.943
554	74650	694636.299	3064994.5	694685.524	3064985.728	694587.074	3065003.271
555	74700	694627.774	3064945.232	694677.084	3064936.953	694578.464	3064953.511
556	74750	694619.742	3064895.882	694669.132	3064888.096	694570.352	3064903.667
557	74800	694612.203	3064846.453	694661.669	3064839.162	694562.738	3064853.744
558	74850	694605.16	3064796.952	694654.696	3064790.156	694555.624	3064803.748
559	74900	694598.612	3064747.383	694648.213	3064741.083	694549.01	3064753.683
560	74950	694592.538	3064697.753	694642.182	3064691.803	694542.893	3064703.704
561	75000	694586.587	3064648.109	694636.232	3064642.158	694536.942	3064654.06
562	75050	694580.636	3064598.464	694630.281	3064592.513	694530.992	3064604.415
563	75100	694574.685	3064548.82	694624.33	3064542.869	694525.041	3064554.77
564	75150	694568.735	3064499.175	694618.379	3064493.224	694519.09	3064505.126
565	75200	694562.784	3064449.53	694612.428	3064443.579	694513.139	3064455.481
566	75250	694556.833	3064399.886	694606.478	3064393.935	694507.188	3064405.836
567	75300	694550.882	3064350.241	694600.527	3064344.29	694501.238	3064356.192
568	75350	694544.931	3064300.596	694594.576	3064294.646	694495.287	3064306.547
569	75400	694538.981	3064250.952	694588.625	3064245.001	694489.336	3064256.903
570	75450	694533.03	3064201.307	694582.675	3064195.356	694483.385	3064207.258
571	75500	694527.079	3064151.663	694576.724	3064145.712	694477.435	3064157.613
572	75550	694521.128	3064102.018	694570.773	3064096.067	694471.484	3064107.969
573	75600	694515.178	3064052.373	694564.822	3064046.423	694465.533	3064058.324
574	75650	694509.227	3064002.729	694558.871	3063996.778	694459.582	3064008.679
575	75700	694503.276	3063953.084	694552.921	3063947.133	694453.631	3063959.035
576	75750	694497.325	3063903.439	694546.97	3063897.489	694447.681	3063909.39
577	75800	694491.374	3063853.795	694541.019	3063847.844	694441.73	3063859.746
578	75850	694485.424	3063804.15	694535.068	3063798.199	694435.779	3063810.101
579	75900	694479.473	3063754.506	694529.117	3063748.555	694429.828	3063760.456
580	75950	694473.522	3063704.861	694523.167	3063698.91	694423.877	3063710.812
581	76000	694467.571	3063655.216	694517.216	3063649.266	694417.927	3063661.167
582	76050	694461.621	3063605.572	694511.265	3063599.621	694411.976	3063611.523
583	76100	694455.67	3063555.927	694505.314	3063549.976	694406.025	3063561.878

Construction of Eight divided carriageway starting at Ch. 74000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi-Noida-Gurgaon Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

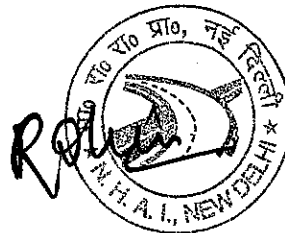


Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
584	76150	694449.719	3063506.283	694499.364	3063500.332	694400.074	3063512.233
585	76200	694443.768	3063456.638	694493.413	3063450.687	694394.124	3063462.589
586	76250	694437.817	3063406.993	694487.462	3063401.043	694388.173	3063412.944
587	76300	694431.867	3063357.349	694481.511	3063351.398	694382.222	3063363.299
588	76350	694425.886	3063307.708	694475.514	3063301.62	694376.258	3063313.795
589	76400	694419.643	3063258.099	694469.232	3063251.702	694370.054	3063264.496
590	76450	694413.091	3063208.53	694462.639	3063201.823	694363.543	3063215.237
591	76500	694406.229	3063159.003	694455.734	3063151.987	694356.724	3063166.02
592	76550	694399.058	3063109.52	694448.518	3063102.194	694349.597	3063116.846
593	76600	694391.577	3063060.083	694440.991	3063052.448	694342.163	3063067.718
594	76650	694383.788	3063010.694	694433.153	3063002.75	694334.423	3063018.638
595	76700	694375.69	3062961.354	694425.004	3062953.102	694326.376	3062969.606
596	76750	694367.284	3062912.066	694416.546	3062903.506	694318.022	3062920.626
597	76800	694358.57	3062862.831	694407.777	3062853.963	694309.362	3062871.699
598	76850	694349.548	3062813.652	694398.699	3062804.477	694300.397	3062822.827
599	76900	694340.22	3062764.53	694389.312	3062755.048	694291.127	3062774.012
600	76950	694330.584	3062715.467	694379.616	3062705.678	694281.552	3062725.256
601	77000	694320.642	3062666.466	694369.612	3062656.371	694271.672	3062676.561
602	77050	694310.394	3062617.527	694359.3	3062607.126	694261.488	3062627.928
603	77100	694299.84	3062568.654	694348.68	3062557.947	694251	3062579.36
604	77150	694288.981	3062519.847	694337.754	3062508.836	694240.209	3062530.859
605	77200	694277.817	3062471.11	694326.52	3062459.794	694229.115	3062482.426
606	77250	694266.349	3062422.443	694314.98	3062410.822	694217.718	3062434.063
607	77300	694254.577	3062373.848	694303.134	3062361.924	694206.02	3062385.772
608	77350	694242.501	3062325.329	694290.983	3062313.101	694194.02	3062337.556
609	77400	694230.123	3062276.885	694278.527	3062264.355	694181.718	3062289.415
610	77450	694217.442	3062228.52	694265.767	3062215.688	694169.116	3062241.352
611	77500	694204.458	3062180.235	694252.703	3062167.101	694156.214	3062193.369
612	77550	694191.174	3062132.032	694239.335	3062118.597	694143.013	3062145.468
613	77600	694177.588	3062083.914	694225.664	3062070.178	694129.512	3062097.65
614	77650	694163.702	3062035.881	694211.691	3062021.844	694115.712	3062049.917
615	77700	694149.516	3061987.935	694197.416	3061973.6	694101.615	3062002.271
616	77750	694135.03	3061940.08	694182.84	3061925.445	694087.22	3061954.715
617	77800	694120.246	3061892.316	694167.964	3061877.382	694072.528	3061907.249
618	77850	694105.163	3061844.645	694152.787	3061829.413	694057.54	3061859.876
619	77900	694089.795	3061797.065	694137.35	3061781.621	694042.24	3061812.509
620	77950	694074.352	3061749.51	694121.907	3061734.066	694026.796	3061764.954
621	78000	694058.908	3061701.955	694106.463	3061686.511	694011.353	3061717.399
622	78050	694043.464	3061654.4	694091.019	3061638.956	693995.909	3061669.843

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of New Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



Sl. No.	Chainage (m)	Center Line		Left ROW Line		Right ROW Line	
		X/ Easting	Y/ Northing	X/ Easting	Y/ Northing	X/ Easting	Y/ Northing
623	78100	694028.02	3061606.845	694075.576	3061591.401	693980.465	3061622.288
624	78150	694012.577	3061559.289	694060.132	3061543.846	693965.022	3061574.733
625	78200	693997.133	3061511.734	694044.688	3061496.291	693949.578	3061527.178
626	78250	693981.689	3061464.179	694029.244	3061448.735	693934.134	3061479.623
627	78300	693966.246	3061416.624	694013.801	3061401.18	693918.69	3061432.068
628	78350	693950.802	3061369.069	693998.357	3061353.625	693903.247	3061384.513
629	78400	693935.358	3061321.514	693982.913	3061306.07	693887.803	3061336.957
630	78450	693919.914	3061273.959	693967.47	3061258.515	693872.359	3061289.402
631	78500	693904.471	3061226.403	693952.026	3061210.96	693856.916	3061241.847
632	78550	693889.027	3061178.848	693936.582	3061163.405	693841.472	3061194.292
633	78600	693873.583	3061131.293	693921.138	3061115.849	693826.028	3061146.737
634	78650	693858.14	3061083.738	693905.695	3061068.294	693810.584	3061099.182
635	78700	693842.696	3061036.183	693890.251	3061020.739	693795.141	3061051.627
636	78750	693827.252	3060988.628	693874.807	3060973.184	693779.697	3061004.071
637	78800	693811.808	3060941.073	693859.364	3060925.629	693764.253	3060956.516



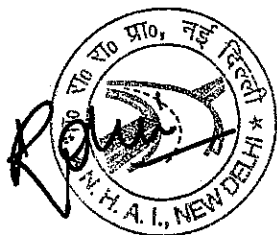
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**Annex – III  
(Schedule-A)**

**Alignment Plans:**

The alignment of the Project Highway is enclosed in alignment plan. Finished road level indicated in the alignment plan shall be followed by the contractor as minimum FRL. In any case, the finished road level of the project highway shall not be less than those indicated in the alignment plan. The contractor shall, however, improve/upgrade the Road profile as indicated in Annexure-III based on site/design requirement.



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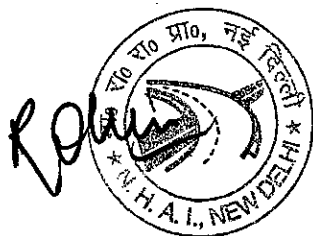
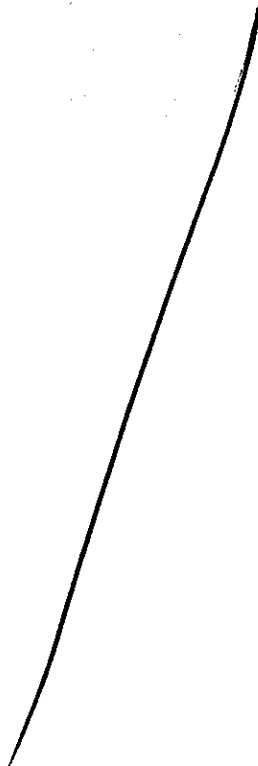




Annex – IV  
(Schedule-A)

Environment Clearances

Under Process



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**SCHEDULE - B**  
(See Clause 2.1)

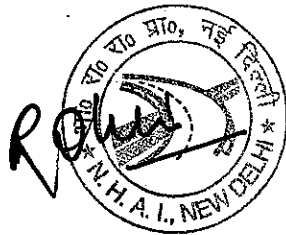
**DEVELOPMENT OF THE PROJECT HIGHWAY**

**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. The alignment plans of the Project Highway are specified in Annex-III of Schedule A and shall be deemed to be part of this Schedule B. The proposed profile of the project highway as indicated in the Annex-III of Schedule A shall be followed by the contractor (as minimum FRL) as given in the alignment plan. Based on site/design requirement, the Contractor may, however, improve/upgrade upon the alignment plans and profiles as indicated in Annexure – III of Schedule A and raise the finished roadway level (FRL) with approval from the Authority's Engineer within the available Right of Way.

**2 Specifications and Standards**

The Project Highway shall be designed and constructed in conformity with the Specifications and Standards specified in Annex-I of Schedule-D.



**Annexure-I  
(Schedule – B)**

**Description of the Project**

**Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana**

The Project Highway shall follow the alignment shown in the plan and profile specified in Annex III of Schedule-A, unless otherwise specified by the Authority. Notwithstanding anything to the contrary contained in this Agreement or IRC:SP:99-2013, the proposed profile of the project highway as indicated in the Annexure-III of Schedule-A shall be deemed to be part of this Schedule-B and shall be followed by the contractor. Based on Design/Site requirements, the contractor may, however, improve/upgrade upon the alignment plans and profile as indicated in Annexure-III of Schedule-A and raise the finished roadway level with approval from Authority's Engineer within the available ROW. The same shall not constitute a change of scope, save and except any variations arising out of a change of scope expressly undertaken in accordance with the provision of Article 13.

**1.1 Width of carriageway**

- 1.2.1 Eight-lane divided carriageway shall be undertaken. The paved carriageway shall be provided as indicated below and referred to in paragraph 2.8 of this Schedule-B and Annex –I of Schedule-D.
- 1.2.2 There is no built-up area as the alignment passes through greenfield.
- 1.2.3 Except as otherwise provided in this Agreement, the width shall be adjusted to fit into appropriate plans and cross sections developed in accordance with TCS enclosed.
- 1.2.4 Except as otherwise provided in this Agreement, but subject to provisions of Annex –I of this Schedule-B, the width of the paved carriageway shall conform to Section 1.2.1 of Schedule B.
- 1.2.5 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 and the same 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.

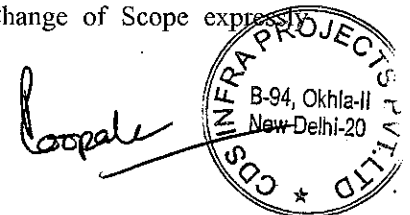
**2.0 Geometric design and general features**

**2.1 General**

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the IRC:SP:99-2013.

**2.2 Design speed**

The design speed shall be the ruling/minimum design speed specified in Clause 2.2 of the IRC:SP:99-2013.



**2.3 Improvement of the existing road geometrics**

In the following stretches, 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 proper road signs and safety measures shall be provided:

S. No.	Proposed Chainage (in km)		Type of Deficiency	Remarks
	Start	End		
Nil				

**2.4 Right of Way**

Details of the Right of Way are given in Annex II of Schedule-A.

**2.5 Type of shoulders**

The shoulder specification shall be as per Section 2 and Section 5 of IRC:SP:99-2013. The shoulder on the outer side (on either side of the carriageway) shall be 3m wide paved + 2m earthen. The shoulder composition is as follows:

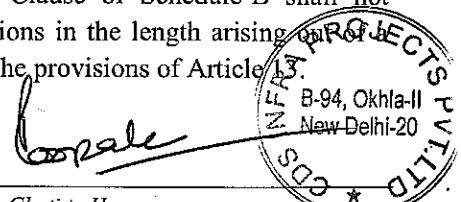
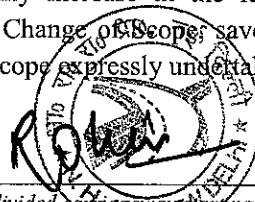
- a) The compositions and specification of the paved shoulder and edge strip shall be as that of the main carriageway.
- b) The earthen shoulder shall be provided with 200mm thick layer of granular material for protection against erosion.

**2.6 Service Roads/Slip Roads/Connecting Roads**

Service Roads/ Slip Roads shall be constructed at the locations and for the lengths indicated below:

Sl. No.	Location of Service Roads/Slip Roads (Design Chainage in Km)		Right Hand Side (RHS)/Left Hand Side) or Both Sides	Length (m)	Remarks
	From	To			
A	Slip Road				
1	62+425	62+770	Left Side	345	7 m wide for Wayside Amenities on LHS
2	63+520	63+930	Left Side	410	
3	69+110	69+520	Right Side	410	7 m wide for Wayside Amenities on RHS
4	70+275	70+620	Right Side	345	

**Note:** 1. Above length of the service/ slip/ connecting roads is indicative and minimum specified. The actual length of the service/ slip/ connecting roads shall be determined by the Contractor in accordance with the IRC:SP:99-2013 requirements with approval from the Authority's Engineer. Any increase in the length specified in this Clause of Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising from Change of Scope expressly undertaken in accordance with the provisions of Article 13.



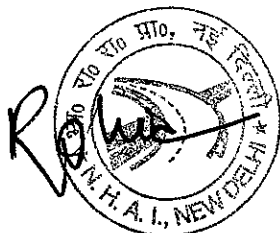
2. The realignment of existing track to the SVUP outside the PROW and connecting roads between consecutive underpasses wherever required as per plan & profile uploaded with bid document and specified in Annex III of schedule A is to be constructed by the contractor as per site requirement in consultation with Authority Engineer and the same would not constitute any change of scope.
3. Length of service roads given in above table excludes length across the project Expressway for proper connectivity of cross roads on either side of project expressway which shall be deemed to be included in the scope of work.

## 2.7 Grade separated structures

2.7.1 Grade separated structures shall be provided as per paragraph 2.13 of the IRC:SP:99-2013. Proposed levels at structure locations as shown in plan & profile specified in Annex III of schedule A are only for guidance and any changes in levels shall not constitute any change of scope. The requisite particulars are given below:

### SVUP

S. No.	Design Chainage (In Km)	Type of structure	Span Arrangement (m)	Total width (m)	Remarks
1	47+490	RCC Box	1x10.0x4.5	2 x 21.25	-
2	49+781	RCC Box	1x10.0x3.5	2 x 21.25	-
3	53+667	RCC Box	1x10.0x4.5	2 x 21.25	-
4	54+936	RCC Box	1x10.0x4.5	2 x 21.25	-
5	55+545	RCC Box	1x10.0x3.5	2 x 21.25	-
6	55+961	RCC Box	1x10.0x4.5	2 x 21.25	-
7	58+597	RCC Box	1x10.0x3.5	2 x 21.25	-
8	62+390	RCC Box	1x10.0x4.5	2 x 21.25	-
9	63+987	RCC Box	1x10.0x4.5	2 x 21.25	-
10	65+179	RCC Box	1x10.0x4.5	2 x 21.25	-
11	67+680	RCC Box	1x10.0x4.5	2 x 21.25	-
12	69+049	RCC Box	1x10.0x4.5	2 x 21.25	-
13	70+967	RCC Box	1x10.0x4.5	2 x 21.25	-
14	72+280	RCC Box	1x10.0x4.5	2 x 21.25	-
15	73+126	RCC Box	1x10.0x3.5	2 x 21.25	-
16	74+751	RCC Box	1x10.0x4.5	2 x 21.25	-
17	75+954	RCC Box	1x10.0x4.5	2 x 21.25	-
18	78+557	RCC Box	1x10.0x4.5	2 x 21.25	-



## LVUP

S. No.	Design Chainage (In Km)	Type of structure	Span Arrangement (m)	Total width (m)	Remarks
1	49+000	RCC T-beam	1x18.0x5.5	2x21.25	-
2	51+029	RCC T-beam	1x16.0x5.5	2x21.25	-
3	52+045	RCC T-beam	1x25.0x5.5	2x21.25	-
4	58+101	RCC T-beam	1x16.0x5.5	2x21.25	-
5	73+557	RCC T-beam	1x16.0x5.5	2x21.25	-

## VUP

S. No.	Design Chainage (In Km)	Span Arrangement (m)	Total width (m)	Remarks
NIL				

## FLYOVER

S. No.	Design Chainage (In Km)	Span Arrangement (m)	Total width (m)	Remarks
NIL				

## INTERCHANGE

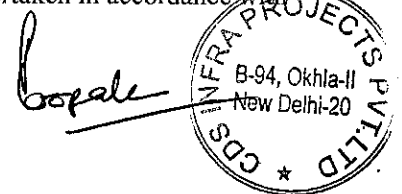
S. No.	Design Chainage (In Km)	Span Arrangement (m)	Total width (m)	Remarks
1	66+587	1x45.0x5.5	2 x 21.25	-

Detail of Loop and Ramp (Interchange Dwg showing Ramp nos. is attached as Appendix-B-1):

S. No.	Description / Location	Length (m)
1	Ramp-1	470
2	Ramp-2	760
3	Ramp-3	470
4	Ramp-4	760
	<b>Total Length</b>	<b>2460</b>

**Note:** The length of loops and ramps are minimum and likely to get changed as per site requirement; Any change as per site requirement may not constitute 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.

## 2.8 Typical Cross Section of Project Highway



S. No.	Design Chainage		Length (Km)	Description	TCS Type
	From	To			
1	47+000	47+483	0.483	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
2	47+483	47+495	0.012	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
3	47+495	48+990	1.495	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
4	48+990	49+010	0.02	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
5	49+010	49+775	0.765	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
6	49+775	49+785	0.01	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
7	49+785	50+300	0.515	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
8	50+300	50+380	0.080	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 3
9	50+380	51+020	0.640	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
10	51+020	51+036	0.018	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
11	51+036	52+026	0.052	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
12	52+026	52+065	1.015	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
13	52+065	53+660	1.555	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
14	53+660	53+672	0.012	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
15	53+672	54+930	1.258	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
16	54+930	54+942	0.012	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
17	54+942	55+540	0.598	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
18	55+540	55+550	0.01	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
19	55+550	55+955	0.405	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800), section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

S. No.	Design Chainage		Length (Km)	Description	TCS Type
	From	To			
20	55+955	55+965	0.01	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
21	55+965	58+093	2.128	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
22	58+093	58+110	0.017	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
23	58+110	58+590	0.48	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
24	58+590	58+602	0.012	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
25	58+602	62+384	3.782	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
26	62+384	62+395	0.011	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
27	62+395	63+98	1.585	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
28	63+980	63+992	0.012	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
29	63+992	65+173	1.181	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
30	65+173	65+185	0.012	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
31	65+185	67+675	2.49	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
32	67+675	67+685	0.01	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
33	67+685	69+043	1.358	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
34	69+043	69+055	0.012	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
35	69+055	70+960	1.905	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
36	70+960	70+972	0.012	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
37	70+972	72+275	1.303	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
38	72+275	72+285	0.01	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
39	72+285	73+120	0.835	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with	Type 1

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of NH-148N, Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



S. No.	Design Chainage		Length (Km)	Description	TCS Type
	From	To			
				embankment height up to 2.5m.	
40	73+120	73+131	0.011	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
41	73+131	73+549	0.418	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
42	73+549	73+565	0.016	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
43	73+565	74+745	1.18	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
44	74+745	74+757	0.012	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
45	74+757	75+949	1.192	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
46	75+949	75+959	0.01	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
47	75+959	78+552	2.593	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1
48	78+552	78+562	0.01	Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover	Type 2
49	78+562	78+780	0.238	Typical Cross Section for 8 lane (2x4) in Plain & Rolling terrain with depressed median with embankment height up to 2.5m.	Type 1

### 3. Intersections and grade separators

All intersections and grade separators shall be as per Section 3 of the IRC:SP:99-2013. Properly designed intersections shall be provided at the locations and of types and features given in the tables below:

- (a) At-grade intersections: NIL  
 (b) Grade separated intersections

The grade separated intersection shall be provided as specified in paragraph 2.7 of Annexure-I of schedule B.

Note:

- (i) Type of Junction to be improved as per IRC:SP:99-2013 and MOST type design as per 1992 on National Highway.
- (ii) Any other junction not mentioned above but observed during the construction of the project shall be improved as per IRC:SP:99-2013 requirements. The same shall not constitute a Change

Construction of Eight Lane Dual Carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

- (iii) 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 out in section-3 of IRC:SP:99-2013. The same shall not constitute a Change of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.
- (iv) Junction improvement under grade separators/interchanges shall be carried out as per IRC:SP:99-2013 and given in typical lay-out annexed along with this Schedule B with proper entry/exit to cross roads and slip/service roads and pavement composition as indicated in clause 5.3 of this Schedule B.
- (v) Location and span arrangement of grade-separated structures are indicative. Exact location may be decided in consultation with Authority Engineer. Any Change in span arrangement shall not be treated as 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 16.

#### 4 Road embankment and cut section

- 4.1 Construction of new road embankment/cuttings shall conform to the Specifications and Standards given in section 4 of the IRC:SP:99-2013 and the specified cross sectional details. Notwithstanding anything to the contrary contained in this Agreement or IRC:SP:99-2013, the proposed profile of the project highway as indicated in the Annex-III of Schedule A shall be deemed to be part of this Schedule B and shall be followed by the contractor with minimum FRL as indicated in the alignment plan. Based on site/design requirement, the Contractor may, however, improve/upgrade upon the alignment plans and profiles as indicated in Annexure – III of Schedule A and raise the Finished Roadway Level (FRL) with approval from the Authority's Engineer within the available Right of Way.

#### 5 Pavement design

- 5.1 Pavement design shall be carried out in accordance with Section-5 of the IRC:SP:99-2013.

#### 5.2 Type of pavement

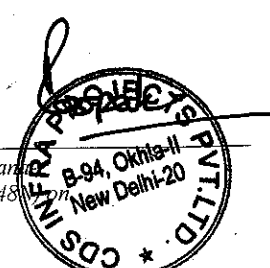
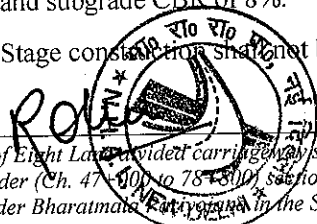
The pavement shall be flexible perpetual type for entire length of project corridor; except for connecting road and wayside amenities where flexible pavement shall be proposed.

#### 5.3 Design requirements

##### 5.3.1 Design Period and strategy

- (a) Perpetual flexible pavement shall be constructed for the entire length of Project Corridor including paved shoulders. Perpetual flexible pavement shall be designed for a minimum design period of 50 years and minimum sub grade CBR of 8%.
- (b) For slip/service roads to wayside amenities and interconnecting roads to VUPs/LVUPs/SVUPs, flexible pavement shall be provided for minimum 10 MSA traffic and subgrade CBR of 8%.
- (c) Stage construction shall not be permitted.

Construction of Eight Lane divided carriage way starting at Ch. 47+000 near Khanpur Ghati to Haryana Rajasthan Border (Ch. 47+000 to 78+300) section of Delhi – Vadodara Greenfield Alignment (NH-148) EPC Mode under Bharatmala Project in the State of Haryana



### 5.3.2 Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the IRC:SP:99-2013, the Contractor shall design the pavement for a minimum design traffic as indicated below or as per the actual traffic, whichever is higher. The flexible pavement composition for main carriageway shall, however, in no case be less than as given below:

#### Main carriageway

Pavement layer	Pavement Type	Minimum Crust layer thickness (mm)
Stone Matrix Asphalt (SMA) with PMB 40 and minimum 2% Lime	Perpetual Flexible	50
Dense Bituminous Concrete (DBM) with VG-40 & minimum 2% lime		250
Wet Mix Macadam (WMM)		150
Cement Treated Subbase with minimum 2% cement		200

*Note: The cement and lime content shall be consider as per mix design during construction, however in any case it shall not be less than as mentioned in table above.*

#### Connecting/Service/slip road (Flexible)

Pavement layer	Pavement Type	Minimum Crust layer thickness (mm)
Bituminous Concrete (BC)	Flexible	40
Dense Bituminous Concrete (DBM)		50
Wet Mix Macadam (WMM)		250
Granular Sub-base (GSB)		200

### 5.4 Reconstruction of stretches

The following stretches of the existing road shall be reconstructed. These shall be designed as new pavement.

S. No.	Design Chainage		Remarks
	From	To	
	Nil		



**6 Road side drainage**

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per section 9 of the IRC:SP:99-2013. Unlined Drains (except at ROB location) shall be provided in the entire project length which gets terminated at all cross road locations.

**7 Design of structures**

**7.1 General**

7.1.1 Project Highway is proposed to be constructed to eight-lane configuration with provision for widening to twelve-lane configuration in future. As such, superstructure of all bridges, culverts and structures is to be designed for edge movement of the vehicle considering stitching of new superstructure in future due to widening for additional lane. Special vehicle loading is to be considered in design of super-structure of all bridges, culverts and structures.

All bridges, culverts and structures shall be designed and constructed in accordance with section-6 of the IRC:SP:99-2013 and shall conform to the cross-sectional features and other details specified therein.

7.1.2 Width of the carriageway of new bridges and structures more than 60.0 m length having carriageway width less than 7.5m shall be as follows:

NIL

7.1.3 The following structures shall be provided with footpaths:

NIL

7.1.4 All bridges shall be high-level bridges.

7.1.5 The following structures shall be designed to carry utility services specified in table below:

S. No.	Design Chainage (Km)	Utility service to be carried	Remarks
All Bridges to be Designed to carry Utility Services			

7.1.6 Cross-section of all structures including new culverts and bridges at deck level for the Project Highway shall conform to the typical cross-sections given in section 6 of the IRC:SP:99-2013 and TCS in Para 2.8.

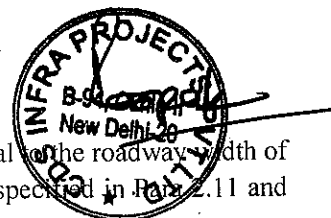
**7.2 Culverts**

7.2.1 Overall width of all culverts shall be equal to the roadway width of the approaches.

7.2.2 Reconstruction of existing culverts – Nil

7.2.3 Widening of existing culverts – Nil

7.2.4 New culverts (given in table below) shall be constructed for width equal to the roadway width of the Project Highway & as per typical cross-section given in the TCS specified in Para 2.11 and alignment plan. The details are given as under:



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 17+000 to 28+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Scheme in the State of Haryana

S. No.	Design Chainage (km)	Proposed Span (m)	Type of Culvert
1	47+900	1x2.0x2.0	RCC Box
2	48+105	1x2.0x2.0	RCC Box
3	48+700	1x2.0x2.0	RCC Box
4	49+250	1x2.0x2.0	RCC Box
5	50+800	1x2.0x2.0	RCC Box
6	51+650	1x2.0x2.0	RCC Box
7	52+516	1x2.0x2.0	RCC Box
8	53+028	1x2.0x2.0	RCC Box
9	53+314	1x3.0x3.0	RCC Box
10	54+458	1x2.0x2.0	RCC Box
11	54+698	1x3.0x3.0	RCC Box
12	56+300	1x2.0x2.0	RCC Box
13	56+590	1x2.0x2.0	RCC Box
14	57+215	1x2.0x2.0	RCC Box
15	57+420	1x2.0x2.0	RCC Box
16	57+625	1x2.0x2.0	RCC Box
17	58+890	1x2.0x2.0	RCC Box
18	59+300	1x2.0x2.0	RCC Box
19	59+964	1x2.0x2.0	RCC Box
20	60+516	1x2.0x2.0	RCC Box
21	60+900	1x2.0x2.0	RCC Box
22	61+385	1x2.0x1.5	RCC Box
23	61+917	1x3.0x3.0	RCC Box
24	62+700	1x2.0x2.0	RCC Box
25	63+354	1x2.0x2.0	RCC Box
26	63+884	1x2.0x2.0	RCC Box
27	64+290	1x2.0x2.0	RCC Box
28	64+685	1x2.0x2.0	RCC Box
29	64+934	1x3.0x2.5	RCC Box
30	65+290	1x3.0x3.0	RCC Box
31	65+666	1x2.0x2.0	RCC Box
32	65+931	1x2.0x1.5	RCC Box
33	68+813	1x3.0x3.0	RCC Box
34	69+575	1x2.0x2.0	RCC Box
35	70+635	1x2.0x2.0	RCC Box
36	71+250	1x2.0x2.0	RCC Box
37	71+910	1x3.0x3.0	RCC Box
38	72+06	1x3.0x3.0	RCC Box
39	72+506	1x3.0x3.0	RCC Box

*R. Datta*

*Boopale*

Construction of Eight Lane divided carriage way starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

S. No.	Design Chainage (km)	Proposed Span (m)	Type of Culvert
40	74+342	1x3.0x3.0	RCC Box
41	74+966	1x3.0x2.5	RCC Box
42	75+476	1x3.0x3.0	RCC Box
43	76+292	1x3.0x3.0	RCC Box
44	76+967	1x3.0x3.0	RCC Box
45	77+217	1x2.0x2.0	RCC Box
46	77+700	1x3.0x3.0	RCC Box

In addition to above, additional 30 nos. box culverts of size 2m x 2m shall be provided as per site requirements for facilitating access of farmers to field channels on either side of the carriageway. The location of such culverts shall be decided in consultation with Authority Engineer.

**Note:**

- The overall width of the above culverts shall be equal to Roadway width including the gap between main carriageway & service road, in case there is any service road. Any additional Barrel length required as per site conditions shall not constitute a Change of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.
- Location of the above culverts are indicative and span arrangement is minimum specified. Exact location of these culverts may be decided in consultation with Authority Engineer. The actual ventway/span arrangements of culverts shall be determined on the basis of detailed investigations by the Contractor in accordance with the Specifications and Standards. Any variations in ventway/span arrangements specified in this Schedule-B 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.

7.2.5 Repairs/replacements of railing/parapets, flooring and protection works of the existing culverts shall be undertaken as follows:

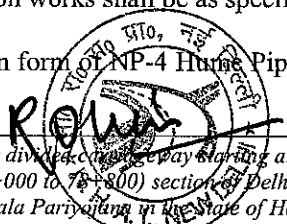
S. No.	Existing Span Arrangement						Type of Repair Required
	Design Chainage (Km)	Structure Number	Type	No of Spans	Span length (m)	Overall Width (m)	
NIL							

7.2.6 Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

7.2.7 In case of culverts proposed for widening/repair as per details in Clause 7.2.3 above, the same shall be re-constructed if the design shows that these are unsafe for design loads. No change of scope shall be considered in such cases.

7.2.8 Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

7.2.9 Utility ducts in form of NP-4 Hume Pipe dia 1.2m shall be provided across the Project Highway



and along with inspection chamber for crossing of underground utilities in Built-up areas as per IRC:SP:99-2013 requirements. Location for such utility crossing shall be finalized in consultation with Authority Engineer.

**7.3 Bridges**

**7.3.1 Existing bridges to be re-constructed/widened**

The existing bridges at the following locations shall be re-constructed/widened: Nil

**7.3.2 New bridges**

New bridges at the following locations on the Project Highway shall be constructed. GADs for the new bridges are attached in the drawings folder.

**Major Bridges:**

S. No.	Design Chainage (In Km)	Span Arrangement (m)	Total width (m)	Remarks
NIL				

**Minor Bridges:**

S. No.	Design Chainage (In Km)	Span Arrangement (m)	Total width (m)	Remarks
1	50+340	1x40.0	2 x 21.25	-

7.3.3 The railings of existing bridges shall be replaced by crash barriers at the following locations: Nil

7.3.4 Repair/replacements of railing/parapets of the existing bridges shall be undertaken as follows: Nil

**7.3.5 Drainage system for bridge decks**

An effective drainage system for bridge decks shall be provided as specified in paragraph 9.80 of the IRC:SP:99-2013

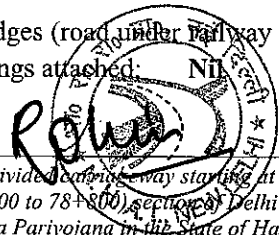
7.3.6 Structures in marine environment: Nil

**7.4 Rail-road bridges**

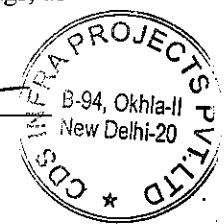
7.4.1 Design, construction and detailing of ROB/RUB shall be as specified in section 6 of the IRC:SP:99-2013

7.4.2 Road over bridges (road over rail) shall be provided at the following locations, as per GAD drawings attached:

7.4.3 Road under bridges (road under railway line) shall be provided at the following level crossings, as per GAD drawings attached: Nil



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S. No.	Design Chainage	Proposed Span Arrangement (m)	Name of crossing (m)	Total Width (m)
NIL				

**7.5 Grade separated structures**

The grade separator shall be provided as specified at para 2.7 of Annex-I of Schedule B

**7.6 Repairs and strengthening of Bridge/Structures**

The existing structures to be repaired/ strengthened, and the nature and extent of repairs strengthening required: Nil

**7.7 List of Major Bridges and Structures**

The following is the list of the Major Bridges and Structures:

S. No.	Name of the Structure	Total Numbers
1	ROB	NIL
2	Major Bridge	NIL
3	Major Bridge cum LVUP	NIL
4	Minor Bridge	1
8	SVUP	18
9	Flyover	1
10	VUP	NIL
11	VOP	NIL
12	LVUP	5
13	Interchange	1
14	Culverts	46

**8. Traffic control devices and road safety works**

8.1 Traffic control devices and road safety works shall be provided in accordance with Section 10 of the IRC:SP:99-2013.

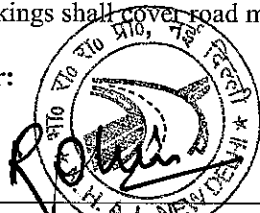
**(a) Traffic Signs:**

Traffic signs include roadside signs, overhead signs and curb mounted signs along the entire Project Highway.

**(b) Pavement Marking:**

Pavement markings shall cover road marking for the entire Project Highway.

**(c) Safety Barrier:**



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Provision of Thrie-beam crash barrier for a minimum length of 63.50 Km along the project highway shall be provided at the high embankment locations and details to be prepared as per site requirement in consultation with the Authority Engineer.

8.2 Sheeting shall be provided in accordance with section 10.2.5 of the IRC:SP-99-2013.

**9. Roadside furniture**

9.1 Roadside furniture like km/Hectometer Stones, Railings, Traffic Impact Attenuators, Delineators shall be provided in accordance with the provisions of Section 10 and Section 12 of IRC:SP-99-2013.

S. No.	Project Facility	Location	Design Requirements
1	Traffic Signs and Pavement Markings	Entire length of project road	As per Schedule D
2	Kilometer and 200m stones	Entire length of project road	As per Schedule D
3	Road side Delineators	Horizontal curves of project road	As per Schedule D

a) Road Boundary Wall shall be constructed as specified in Ministry Circular No. RW/NH-24036/27/2010-PPP dated 25.04.2018.

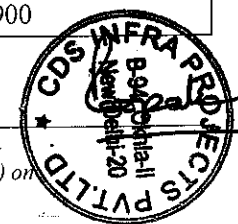
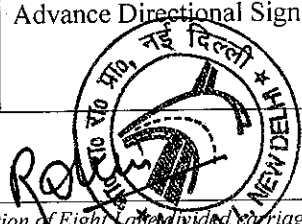
b) Overhead Traffic Signs (excluding overhead signs at Toll Plaza): Location and Size

SN	Type of Sign	Numbers	Dimension
1	One Way Object Hazard Marker (OHM)	144	Width: 300mm Height: 900 mm
2	Height restriction (regulatory signs)	50	Diameter: 1200 mm
3	Speed Limit Signs (Regulatory Signs)	56	Diameter: 1200 mm
4	Merging Traffic Ahead (Cautionary Sign)	4	Diameter: 1200 mm
5	Two Way Object Hazard Marker (OHM)	6	Width: 450mm Height: 900 mm
6	Compulsory Keep Right Sign	5	Diameter: 1200 mm
7	U-Turn Prohibited Sign (at merging section of intersections)	4	Diameter: 1200 mm
8	Give way sign (Regulatory Signs)	4	Side: 1200 mm
9	Double Chevron Marker (at roundabout)	4	Width: 1550mm Height: 600 mm

**Overhead cantilever sign:**

S. No.	Description/Type of Sign	Nos.	Location
1	Advance Directional Sign	6	64+100
			65+100
			65+595
			67+400
			67+900

Construction of Eight Lane Divided by Viaduct starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



			68+900
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**Overhead cantilever sign at Rest Area (LHS Ch. 63+140):**

S. No.	Description/Type of Sign	Nos.	Location
1	Rest Area information Sign	2	60+700
			62+200

**Overhead cantilever sign at Rest Area (RHS Ch. 69+900):**

S. No.	Description/Type of Sign	Nos.	Location
1	Rest Area information Sign	2	70+800
			72+300

**Overhead Gantry sign:**

S. No.	Description/Type of Sign	Nos.	Location
1	Directional Sign (Supplementary)	6	50+700
			54+400
			60+400
			64+400
			70+400
			74+400

**10. Compulsory Afforestation**

Minimum 20,000 no. of trees are required to be planted by the contractor as compensatory afforestation in accordance with IRC:SP:99-2013 keeping in view IRC:SP:21-2009. Any increase in no. of trees shall not be treated as change of scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

**11. Hazardous Locations**

Safety barriers shall be provided at the following hazardous location in consultation with the NHAI/Authority Engineer.

Nil

**12. Toe Wall and Retaining Walls**

Retaining walls and protection works shall be provided at locations as indicated below and as provided in TCS schedule in cl. 2.8 of schedule-B.

S.No.	Design Chainage (Km)		Side	Length (m)	Remarks
	From	To			
			NIL		

Construction of Eight Lanes Divided Freeway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 77+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-88N) on EPC Mode under Bharatmala Project in the State of Haryana

**Note:** Above Length and height of Toe Wall/ Retaining wall is tentative and minimum specified. The actual length of Toe Wall/ Retaining wall shall be determined by the Contractor in accordance with the IRC:SP:99-2013 requirements with approval from the Authority's Engineer. Any increase in the length and height specified in this Clause of Schedule-B 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.

**13. Special Requirement for Hill Roads**

Nil

**14. Rainwater Harvesting**

As per Ministry of Environment and Forests Notification, New Delhi dated 14.01.1997 (as amended on 13.01.1998, 05.01.1999 & 6.11.2000), the construction of rain water harvesting structure is mandatory in and around Water Crisis area, notified by the Central Ground Water Board. The provision of rain water harvesting be executed as per requirement of IRC SP: 42-2014 and IRC SP: 50-2013.

**15. Change of Scope**

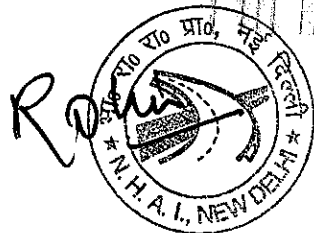
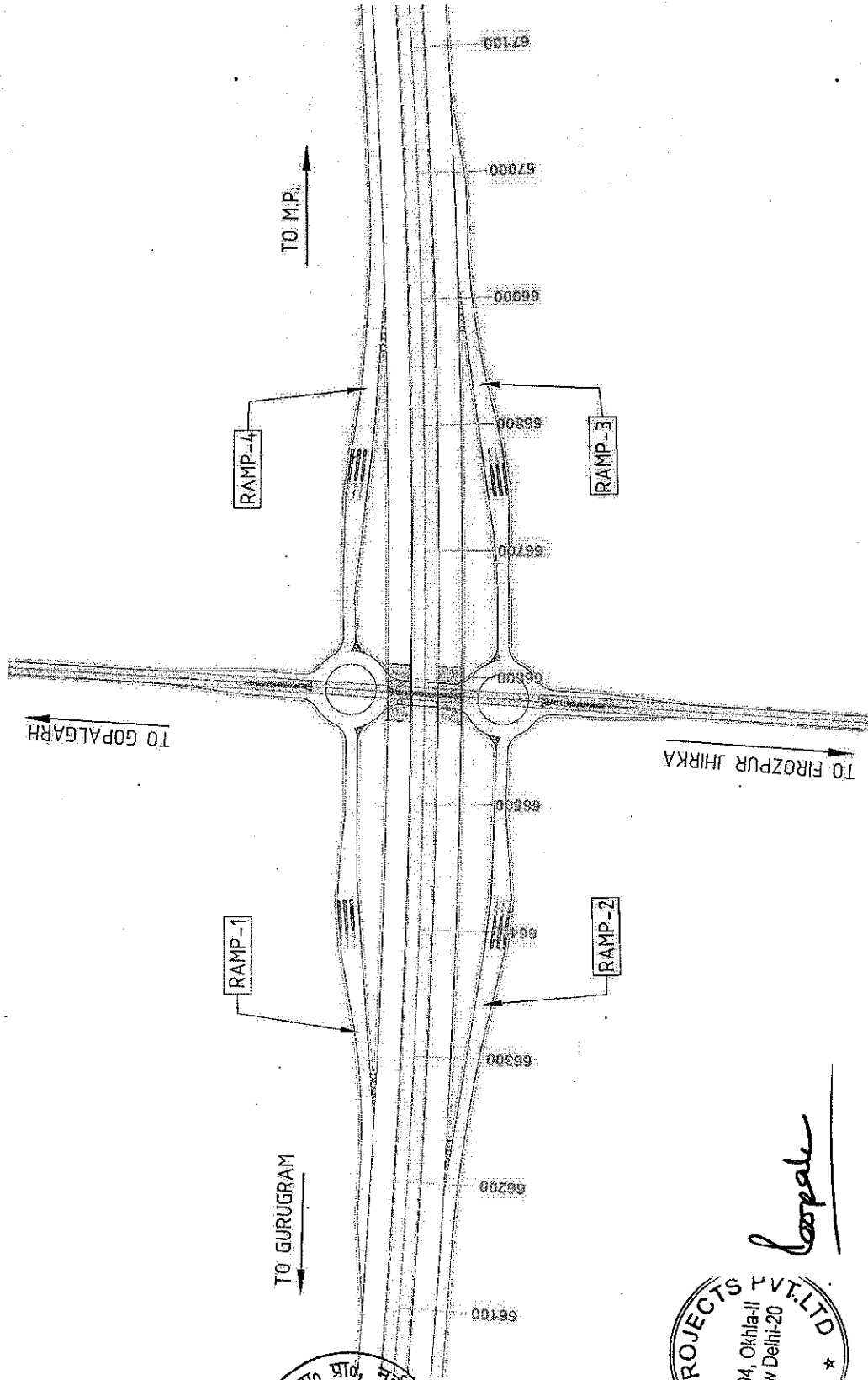
The length of Structures and bridges specified hereinabove shall be treated as an approximate assessment. The proposed span arrangement of above structures may be changed based on innovative design of structure, latest construction techniques and aesthetics of structures and the actual lengths of Structures and bridges 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 specified in this Schedule-B 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.



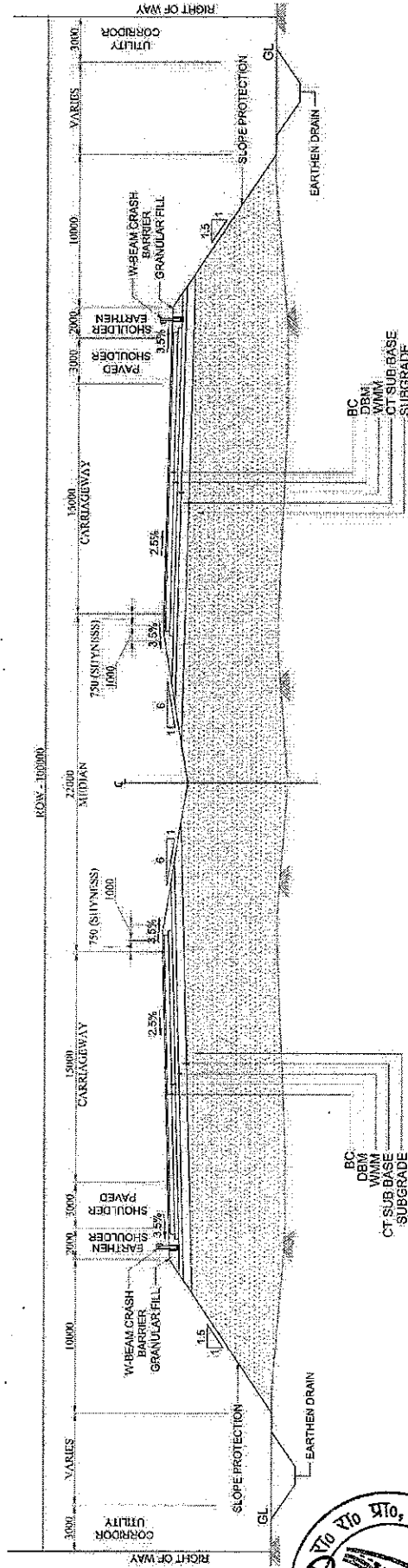
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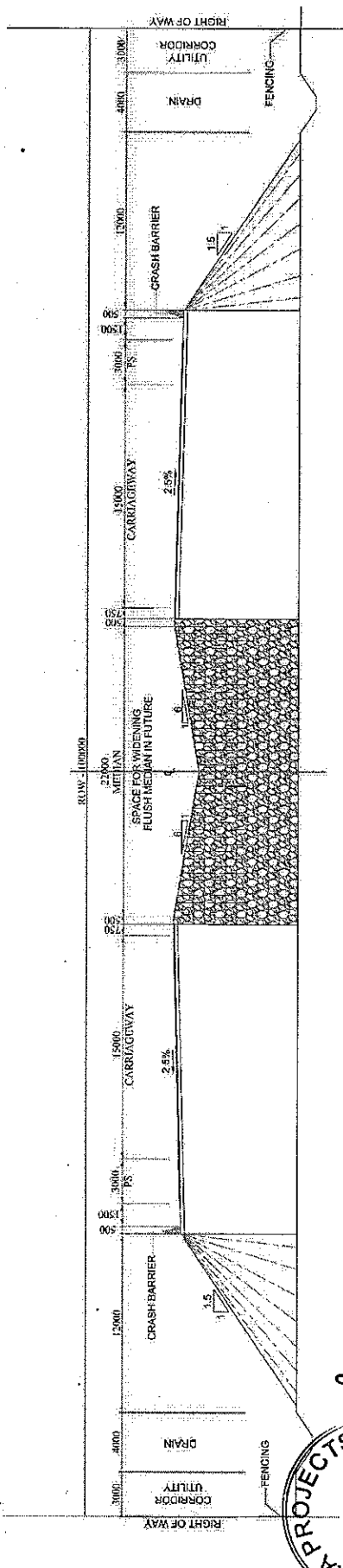
Appendix-B-1



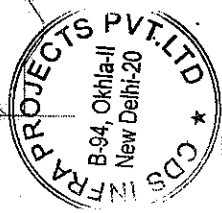
Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghat to Haryana-Rajasthan Border (Ch. 47+000 to 78+800), section of Delhi - Vadodara Greensfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



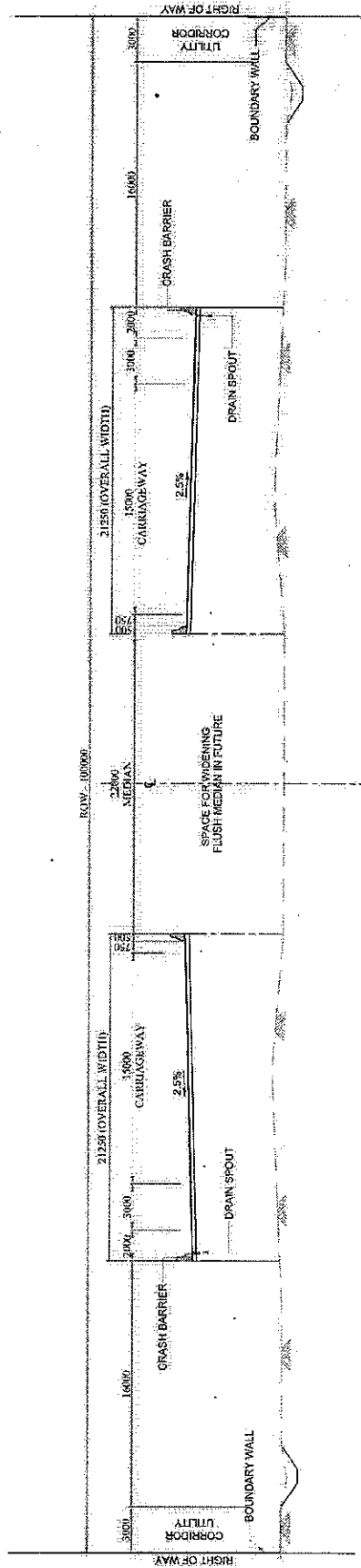
**TYPE-1 (STAGE-I)**  
**TYPICAL CROSS SECTION FOR 8 LANE (2x4) IN PLAIN & ROLLING TERRAIN**  
**WITH DEPRESSED MEDIAN**



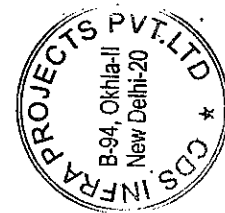
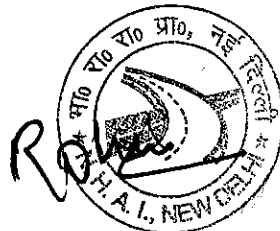
**TYPE-2 (STAGE-I)**  
**TYPICAL CROSS SECTION FOR 8 LANE (2x4) FOR VUP, SVUP, LVUP, FLYOVER**



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghat to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



TYPE-3 (STAGE-I)  
TYPICAL CROSS SECTION FOR 3 LANE (2x1) FOR MNB, MNB WITH DEPRESSED MEDIAN

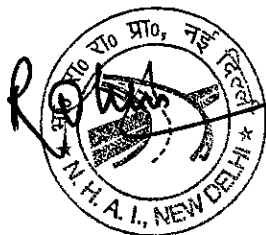


Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmata Pariyojana in the State of Haryana

**SCHEDULE – C**  
(See Clause 2.1)  
**PROJECT FACILITIES**

**1 Project Facilities**

- 1.1 The Contractor shall construct the Project Facilities in accordance with the provisions of this Agreement. Such Project Facilities shall include.
- a) Toll plazas
  - b) Road side furniture
  - c) Operation and Maintenance Centers
  - d) Way side amenities / Service Areas
  - e) Smaller Parking Places with Toilet Facilities Service Area
  - f) Truck Parking Areas
  - g) Pedestrian Facilities/ Cattle Crossings
  - h) Lighting
  - i) Environmental Management Plan
  - j) Land Scaping and Tree Plantation
  - k) Advanced Traffic Management System (ATMS)
  - l) Utilities
  - m) Rain water harvesting
- 1.2 Project Facilities to be completed on or before project completion date have been described in Annex-I of this Schedule-C.



**Annex - I**  
(Schedule-C)

**1 Project Facilities**

The Contractor shall construct the Project Facilities described in this Annex-I to form part of the Project Highway. The Project Facilities shall include:

- a) Toll plazas
- b) Road side furniture
- c) Operation and Maintenance Centers
- d) Way side amenities / Service Areas
- e) Smaller Parking Places with Toilet Facilities Service Area
- f) Truck Parking Areas
- g) Pedestrian Facilities/ Cattle Crossings
- h) Lighting
- i) Environmental Management Plan
- j) Land Scaping and Tree Plantation
- k) Advanced Traffic Management System (ATMS)
- l) Utilities
- m) Rain water harvesting

**2 Description of Project Facilities****2.1 Toll Plazas**

The Toll Plaza on entry & exit ramps of F'Jhirka interchange shall be provided as per Schedule D and minimum lane requirement in the opening year are as follows.

**Toll Plaza location and Minimum Lane Requirement in the Opening Year**

Chainage	Location	Direction (Entry: to highway, Exit: from Highway)	No. of toll lanes (Normal + ETC + Extra Wide)
66+587	Ramp-1	Exit	2+1+1
	Ramp-2	Entry	2+1+1
	Ramp-3	Exit	2+1+1
	Ramp-4	Entry	2+1+1

Entry approach to each toll plaza shall be having Weigh in Motion equipment and tunnel shall be constructed for connecting toll booths and toll office for collection of toll fees as per Schedule D.

Based on the minimum toll lane requirement as given above, toll booths, toll plaza complex, weigh bridges, electrical systems, toll plaza and all other facilities required/mentioned in manual shall be provided as per Schedule D with approval from AE and NHAI. All the structures shall be RCC framed structure as per schedule D.

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 48+300) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmata Pariyojana in the State of Haryana



RE wall/Retaining wall shall be provided at toll plaza locations to restrict the embankment slope within the right of way.

No. of toll lanes specified above are minimum indicative. The Contractor shall design and provide toll lane as per IRC:SP:99-2013 subject to minimum specified above. Any increase in no. of toll lane shall not be treated as 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.

## 2.2 Road side furniture

### 2.2.1 Kilometer and Hectometer Stones

Kilometer and Hectometer stones shall be provided in accordance with Schedule - D.

### 2.2.2 Road Signs

The Road Signs on Highway shall be provided in accordance with Schedule - D.

### 2.2.3 Road Marking

The Road Marking on Highway shall be provided in accordance with Schedule - D.

### 2.2.4 Road Delineators

The Road Delineators on Highway shall be provided in accordance with Schedule - D.

### 2.2.5 Reflective Pavement Markers & Solar Studs

The Reflective Pavement Markers & Solar Studs on Highway shall be provided in accordance with Schedule - D.

### 2.2.6 Traffic Impact Attenuators

The Traffic Impact Attenuators on Highway shall be provided in accordance with Schedule - D.

### 2.2.7 Crash Barriers

#### *Thrie Beam Steel Barriers*

Thrie beam metal crash barriers shall be provided in entire length on both sides of each main carriageway (i.e. on earthen shoulder of both side carriageway), Loops and Ramps excluding stretches covered by bridges and RE wall structures, where concrete barriers to be provided.

Concrete crash barriers shall be provided on bridges/structures, RE Walls/ retaining walls as specified in Schedule B.

### 2.2.8 Boundary wall

As the Highway is completely access controlled facility, boundary wall is its integral part to help enforcing of the acquired access rights.

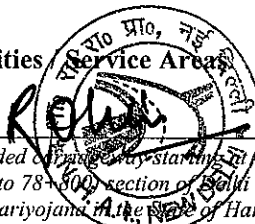
Access control extends to the limits of the legal access control on the ramps i.e., along the ramps to the beginning of the taper on the local road.

RCC boundary wall shall be provided along the entire length on either side (including transverse requirements at structure locations) in accordance with Schedule D and Guidelines vide circular No.RW/NH-24036/27/2010-PPP dated 25.04.2018.

## 2.3 Operation and Maintenance centers

Dedicated operation and maintenance center shall be provided in accordance to Schedule D.

## 2.4 Way side Amenities



*Coopale*



## 2.4.1 Facilities

### A) Way side Amenities / Service Areas

Wayside amenities shall be a part of the Highway and shall be constructed with the minimum facilities such as Parking areas (Trucks, Buses, Cars, Mini Buses), Fuel Station and garage for minor repair, Hotel/ Motel, Trauma Center, Rest Areas, Fast Food Centre, Travel Information Facilities, Toilets and Bath Facilities, space for Maintenance staff & Vehicle Service Station, Dormitory, Helipad, Generator room/ solar system area, Play Area & security personnel.

Separate area for Truck parking facilities to be provided in this way side amenity for truck parker. Truck parker to have separate Dhaba, Water Kiosk, weighing bridge, Motel, Toilet facility, Garage / workshop/ service centre as per schedule D.

Wayside amenities each of minimum about 18 Hectares shall be developed at the following locations in accordance to **Schedule - D**. The layout with minimum number of units per facility and the minimum area per facility to be developed is given in **Appendix C-1**. However, the provisions given in **Appendix C-1** shall be minimum. The connecting Ramps from/to highway shall be provided as per **Appendix C-1A**.

Sl. No.	Location (Km)	Side
1	63+140	Left Side
2	69+900	Right Side

## 2.4.2 Specifications and Standards for above facilities

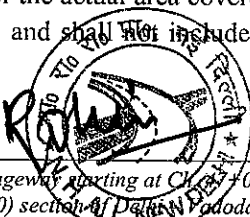
The Project shall be constructed in conformity with the Specifications and Standards specified in this schedule and Schedule-D.

## 2.4.3 Scope of Work

The project scope would include the following major activities:

### Design and Construction of the Project

- Geo-technical investigation
- Original Proposal** – The Contractor will be required to develop the detailed conceptual plan, layout plan, detailed architectural and structural designs, engineering drawings, construction methodology, quality assurance procedures, and the procurement, engineering and construction time schedule for all the areas and facilities forming a part of the Project using the basic layout plan provided by the Authority at the time of bidding and/or thereafter. The detailed development proposal for the site shall be submitted to the IE/AE and subsequently to the Authority for approval. The Concessionaire shall not deviate from the broad layout, however the Concessionaire will be allowed to modify the site-specific layout, subject to approval from the Authority, while developing at least the minimum areas and facilities for features marked as Mandatory in this Schedule.
- The total covered area of the site after development of any facilities mentioned shall not be more than 20% of the total site area. For the Fuel station, the ground coverage shall be considered only for the actual area covered by the administrative buildings, equipment and other such objects and shall not include the open hardstand space for vehicle movement under the canopy.



*Signature*



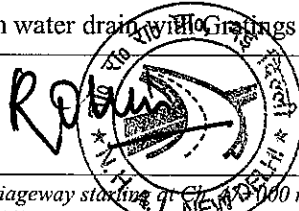
- (d) Review of all the site-specific information provided along with the bid documents carrying out necessary revisions or additions, preparation of all engineering drawings as required for proper execution and completion of the project as envisaged with the approval of the Authority in compliance with applicable local bye-laws, National Building Code and other standards mentioned in Schedule D. To save time and prevent wastage of effort, it is suggested that the Contractor gets the Line Plan of all the buildings in the Project reviewed by the Authority within 15 days of receiving the Letter of Award.
- (e) Site Development, Procurement etc. for construction of the Project as per Design, Codes, Architectural and Engineering Drawings, complying all relevant codal provisions, Standards and Technical Specifications mentioned in schedule D. The Project shall include facilities specified above along with site boundary wall, roads / driveway, parking & pathway, roads marking and rumble strips / speed breakers for parking areas, septic tank/soakage well/sewer line, waste compost plant, water supply, storm water drain, street lighting with LED/CFL lamps, underground sump/overhead tank, firefighting, security features, HVAC, signage, landscaping, horticulture operations/ arboriculture etc., RO water plant, rainwater harvesting, provision for tube/bore wells & pumps including water tank, electrical substation / transformer, trenches / ducts for UG cables / pipeline, DG set, shading device, children play area, outdoor furniture, digital display wall system, solar power panel, provision for helipad, high mast lamp and hoarding board etc. Actual project facilities to be provided in a particular location will vary.
- (f) Construction of modern user and environment friendly facilities as per the specifications approved by the Authority.
- The site shall be developed based on green design principles like GRIHA three star ratings for building norms, zero effluent discharge, use of recycled water, use of renewable energy system as an alternate source of power generation, bio-mechanization technology for generation of cooking gas, rainwater harvesting etc. to make the facility self-sustaining.
- (g) **Fueling Station:** The Contractor shall establish the fuel station in the area earmarked for such fuel station and is required to fulfill the eligibility criteria as determined by the concerned Oil Marketing Companies (OMCs) for setting up of a fuel station with prior approval from Authority Engineer and NHAI.

#### 2.4.4 Project Facilities development

The Project Facilities may include the following activities; however the final detailed set of activities to be performed shall be submitted to the Authority Engineer and NHAI for approval prior to initiating development on the site:

Sl. No.	Description
I (a)	Site Development
	i. Site clearances & Area development
	a. Leveling, Cutting & Filling Soil (Total Plot Area)
	ii. a. Cutting of Topsoil As required to match site Specific Layouts.

Sl. No.	Description
	b. Dismantling / Demolishing including disposal
	c. Rerouting of EB, Water & Telephone Services (Above / Below Ground)- including local liasioning charges
	d. Additional Filling/Cutting - To match levels indicated in the Site Specifications Drawings.
iii. 1.	Construction of Retaining wall / Slope Stability Arrangements
	2. Compound Wall, Fencing, Gate, Culvert & Kerbwall, Deceleration Zone, Acceleration Zone, Buffer Zone and Service / Access Road.
	a. Compound Wall
	b. Gate - Shall be provided for Entrance to Children Play Area
	c. RCC Slab / Pipe Culvert (Outside the Premises)
	d. Kerbwall - Parking Areas, Landscaping and Pathways
	e. Bollards To be provided in front of Dhaba / Food Court / Restaurants / Kiosks
	f. Access Road (outside the premises) / Approach road
	g. Deceleration Zone (outside the premises)
	h. Acceleration Zone (outside the premises)
	i. Buffer Zone
	j. Service Road (outside the premises) / Exit Road / Existing Service Roads including necessary crash barriers as per codes
<b>I b.</b>	<b>Services:-</b>
	i. Roads & Pathway as per MoRTH Specifications
	a. Roads / Driveway, Parking & Path way (BT / CC Paver Block): (All Driveway / Roads / Parking facing Dhaba / Food Court / Restaurants / and Kiosks within the premises shall be of CC Paver Blocks. All other areas inside the premises and approach roads outside premises shall be of BT.
	b. Roads Marking and Rumble Strips, Speed Breakers (Readymade speed breakers with reflective arrow) for parking area.
	ii. Sewer Line including Chambers, Manholes, Gully Trap, etc.
	iii. Water supply & Distribution System
	iv. Storm water drain with Gratings / Cover Slab

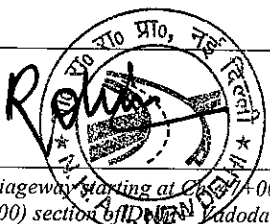


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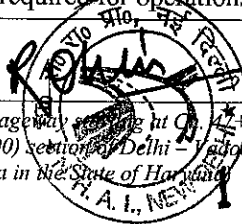


Sl. No.	Description
	v. External Electrical Works Including Street Light
	vi. a. Underground Sump / RCC water Retaining Structures
	b. Fire Fighting
	vii. Signages:
	a. External Signages (Building Signages, Parking Signages, Prohibition Signages, Safety Signages, etc)
	b. Internal Signages
	c. Neon Signages
	d. Key Map Signages
	e. Highway Way finding Signages on the Main Road (on both sides of the project) - 1Km, 500m and 100m
	f. Totem
	g. Frontlight / Backlight Facia for Food Court & Dhaba
<b>I c.</b>	<b>Landscaping And Arboriculture</b>
	a. Landscaping
	b. Horticulture Operations / Arboriculture
<b>II</b>	<b>Civil Work / Buildings (Including Internal services)</b>
	1. Food Court with Motels - Capacity as indicated in Site Specific drawings
	2. a) Branded / AC Restaurant - As shown in Site Specific drawings
	3. Dhaba - As shown in the Site Specific drawings.
	4. Dormitory - As shown in the Site Specific drawings.
	5. Minor Repair shop - As shown in the Site Specific drawings.
	6. Kiosks for misc. items - As shown in the Site Specific drawings.
	7. Toilet Blocks
	a. Toilet Block (Near Food Court) - As shown in the Site Specific drawings. (The size of the Toilet Block shown is minimum required. The size may be increased retaining the same concept to accommodate more facilities by the Contractor at his own cost without
	<b>Ladies Toilet:</b>
	IWC
	EWC
	Trough

Sl. No.	Description	
	reducing the parking facilities)	PC Toilet
		<b>Gents Toilet:</b>
		Urinals
		IWC
		EWC
		Trough
		PC Toilet
		b. Toilet Block (Car & Bus user parking zone) - As shown in the Site-Specific drawings. (The size of the Toilet Block shown is minimum required. The size may be increased retaining the same concept to accommodate more facilities by the Contractor at his own cost without reducing the parking facilities)
	IWC	
	EWC	
	Trough	
	<b>Gents Toilet:</b>	
	Urinals	
	IWC	
	EWC	
	Trough	
	PC Toilet	
	c. Toilet Block (Truck parking zone) - As shown in the Site-Specific drawings. (The size of the Toilet Block shown is minimum required. The size may be increased retaining the same concept to accommodate more facilities by the Contractor at his own cost without reducing the parking facilities)	<b>Ladies Toilet:</b>
		IWC
		EWC
		<b>Gents Toilet:</b>
		Urinals
		IWC
		EWC
		IWC
	EWC	



Sl. No.	Description
	Trough
	<b>Gents Toilet:</b>
	Urinals
	IWC
	EWC
	Trough
	PC Toilet
	9. Parking
	a) Car
	b) Car – PC
	c) Bus
	d) Truck
	e) Trailer
<b>III</b>	<b>Furniture &amp; Fixtures</b>
<b>IV</b>	<b>Equipment</b>
	<b>a. Special Items of Work</b>
	i. RO Water Plant
	ii. Rainwater Harvesting
	iii. Septic Tank & Soak Pit with Anaerobic Filter
	iv. Tube wells & pumps including overhead water tank and sump
	v. CCTV & Security system
	vi. Electrical substation/ Transformer / Panel Board/ Earth pit / LT Switch Board / Panel Boards
	vii. Trenches/ Ducts for UG cables / Pipe line
	viii. DG Set(s)
	ix. Entertainment - Satellite TV & WIFI
	x. Shading Device As required for operations. (For certain openings / areas requiring protection)



Sl. No.	Description
	from sun/rain. Shading device includes Awnings, Tension structures, etc.,)
	xi. Outdoor Furniture
	xii. Children Play Area Developments
	xiii. Digital Display Wall System
	xiv. Advertisement Balloon
	xv. Helipad
	xvi. Solar Power Panel
	xvii. Hoarding Board
	xviii. High Mast Lamp & Lightning Arrester
	<b>b. Additional Green Building Features:-</b>
	i. Solar Lighting
	ii. Provision for Cooking Gas from Food Waste
	iii. All Utility Connections, Deposits etc.,
	<b>c. Other Equipments:-</b>
	HVAC

## 2.5 Pedestrian Facilities / Cattle Crossings

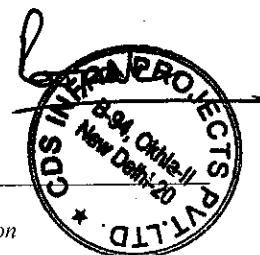
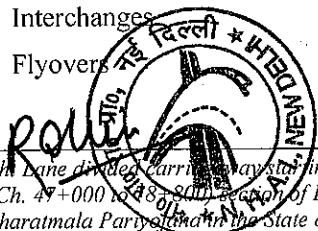
Pedestrian/ Cattle Underpasses shall be provided at locations specified in **Schedule - B**.

## 2.6 Lighting

The Concessionaire shall provide lighting as per **Schedule - D** at following locations of the Project Highway.

- (i) Toll Plazas area
- (ii) Operation and maintenance centers
- (iii) Way side amenities / Service Areas
- (iv) Smaller parking places with toilet facilities
- (v) Truck Parking Areas
- (vi) Interchanges
- (vii) Flyovers

Construction of Eight Lane divided carriage way starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 48+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Parikrama in the State of Haryana





- (viii) Underpasses and Overpasses
- (ix) Traffic aid posts, vehicle rescue posts, medical aid posts and all other facility & service buildings.
- (x) Interior illuminated signs
- (xi) Yellow flashing lights to alert drivers

In addition to the above locations the following locations shall be continuous Highway Lighting.

Sl. No.	Locations	Stretches	Remarks
1	Urban Areas	Nil	--
2	Stretches along Highway from start to end of approaches of all Service Areas (Way side amenities, Truck parking and Smaller parking places with toilet facilities)	Locations as given this Schedule C	--

Minimum level illumination on locations of the Project Highway where exterior lighting is provided shall be 40 lux. In general 'code of practice for lighting of public thoroughfare IS 1944 shall be followed. All facility buildings shall be illuminated adequately.

The lighting fittings (with LED features) shall be powered by solar system with back up facilities (power and battery both) at all locations.

The solar system will be used for the entire highway. The solar panel at interchange toll plazas and bridges shall be grid connected whereas the other places shall be battery backup. The electrical connection with all its infrastructures shall be done by the contractor. Additional battery backup shall be provided.

## 2.7 Environmental Management Plan

The Contractor shall implement the Environmental Management plan & action Plan for undertaking possible mitigation measures in accordance with guidelines for Highway Projects of the Ministry of Environment and Forests and Wild life Department. The conditions & directions stipulated by the MOEF shall be make available by the Authority.

## 2.8 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.

Sl. No.	Types of Plantation	Location (Km)	Remarks
1	Shrubs	In median except Structures	Ornamental type plantation shall be provided

Sl. No.	Types of Plantation	Location (Km)	Remarks
2	Land Scaping	All interchanges/ Service Areas / Toll plazas / O & M Centers	Ornamental type plantation shall be provided
3	Plantations	Available open land within ROW	Minimum 70,000 nos. of trees of desired type in two rows @ 3 m c/c near edge of ROW on both side and three rows @ 3 m c/c on central median (As per Schedule D) preferably local varieties like Mango, Neem, Sheesham, Babul, Peepal, Imli, 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 maintenance period as per the maintenance schedule.

**2.9 Advanced Traffic Management System (ATMS)**

Advanced Traffic Management System (ATMS) shall be provided as per Schedule D as given in Schedule - B.

**2.10 Utilities**

Provision of accommodating utilities shall be made within utility corridor on either side of Project Highway. Provision for crossing of Utility duct shall be provided as per manual.

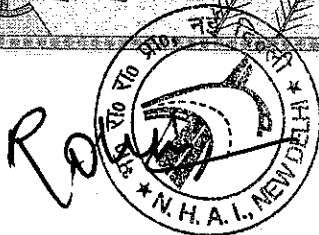
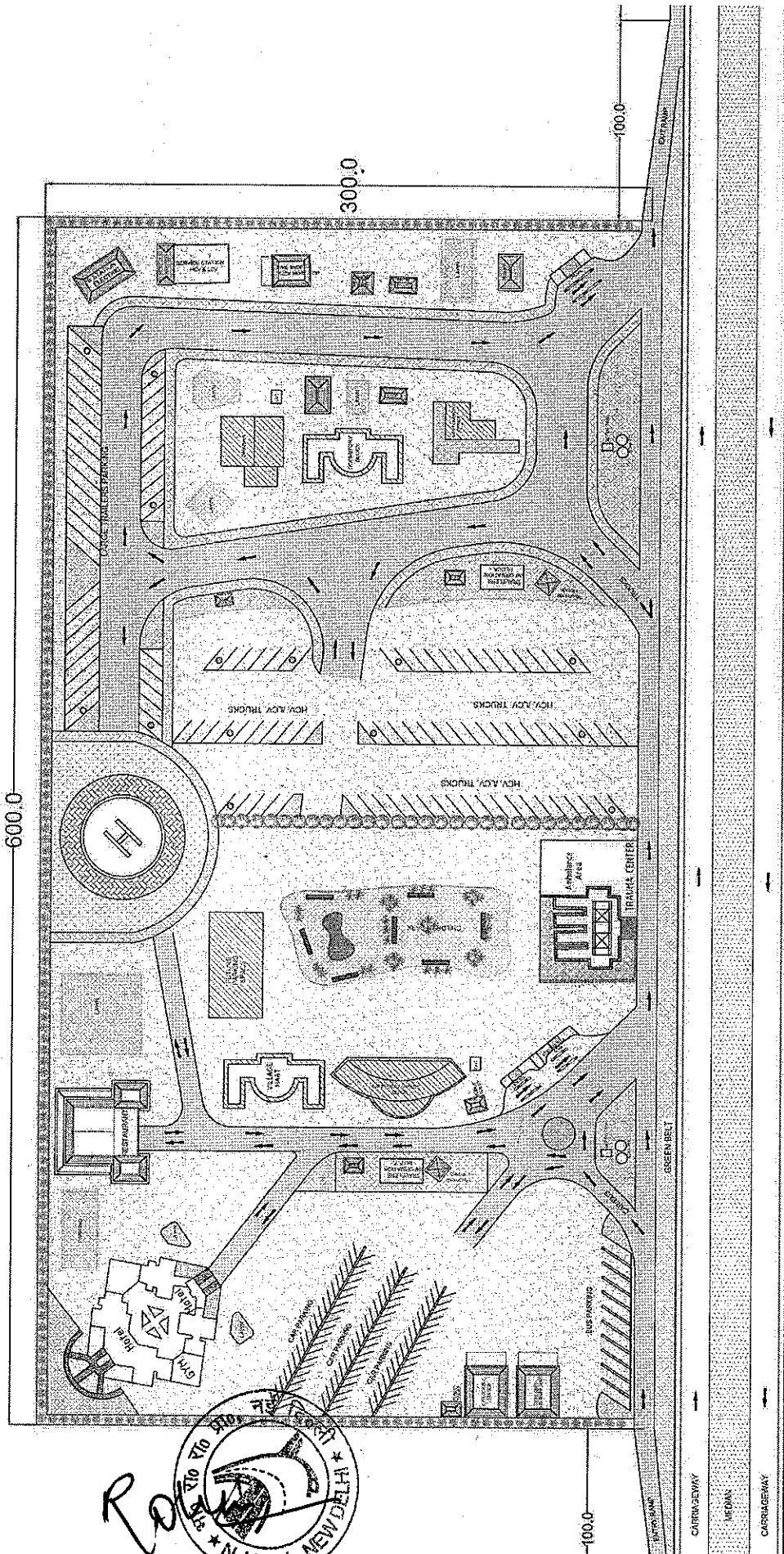
**2.12 Rain Water Harvesting**

As per Ministry of Environment and Forests Notification, the construction of Rain Water harvesting structures is mandatory in and ground water crisis areas, notified by Central Ground Water Board.



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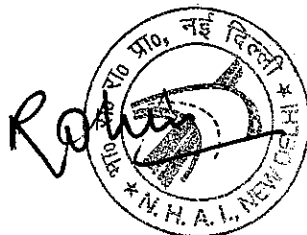
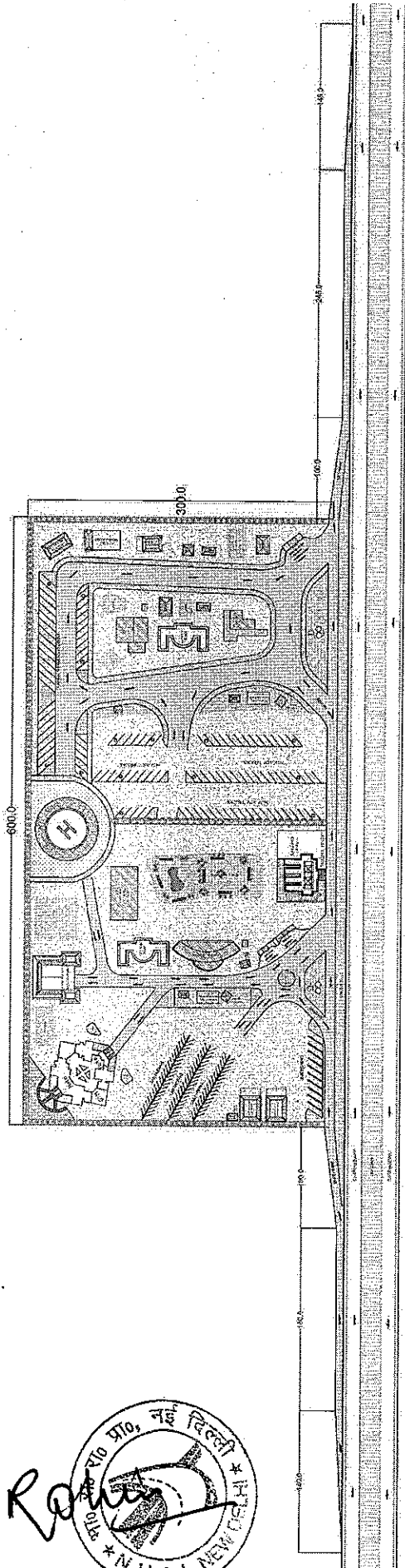


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Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khampur Ghatti to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

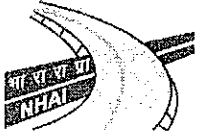
Appendix C-1A



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khampur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Yadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana)

**Corrigendum to Schedule:**

**A, B & C**



# भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय)

## National Highways Authority of India

(Ministry of Road Transport and Highways)

जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075

G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200

फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/BM/Delhi/Vadodara/2018/Pkg 3

Dated: 05.11.2018

### Corrigendum-I

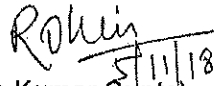
To

All applicants

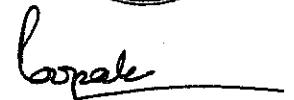
**Sub: Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana - Reg.**

The Technical Schedules as uploaded for the subject project have been amended and the amendment for the same is enclosed at Annex-A.

2. The reply of pre-bid queries for the subject project has been enclosed at Annex-B.
3. All other terms and conditions will remain same.

  
(Rohin Kumar Gupta)  
General Manager (T)  
Bharatmala





**Amendments in Technical Schedules**

**Schedule A**

**Clause 1.4: stands amended and shall be read as under:**

The alignment plans of the Project Highway are specified in Annex-III. The proposed levels (FRL) as indicated in the alignment plan shall be treated as an approximate assessment. The contractor shall design the Road Profile of the project highway based on site/design requirement mentioned in Schedule D.

**Annex-III (Schedule-A): stands amended and shall be read as under:**

**Alignment Plans:**

1. The alignment of the Project Highway is enclosed in alignment plan. Finished road level indicated in the alignment plan shall be treated as an approximate assessment. The contractor shall design the Road profile of the project highway based on site/design requirement mentioned in Schedule D.
2. Traffic Signage plan of the Project Highway showing numbers & location of traffic signs is enclosed. The contractor shall, however, improve/upgrade upon the traffic signage plan as indicated in Annexure-III based on site/design requirement as per IRC: SP: 99-2013 & IRC: 67-2012.

**Schedule B**

**Clause 1: stands amended and shall be read as under:**

Development of the Project Highway shall include design and construction of the Project Highway as described in this Schedule-B and in Schedule-C. The alignment plans of the Project Highway are specified in Annex-III of Schedule A. The proposed profile of the project highway as indicated in the Annex-III of Schedule A shall be treated as an approximate assessment. Based on site/design requirement, the Contractor shall design the alignment plans and profiles of the project highway based on site/design requirement mentioned in Schedule D with approval from the Authority's Engineer within the available Right of Way.

**Annexure-I of Schedule B**

**Para 2 under Description of the Project: stands amended and shall be read as under:**

The Project Highway shall follow the horizontal alignment shown in the plan specified in Annex III of Schedule-A, unless otherwise specified by the Authority. Notwithstanding anything to the contrary contained in this Agreement or IRC:SP:99-2013, the proposed



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profile of the project highway as indicated in the Annexure-III of Schedule-A shall be treated as an approximate assessment. Based on site/design requirement, the Contractor shall design the alignment plans and profiles of the project highway based on site/design requirement mentioned in Schedule D with approval from the Authority's Engineer within the available Right of Way. The same shall not constitute a change of scope, save and except any variations arising out of a change of scope expressly undertaken in accordance with the provision of Article 13.

**Clause 4: stands amended and shall be read as under:**

Construction of new road embankment/cuttings shall conform to the Specifications and Standards given in section 4 of the IRC:SP:99-2013 and the specified cross sectional details. Notwithstanding anything to the contrary contained in this Agreement or IRC:SP:99-2013, the proposed profile of the project highway as indicated in the Annex-III of Schedule shall be treated as an approximate assessment. Based on site/design requirement, the Contractor shall design the alignment plans and profiles of the project highway based on site/design requirement mentioned in Schedule D with approval from the Authority's Engineer within the available Right of Way.

**Clause 5.3.2 Design Traffic: stands amended and shall be read as under:**

Notwithstanding anything to the contrary contained in this Agreement or the IRC:SP:99-2013, the Contractor shall design the pavement of main carriageway as long life perpetual flexible pavement while the pavement for connecting/service/slip road shall be designed for design traffic of 10 MSA.

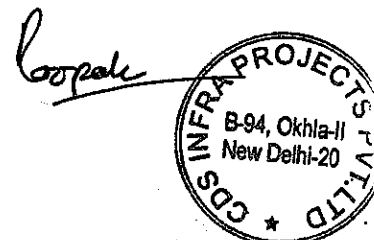
In order to meet the intended functional requirement of respective pavement layers as well as compaction of heavy bituminous layers on main carriageway, the minimum thickness of respective pavement layers for main carriageway and connecting/ service/slip road shall, however, in no case be less than as given below:

**Main carriageway**

Pavement Composition	Pavement Type	Minimum Crust Thickness (mm)
Stone Matrix Asphalt (SMA) as wearing course	Perpetual	50
Bituminous base course		250
Non-bituminous base course		150
Sub-base course		200

**Connecting/Service/Slip road**

Pavement Composition	Pavement Type	Minimum Crust Thickness (mm)
Bituminous Concrete (BC) as wearing course	Flexible	40
Bituminous base course		50
Non-bituminous base course		250
Sub-base course		200





**Clause 9. Roadside furniture: Shall be read as under:**

- 9.1 Roadside furniture like km/Hectometer Stones, Railings, Traffic Impact Attenuators, Delineators shall be provided in accordance with the provisions of Section 10 & Section 12 of IRC:SP:992013 and Traffic Signage plan as indicated in Annexure-III of Schedule-A & deemed to be part of this Schedule-B.

S. No.	Project Facility	Location	Design Requirements
1	Traffic Signs and Pavement Markings	Entire length of project road	As per Schedule D
2	Kilometer and 200m stones	Entire length of project road	As per Schedule D
3	Road side Delineators	Horizontal curves of project road	As per Schedule D

- 9.2 RCC boundary wall shall be provided along the entire length on either side (including transverse requirements at structure locations) as per typical layout drawing enclosed with the bid documents.
- 9.3 Traffic Signs (excluding overhead signs at Toll Plaza): Traffic sign boards as per details given below shall be provided in the project highway as per road signage plan indicated in Annexure-III of Schedule-A and deemed to be part of this Schedule-B

Sl. No.	Type of Sign
1	One Way Object Hazard Marker (OHM)
2	Two Way Object Hazard Marker (OHM)
3	Height restriction (Regulatory Sign)
4	Speed Limit Signs (Regulatory Sign)
5	Merging Traffic Ahead (Cautionary Sign)
6	Compulsory Keep Left Sign (Regulatory Sign)
7	Compulsory Ahead Sign (Regulatory Sign)
8	U-Turn Prohibited Sign (Regulatory Sign)
9	Give way sign (Regulatory Sign)
10	Chevron Marker (At Curves)
11	Triple Chevron Marker (At roundabout)
12	Reassurance Sign (Direction & Place Identification Sign)
13	Roundabout Sign (Cautionary Sign)
14	Left/ Right Hand Curve (Cautionary Sign)
15	Expressway Route Marker Sign
16	Entry/ Exit Expressway Sign (Information Sign)
17	End of Expressway Sign
18	Map type Advance Direction Sign
19	Flag type Advance Direction Sign
20	Advance Directional Sign (Overhead Cantilever/ Gantry)
21	Rest Area Information Sign (Overhead Cantilever/ Gantry)
22	Slogan Gantry



*Corporate*



**Note:** The numbers and location of Traffic Signages shown in Traffic Signage plan as indicated in Annexure-III of Schedule-A are tentative and minimum specified. The actual numbers and location of Traffic Signages shall be determined by the Contractor in accordance with the IRC:SP:99-2013 requirements with approval from the Authority's Engineer. Any increase in the number and type of road sign boards specified in this Clause of Schedule-B 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.

### Schedule C

**Clause 2.2.8: Boundary wall:** stands amended and shall be read as under:

#### **Boundary wall**

As the Highway is completely access controlled facility, boundary wall is its integral part to help enforcing of the acquired access rights.

Access control extends to the limits of the legal access control on the ramps i.e., along the ramps to the beginning of the taper on the local road.

RCC boundary wall shall be provided along the entire length on either side (including transverse requirements at structure locations) in accordance with Schedule B and Schedule D.

**Clause 2.4.3 (g): stands amended and shall be read as under:**

**Fuelling Station:** The contractor shall provide, construct and maintain the basic infrastructure for the wayside amenities as per the typical layout and requirements specified in Schedule C and Schedule D.

Subsequent establishment and operation of the fuel stations shall be responsibility of the Authority.



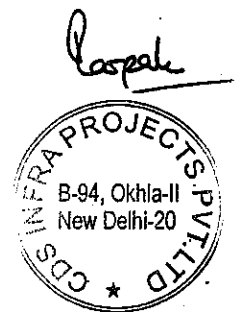
**SCHEDULE - D**  
(See Clause 2.1)  
**SPECIFICATIONS AND STANDARDS**

**1. Construction**

The Concessionaire 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 Expressway including Project Facilities shall conform to design requirements set out in the following documents.



**Annex - I**  
(Schedule-D)

**SPECIFICATIONS AND STANDARDS FOR EXPRESSWAYS**

**1 Manual of Specifications and Standards to apply**

Eight laning of the Project Highway shall conform to the 'Manual of Specifications and Standards for Expressways' published as IRC: SP: 99-2013 with all amendments and additions till date. (Referred to as "Manuals" in this Schedule) and MORTH Specifications for Road and Bridge Works (5<sup>th</sup> revision). Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority Engineer & Independent Engineer.

**2 Deviations from the Manual**

Notwithstanding anything to the contrary contained in the aforesaid Manual, the Specifications and Standards shall apply to the Project Highway, and for purposes of this Agreement, the aforesaid Manual shall be deemed to be amended to the extent set forth below:

Sl. No.	Clause No.	Details of Item	Description of Deviation
1	2.5.1	Median	The median shall be as given in Schedule B (TCS) Median shall include 0.75m wide edge strip on each side, which shall have same pavement configuration of Main Carriageway as per Clause no. 2.5.3 of Manual.
2	2.10	Lateral & vertical clearance at PUP/CUP/LVUP	The lateral and vertical clearance of all Light vehicular underpasses, Pedestrian underpasses/ cattle underpasses shall be as given in Schedule B.
3	2.12.3	Connecting Roads	The location & width of the connecting roads shall be as specified in Schedule B
4	2.16	Typical Cross Section	The typical cross section shall be as given in Schedule B.
5	5.2	Type of Pavement	The type of pavement shall as specified in Schedule B.
6	6.3	Overall width of structures	The Overall Deck Configuration of all structures shall be as per Schedule B and all Road Over Bridges shall be as per the GAD approved by Railways Authority.
7	10.7.2 (b)	Median Barriers	An additional length of 25m Thrie beam metal crash barrier shall be provided on right side of entry approach for all open median structures shall be constructed.
8	10.7.1 (i(a))	Road side safety barriers	Thrie beam metal crash barriers shall be provided in entire length on both sides of each main carriageway (i.e. on median and on earthen shoulder of both carriageway), Loops and Ramps excluding stretches covered by bridges and RE wall structures, where concrete barriers to be provided.

Sl. No.	Clause No.	Details of Item	Description of Deviation
9	15.2 (i)	Specifications of Lighting-Table 15.1 Minimum Level of Illumination.	The average level of Illumination shall be 40 Lux.
10	2.11.2	Vertical Clearance at VOP	6.0m Vertical Clearance shall be provided at all VOP Cross road over Expressway.
11	4.2.2	Embankment Fill Side Slope	In fill section the embankment side slope shall be minimum 2(H): 1 (V). The embankment height >6m shall be designed in accordance with IRC: 75.
12	Section 11	Traffic Management System	Additional specification for Traffic Management System shall be as given in Annex II of Schedule D.
13	Section 13	Project Facilities	The project facilities and building structures shall be constructed in accordance to Annex III, Annex IV and Annex V of this Schedule.
14		Addition of New Clause to Structures in Marine /Aggressive Environment	Additional protection measures shall be taken as per IRC: SP: 80 with all amendments considering all structures in Marine/Aggressive Environment.
15	12.4.17	Street lighting	Swaged steel tabular pole with swan nake shall be used for road side lighting conforming to IS 2713-1980 controlled by suitable digital time switch.



**Annex - II**  
**(Schedule-D)**

**ADVANCED TRAFFIC MANAGEMENT SYSTEMS (ATMS)**

The following Specifications and Standards shall be applied in addition to 'Manual on Specifications and Standards for Expressways' published as IRC: SP: 99-2013 with all amendments and additions till date.

**1. Advanced Traffic Management Systems (ATMS)**

**1.1 General**

The work would cover design, supply, installation, commissioning and/or operation and maintenance of Advance Traffic Management Systems (which is one of the components of Intelligent Transport Systems - ITS). The system would include out-door equipment including emergency call boxes, variable message sign systems, meteorological data system, close circuit TV camera (CCTV) system, traffic counting and classification system and transmission system. The indoor equipment would comprise a large display board, central computer (with Network Management System - NMS), CCTV monitor system, call centre system or management of emergency call boxes housed in a control centre with uninterrupted power supply. Any new technology, meeting the requirements specified in these specifications should not be excluded. The systems shall meet following objectives:

- Smooth and uninterrupted traffic flow
- Enhance road safety
- Real time information and guidance to users
- Emergency assistance round the clock
- Alerts for abnormal road and weather conditions
- Reduced journey time and inconvenience

**1.2 System Requirement**

ATMS shall provide the following facilities to Expressway users:

- make emergency calls to Control Centre in case of accidents, breakdown, fire and ambulance.
- pre-warn the Expressway users about unusual condition on the road.

ATMS shall provide the following information/data to traffic managers for efficient and effective handling of traffic.

- information regarding location of any incident, incoming calls, help required and messages to be passed to third parties.
- Information regarding traffic congestion, speed and weather conditions.

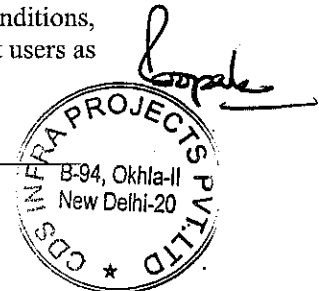
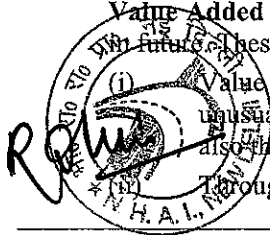
ATMS shall provide the following controls to traffic managers:

- change the variable message signs from the Control Centre.
- mobilize the movement of ambulances, cranes & patrolling vehicles.

ATMS shall provide online recording and reviewing of the voice & visual information for record and analysis.

Value Added Systems in information dissemination to users of the Project, may be taken up through relevant websites including that for the Project SPV/Concessionaire

Value Added Systems in the form of real time information on traffic conditions, unusual events, congestion levels, weather conditions etc.; to facilitate project users as also the operator.



- (iii) Subscription based alert systems
- (iv) Dedicated TV channels pertaining to traffic movement
- (v) Tie ups with FM radio channels or creation of dedicated AM radio channel
- (vi) Dedicated Toll Free Telephone Systems

Note: Local language is emphasized in above systems.

The ATMS shall among many things comprise following sub-systems:

- i. Communication backbone
- ii. Emergency Communication System
- iii. Mobile Communication System
- iv. Variable Message Sign System
- v. Meteorological Data System
- vi. Automatic traffic counter-cum-classifier system
- vii. Video Surveillance System
- viii. Video Incident Detection System (VIDS)
- ix. Central Control Room (CCR)
- x. Weigh in motion for axle load measurement
- xi. Power Supply System

These systems shall have outdoor equipment consisting of ECBs, VMS panels, weather sensors, traffic sensors, video camera etc. The outdoor equipment shall be connected to the control centre through transmission system preferably comprising optical fibre cable, copper cable and interface equipment. There shall be one control centre per package and shall be located at any one of the toll plazas or administrative building and shall have monitoring equipment, on line information acquisition equipment, processing equipment etc. It shall also have graphic display board showing the highway and the locations of equipment and of incidents.

### 1.3 Emergency Call System

#### *Purpose and General Information*

This is a communication medium to be installed on the Expressway and to be used by the road users to make alarm call to the CCR in case of accidents & other problems on the expressway.

#### *Location*

ECB shall be installed every 2km on either side of the road with one unit directly across the road from the other i.e. two call boxes every 2km. It shall be placed along the left side of the carriage-way for each direction of travel on the verge adjacent to the hard shoulders. At each location one ECB shall be master and the other slave. The master ECB shall be equipped with fibre optic interface, solar panel, battery back-up and voice communication mechanism and shall also comply with all the requirements specified in this section for ECBS. The slave ECB shall be equipped at least with – activation button, vandal sensing mechanism, call progress indication LED, microphone, speakers – in a weather proof housing. To discourage motorists who break down near the start or finish of the expressway from leaving it to obtain assistance, no telephones should be provided within the first and the last 300meters.

To achieve maximum visibility, care should be taken to avoid siting telephones near structures (e.g. bridge piers), particularly where these are close to the hard shoulder on left hand bends.

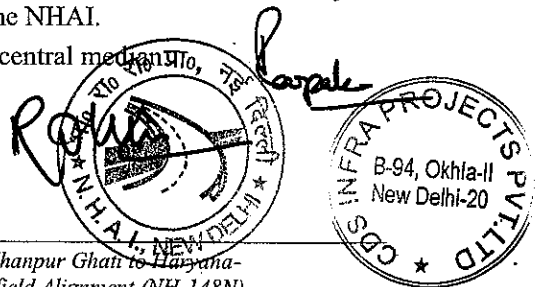
Based on the above policy and the site condition, the location of the ECBs can be adjusted within 10% variation, however, only with the consent of the NHAI.

The optical fiber and splicing boxes shall be placed in the central median.

#### *Major Components*

Main components of the Emergency Call subsystem are:

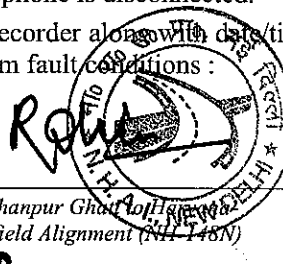
- 1. Field components:



- a. Emergency Call Box – Master and Slave units
- b. (Solar) power supply
- c. Guard rail for protection
2. CCR components
  - a. ECB server
  - b. Headphone, speaker and microphone (Answering Unit)
  - c. Voice recorder/logger
  - d. Application software
  - e. Database software

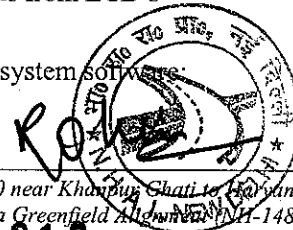
**Functional Specifications**

1. The system shall be connected to the CCR over the OFC backbone.
2. ECB shall have loud speaker, microphone, solar panel, and battery and activation button with LED indicating conversation. It shall be housed in vandal proof casing and operate in expressway noise levels with built in diagnostic features.
3. The road user just needs to press the push button on the ECB and shall be connected to the CCR. In case the CCR operator is busy, the user shall hear a recorded message and shall hold till he/she is connected. The Master unit shall be connected to the CCR over the communication backbone. The Slave unit shall be connected to the CCR through the Master unit.
4. The CCR can also call any specific ECB for testing/calling in which case the ECB shall ring. The ring shall go off when someone presses the push button and connects to the CCR.
5. The ECB shall have the following features :
  - a. Vandal proof casing with tamper detection switch
  - b. Push button
  - c. Activation LED
  - d. Loud speaker
  - e. Microphone
  - f. Two way communication between ECB and CCR
  - g. Solar panel with batteries
6. ECB shall have hands free operation.
7. Each ECB shall have usage instructions in Hindi, English, Marathi and Gujarati pasted or printed on it along with graphical instructions.
8. Reflective stickers facing the motorist shall be pasted on the ECB indicating that it is a phone.
9. The CCR software shall manage the calls to and from the ECB.
10. The ECB shall have Ringing Tone to indicate progress of call when button is pressed; Confidence Tone to indicate call is still connected when on hold and recorded message if line is busy.
11. There shall be up to four programmable auto dial numbers associated with the push button. The ECB shall automatically dial subsequent numbers if the first number is busy or unavailable.
12. The ECB shall automatically end call when CCR telephone is disconnected.
13. All calls shall be recorded in the CCR voice logger/recorder along with date/time stamp. The voice recorder shall check for following minimum fault conditions :
  - Failure of recording electronics
  - Failure of storage media used for recording



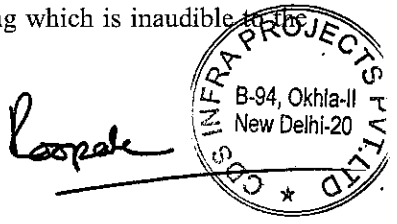
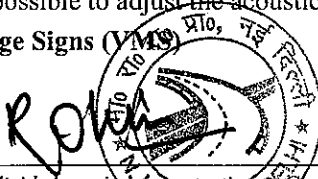


- Excessive recoverable errors on the storage medium
  - Lack of activity on a channel
  - Constant activity on a channel
  - Constant ringing on channel (answered calls)
14. ECBs shall be programmable from the CCR and from the field by laptop.
  15. The system shall have in-built diagnostics and shall be able to detect activation of tamper switch, mic/loudspeaker faulty, line faulty, low DC voltage on line, cross talk and short circuit. Any diagnosed problem shall trigger an audio video alarm in the ECB server at CCR.
  16. The diagnosed problems shall be stored in the system as events in the CCR. It should be possible to draw and print report of all such events on time and event category basis. ECB software at CCR shall allow recording and storing of maintenance and corrective action of each event when it is resolved.
  17. ECB shall be powered by DC batteries which in turn shall be charged by solar panel. The battery shall support 7 days of operation (under normal circumstances) with minimum talk time of 90 minutes over 3 days in succession in case there is no sunlight for this period.
  18. The ECB shall have tamper resistant screw bits on the outside and shall be security locked. It shall not be possible to open the ECB with normal tools or keys.
  19. ECB foundation shall be concrete. Cables (communication/power) shall enter from the base of the ECB foundation.
  20. Each ECB pillar shall be numbered.
  21. The ECB mic/speaker shall be located 1-1.5m above ground.
  22. The system shall not permit cancellation of any call before answering.
  23. CCR Equipment
    - a. The CCR equipment shall consist of an ECB server with large TFT display screen and voice logger for recording of all calls. It shall be possible to play back any call by time specified. Playback should not interfere with record function. The screen shall show the map of the expressway with all Emergency telephones marked in accordance with their actual locations.
    - b. The GUI shall be user friendly. ECBs shall be displayed in grey colour icons on the screen. When a call is initiated, the icon shall turn green and blink. When the call is in progress, the icon shall be green and stationary. On-hold calls shall be displayed in orange blinking. Faulty ECBs shall be displayed in red, without blink.
    - c. The software shall have the following features:
      - i. password protected & accessible only with relevant passwords
      - ii. data logging with the currently logged user/ operator details
      - iii. different levels of authorization for logging into the system
      - iv. automatic Call location identification
      - v. call disconnection by operator only
      - vi. operator call back facility
      - vii. automatic testing facility running in the background at operator selectable intervals
      - viii. operator initiated ECB test facility
      - ix. facility for holding at least 10 calls from ECB's
      - x. Low battery and tamper alerts.
    - d. The following shall be recorded by the system software:
      - i. Time of incoming call
      - ii. Time of call answering



- iii. Time of call termination
  - iv. Time of fault occurrence
  - v. Time of happening of events
  - e. It shall be possible to :
    - i. connect to any of the Calls on Hold
    - ii. hang up the call
    - iii. put on Hold the currently connected call
    - iv. call back any of the ECB
    - v. monitor faults and events
    - vi. send e-mail to defined personnel intimating them about emergency
  - f. It shall be possible to draw the following minimum reports for each ECB as well as all/selected ECBs :
    - i. Call count based on time period selection
    - ii. Average call duration
    - iii. Average waiting period for on-hold calls
    - iv. Unanswered calls (count)
    - v. Fault and diagnostics report
    - vi. Incident category-wise report
    - vii. The reports shall be tabular as well as graphical.
24. The following technical specifications are advised for ECBs. However the system integrator/operator can choose any other technology as long as other requirements are met.
- a) Working : Work on VoIP
  - b) Communication : Ethernet type over optic fiber
  - c) Power : 12/24V DC, solar powered max 10W
  - d) Audio output : >95dB
  - e) Microphone : unidirectional, noise cancellation type
  - f) Wind speed resistance: 180kmph
  - g) Mean Opinion Score : Min 4.0
25. ECB shall connect to the Outdoor Technical Cabinet Switch on optic fiber port/copper port (Ethernet may also be used, wherever feasible).
26. The ECB shall be vandal resistant in construction. It shall be made of stainless steel/ Aluminum alloy/ FRP.
27. ECB components shall be corrosion resistant; PCBs shall be coated to prevent water, moisture and fungus.
28. Each ECB shall be protected against external EMI, lighting and static by adequate shielding and earthing. The enclosure shall be provided with a grounding lug for connection to ground wire.
29. ECB enclosure shall be IP65 rated and shall be vermin and rodent proof. Doors shall be with labyrinthine seal, butyl-rubber gaskets, security locks, and metal hinges in conformity with UNE20324 standard.
30. The ECB shall operate in full duplex mode and use signaling which is inaudible to the user.
31. It shall be possible to adjust the acoustic properties.

1.4 Variable Message Signs (VMS)



### **Purpose and General Information**

Variable Message Signs (VMSs) are to be installed for conveying the traffic conditions ahead to the drivers on real time basis as well as to display messages to support national road safety campaigns. It may also include the variable traffic speed limit depending upon the requirements.

Variable message signs (VMSs) shall provide traveler information for warning, regulating, routing, and managing the traffic in order to improve the overall traffic flow. The philosophy is to inform the driver of impending conditions with up-to-date information. The overall goal of VMS application is to provide permanently located signs that can be programmed remotely to communicate with the drivers the necessary information such that the driver can choose or be directed to the most appropriate route. The VMSs shall be controlled from the main CCR. Based on requirement, the VMS may be fixed or portable in nature.

VMSs shall be used during the following conditions:

- Recurring Conditions

Mainly peak-period traffic congestion where demand exceeds capacity for relatively short periods of time.

- Non-recurring Conditions

Caused by random or unpredictable incidents. An "incident" is defined as any non-recurring event that causes a reduction of roadway capacity or an abnormal increase in demand. Such events include traffic crashes, disabled vehicles, spilled cargo, expressway maintenance and construction projects and adverse weather conditions.

### **VMS Usage Priorities**

VMS should be used whenever pertinent messages will assist motorists to make helpful decisions. If, however, a situation arises, which requires the usage of a specific VMS for more than one ongoing condition, the following priority criteria should be used for displaying messages, in the order listed.

- Safety

Any VMS message that is necessary to provide safety to the motoring public has the highest priority. Examples include failure of an expressway bridge, roadway or any major incident. In general, safety messages should be kept current and relate to a specific safety campaign. The period of time that a specific message is displayed for a safety campaign should be limited to a few weeks. Motorists tend to ignore messages that are displayed for long periods of time.

- Roadway Closure

The VMS message shall include motorists regarding the roadway (particular carriageway, lanes of the expressway or cross road) closure is important because such a closure directly affects the route a driver would take.

- Minor Traffic Impact

A pre-warning message shall generally be used for planned full closures of carriageway of particular part of the expressway. The message shall be displayed no more than four days prior to the closure, and shall be immediately replaced with an appropriate message when the closure commences.

- Pre-Warning

This category includes construction lane closures, blocking-incidents, and delay information.

- Test

Test messages may be used to sign operation for testing the operating system and prior to placing a VMS into service.

- Public Service Information



Public service information messages do not require the drivers to make any unexpected maneuvers with regards to upcoming traffic conditions. Some examples include "Buckle Up," "Speed Kills," and "Don't Drink and Drive."

Various situations where VMS would be appropriate are as below:

- Incident signs as accidents, traffic diversions, incident management, monitor road work (men at work) adverse weather and road conditions and operation with lane control signals;
- Traveler information such as display of road construction activity in near future, messages for testing of the system and special events that effect the traffic flow;
- Public service announcements like messages relating to driver safety campaign.

#### Location

VMS shall be provided as per locations determined later. A general policy adopted for locating VMSs is to provide VMS at an average interval of 10km in each direction (not necessarily on the same gantry) to guide and forewarn the users about the traffic and weather conditions on the Expressway.

The most critical locations for installing permanent VMSs are in advance of interchanges or expressways where drivers can have the opportunity to take some action in response to messages displayed on VMSs. A VMS should not compete with existing roadway signs.

Drivers generally do not anticipate using a different route until they see and read a VMS message. Drivers who are traveling in the inside lanes need ample time to read the message and change lanes to exit.

In general, a VMS should be permanently installed at the following locations:

- Upstream from major decision points (e.g., exit ramps, freeway-to-freeway interchanges, or intersection of major routes that will allow drivers to take an alternate route).
- Upstream of bottlenecks, if any
- Where regional information concerning weather conditions such as fog, wind, or dust is essential.

The portable VMS can be mounted at the back of the truck or similar vehicle. The VMS sign mounted on truck could be powered by solar energy or battery.

The exact location shall be adjusted for the maximum utility to the users based on the site conditions, however, only with the consent of the NHAI.

#### Major Components

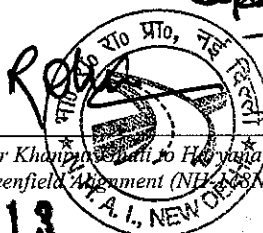
The design of the system will be modular except for the housing.

Main components of the VMS subsystem shall be:

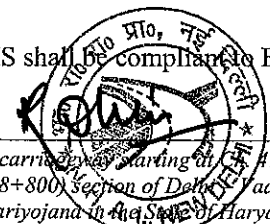
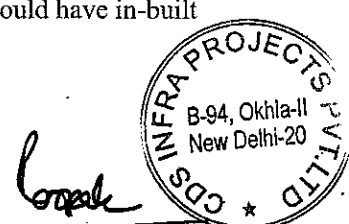
- Field components – consists of the sign module having:
  - a) VMS case
  - b) VMS sign (display modules)
  - c) Power supply
  - d) Dimmer control (ambient light photo sensor system)
  - e) Microcontroller
- CCR components
  - a) VMS server
  - b) VMS Application software
  - c) VMS Database software

#### Specifications

- 1) VMS shall be able to display all colours.
- 2) The VMS shall be able to display the following:
  - English text



- Hindi text
  - Gujarati text
  - Marathi text
  - Numeric
  - Punctuation marks
  - Graphics
  - Preset messages – at least 10 preset messages shall be displayed and shall be able to change automatically and sequentially in programmable intervals of 1-10 minutes
- 3) The mounting structure to be provided for the VMS units shall be sturdy, aesthetically designed and capable of bearing wind loads at least up to 200 kmph. The lowest hung part of the display board shall have vertical clearance of at least 5.5 m from the road level. It shall be provided with a walkway to allow at least 2 persons to carry out maintenance of the VMS without obstructing the carriageway. Safety barriers shall be provided at gantry support column (s) for their protection and for safety of road users. The concrete pedestal for support column should be flushed with ground but in no case should protrude for more than 15 cm.
- 4) The minimum distance of VMS on an expressway should be 1.5 km. prior to decision point. The signs should be visible from a distance of 300m.
- 5) There should be clear distance between existing road sign and VMS. The minimum distance between road signs and VMS should be at least 250m.
- 6) The average driver of motorized vehicle at high rate of speed can comprehend two message panels. Each panel should be complete phrase and each phrase should be independent of the other. The messages should consist of:
- |  |                           |
|--|---------------------------|
| A problem statement                      | Road work/accident ahead  |
| An effect statement                      | Delay/congestion          |
| An attention statement for certain group | Motorist                  |
| An action statement                      | Take the next carriageway |
- 7) Software – The VMS application software shall be installed in the CCR and shall have the following features:
- GUI display
  - Login/password protected access
  - Database for storing messages and history
  - Reports for – preconfigured messages, login time and user, date/time of display, fault history.
- 8) Maintenance walkway shall be provided on the gantry at the rear of the sign- case. All component parts shall be easily and readily accessible by a single person for inspection and maintenance. There shall be room for a technician to work. The VMS should have in-built lighting to assist maintenance work during night.
- 9) Standards  
VMS shall be designed to comply to with the following protocols:
- EN 12966 parts 1,2 and 3
- 10) VMS shall be full matrix, true colour. It shall be made of modules and shall have equally spaced LEDs.
- 11) Text display - VMS shall be compliant to EN 12966. This includes the following for LED panel:

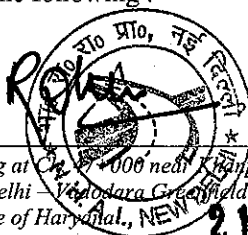


- Beam : B3
- Colour : C1
- Luminance : L3
- Temperature : T3
- Resistance to pollution : D3
- For wind pressure on enclosure refer EN 12899

12) Display specifications

Sign dimensions	:	Length 8000mm, height 2500mm
Pixel colour:	:	True colour (36bit), text displayed in Amber colour
Pixel size	:	25mm
Pixel pitch	:	25mm
LED life	:	> 100,000 hours
Operating Voltage	:	AC 220V, 50Hz
Language	:	Hindi, English, Gujarati, Marathi
Character height	:	upto 450mm
Horizontal viewing angle:	:	>80°
Viewing distance	:	15-300m
Ingress protection	:	IP65 for front (LED face); IP55 for rear
Communication	:	Serial, Ethernet, OFC

- 13) The LED Cluster shall consist of individual LED's encapsulated in a resonated plastic housing proving protection to the elements under worst climatic conditions.
- 14) The modules shall be individually addressable and field replaceable.
- 15) Failure of one LED module should not affect the output of any other.
- 16) The system design shall be such so as the display is legible from a distance of between 15m to 300 m in all weather and lighting conditions.
- 17) Elaborate Fault diagnostics shall be provided as per EN12966 or other equivalent international standards. Each pixel shall be monitored and feedback shall be provided for the healthy status. Minimum of following shall be provided :
- Power Failure at VMS
  - Processor PCB Failure
  - LED Cluster Failure
  - Loss of incoming message / data not properly received.
  - Temperature monitoring
- 18) The VMS shall withstand shock and vibration existing on the expressway.
- 19) Controller functionalities
- The controller unit shall provide brightness control facility. The intensity of the VMS shall have at least six levels and it shall select the correct level automatically depending on ambient light conditions. For this, the VMS shall have photo sensor and dimmer control.
  - The controller unit shall provide the monitoring of ambient temperature of the housing.
  - The controller shall be provided with a test port for local diagnostics via laptop.
- 20) The VMS software should permit the following :
- Broadcast messages
  - Specific address messages



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- 21) It shall be possible to perform fault diagnostics from the central control room via the software.
  - 22) Maintenance panels shall be provided on the rear of the housing
  - 23) Maintenance walkway shall be provided on the gantry at the rear of the sign-case. All component parts shall be easily and readily accessible by a single person for inspection and maintenance. There shall be room for a technician to work. Access shall be made by entering the side of the housing. The housing shall be weather tight, and compliant to the NEMA 3R Standard. The bottom panel of the housing shall have a minimum of four drain holes, with snap-in, drain filter plug inserts.
  - 24) Ventilation - The ventilation system shall be forced air. The system shall be designed to adequately cool the pixels from all sides along with the front and rear of the display module and all other internal components. The ventilation system shall have the following properties:
    - Positive pressure (exhaust fans are not acceptable).
    - The fans shall have ball or roller bearings, shall be permanently lubricated and shall require no periodic maintenance. The fans are to be positioned in such a manner so as to provide a balanced air flow to the ventilation system in the event of failure of any fan.
- a) Sign-case
- All parts shall be made of corrosion resistant materials, such as plastic, stainless steel or aluminum. Painted steel is not acceptable. No self-tapping screws shall be used. The finish shall be matte black. The main body of the sign housing shall be constructed of aluminum with a natural mill finish. All exterior seams shall be continuously welded by an inert gas process, except for the coated fascia material. The sign-case shall be constructed of non-ferrous material to avoid rusting. The VMS sign-case shall have CFL lighting for maintenance during low light conditions.
  - The performance of the sign, including the visibility and legibility of the display, shall not be impaired due to continuous vibration caused by wind, traffic or other factors.
  - The angular alignment of the sign housing shall be adjustable in the vertical direction from (0 to 10 degrees) down in one-degree increments to optimize the viewing angle.
  - The housing shall be capable to withstand the following conditions for Vibration Test
    1. Frequency range : 10- 50Hz
    2. Vibration amplitude : 0.35mm
    3. Duration of endurance : 20 sweeps cycle
    4. Duration at resonant frequency : 30 min+ 1 min

The Gentries for the VMS shall be designed and the design shall be got approved from the NHAI. It includes all civil works like foundations etc., and shall be done as per relevant standards.

1.5 **Automatic Traffic Counter-cum-Classifier (ATCC)**

**Purpose and General Information**

- This system shall be used for identifying and recording all types of vehicles on the Expressway for effective monitoring and data collection at Control Centre. The system shall be capable of detecting and recording all types of vehicles plying on the Expressway.
- Besides the above vehicle classes, the system shall be capable of classifying any other vehicle category as per need. Vehicle classification should be user selectable based on vehicle parameters.
- The system shall have interface with the ATMS software for central monitoring.

### Location

- ATCC is proposed to be installed at a suitable location. The final location may be adjusted as per the site condition, only with the consent of the NHAI/Traffic and Transportation expert.
- The ATCC cabinet shall be installed in median or on the side of the expressway at a distance of 2 to 3 meters from the soft shoulder.

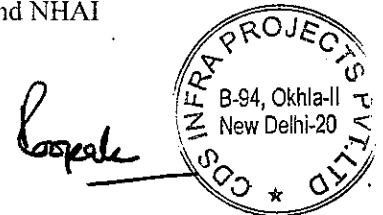
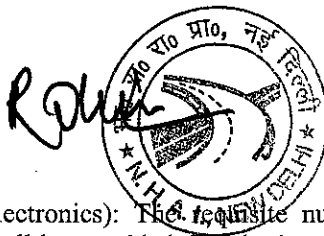
### Major Components

Main components are:

- a) Field components – consists of:
  - a. ATCC roadside cabinet / electronics/data logger
  - b. In-road/non-intrusive sensors and cables
  - c. Field computer/laptop
  - d. Power supply
  - e. Lightning protection and earthing
- b) CCR components
  - a. ATCC server
  - b. Application software
  - c. Database software
  - d. Report printer

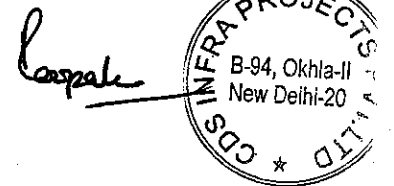
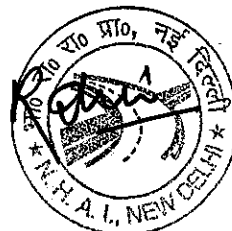
### Specifications

- The ATCC should be designed for 8 lanes of traffic i.e. one cabinet/data logging unit should be able to record data for at least 8 lanes (4 in each direction)
  - System shall use a combination of loop and piezo sensors or any other sensor mechanism (intrusive or non-intrusive) for correctly counting and classifying vehicles.
  - Piezo sensor installation shall be in concrete. ASTM 1318-02 recommends a concrete pavement of 90m (60m before sensor and 30m after) to ensure good accuracy.
  - The ATCC shall detect all classes of vehicles as per toll classification scheme.
  - One or more of the following information shall be generated by the ATCC for each lane to correctly count and classify the vehicle:
    - a. Vehicle length
    - b. Vehicle speed
    - c. Number of axles
    - d. Axle spacing
    - e. Axle load (WIM) and GVW
    - f. Vehicle profile
    - g. Vehicle image
    - h. Any other proven technology with the consent of the Engineer and NHAI
2. The ATCC shall provide the following additional information:
- a. Occupancy
  - b. Headway
  - c. Gap
  - d. Average Speed
  - e. Flow rate
- c) Data logger (roadside electronics): The requisite number of entry and exit ports to communication system shall be provided. The logic unit shall be micro-processor based.





- The system shall be able to count and classify vehicle in each lane. There shall be an indication to display vehicle detection.
- d) Data logger shall have a Tamper Detection Alarm facility. Any effort to tamper with the data logger shall trigger an audio and visual alarm in the CCR.
- e) Data collection: The system shall be capable of sending data to the ATMS Software which shall enable the Software to count and classify the vehicles, and provide other required information. Data collection shall be by RS232, RS422 or RS485 interface or IP connection.
- f) Data Storage: The system should be able to upload data to the system as it occurs. The unit shall store data of at least two weeks in event of communication failure.
- g) System Accuracy (@95% confidence), whichever is applicable
- |                           |   |   |
|---------------------------|---|---|
| a. Vehicle length(m)      | : | $\pm 5\%$                                     |
| b. Vehicle speed (kmph)   | : | $\pm 1.5\%$                                   |
| c. Vehicle count(nos.)    | : | $\pm 1\%$ ,                                   |
| d. Number of axles (nos.) | : | $\pm 2\%$                                     |
| e. Axle spacing (m)       | : | $\pm 2\%$ ,                                   |
| f. Vehicle class          | : | $\pm 3\%$ for Class Car/Jeep/Van (of detected |
| vehicles)                 | : | $\pm 5\%$ for Class LCV                       |
|                           | : | $\pm 3\%$ for Class Truck/Bus (Two Axles)     |
|                           | : | $\pm 2\%$ for higher classes                  |
| g. Headway (m sec)        | : | $\pm 7\%$                                     |
| h. Gap (cm)               | : | $\pm 8\%$                                     |
| i. WIM accuracy           | : | $\pm 15\%$ on axle; $\pm 10\%$ on GVW         |
| j. Vehicle speed          | : | 10-195 kmph                                   |
- h) Coincidence detection (lane straddling): The ATCC shall be capable of determining and recording vehicles that straddle adjacent lanes. This reduces double counting of vehicles on sites where lane discipline is a problem.
- i) Weather: The ATCC shall be capable of working with above mentioned accuracies, 24x7, in all weather conditions including heavy rain, dense fog and specified temperature range.
- j) Reverse detection: The ATCC shall be capable of detecting and recording any vehicles traveling in reverse direction.
- k) Data retrieval: The system shall be capable of data retrieval, direct data transfer through the Fiber Optic Network or locally through laptop.
- l) Recording capability: The system shall have capability of recording vehicle counting and classification, speed, headway at set interval of 1-10 minutes.
- m) Compatibility: The system shall have compatibility to transmit data over Optical Fiber Cable.
- n) Fault monitoring : The system shall be capable of detecting and reporting the following fault events:
- Mains power failure
  - Battery low voltage
  - Modem communication error
  - Laptop communication error
  - CPU reset
  - CPU failure
  - Sensor fault (for each sensor)
  - Door tamper



### Software

The Application Software shall have the following features:

- It shall be GUI based
- The Opening Screen shall have password authentication
- Communications Parameters setting
- Configuration Parameters setting
- Raw and Binned data Retrieval
- Vehicle by vehicle Real Time Traffic Display
- Diagnostic Functions – Sensor Test
- Vehicle Classification Configuration & Weight Limits

### Specifications for CCR equipment

- Server – The server supplied shall be the latest available in the market at the time of supply. However, the minimum specifications are given in subsection on “Servers” under section “Miscellaneous Equipment”.
  - Application Software
    - a. Shall be a single software for all data loggers in each package
    - b. Shall be Windows based
    - c. Shall have unlimited period use license for each package
    - d. All upgrades shall be free of cost.
    - e. Shall communicate to each data loggers in the field and
    - f. Shall be GUI based
    - g. Password protected
  - Database Software
    - a. Shall be password protected
    - b. records shall not be editable
    - c. Shall not be notepad, MS Word, Excel
  - Reports – system shall be able to generate reports. All reports can be time-wise, lane-wise, location-wise or total summary reports for all data loggers. The reports shall be in tabular and graphic form. All reports shall be in metric units and dd/mm/yy time format. The following are the minimum reports :
    - a. Average Speed per Vehicle Category per Lane per Day
    - b. Traffic Volume per Vehicle Category per Lane per Day
    - c. Traffic Volume per Hour per Lane per Day
    - d. Axle Volume per Weight Band per Lane per Day
    - e. Volume (count) per Class per Lane
    - f. Average Speed per Class per Lane
    - g. Volume per Lane per Time Band
    - h. Volume per Speed Band per Lane
    - i. Overloaded Vehicles per Class per Lane
    - j. Average Speed per Category
    - k. Malfunction Management Report (fault report)
    - l. Traffic Volume by Category by Lane (binned data)
- The reports shall be transferrable to MS Excel and Acrobat pdf format.
- n. Multiyear calendar adjusted for leap years

### 1.6 Video Surveillance System

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

### **Purpose and General Information**

The purpose of the Video surveillance system is to monitor specific areas of the expressway remotely from the CCR by use of cameras installed at such critical junctions. This shall help in managing incidents.

The system shall also record and store video for analysis and future reference.

### **Major Components**

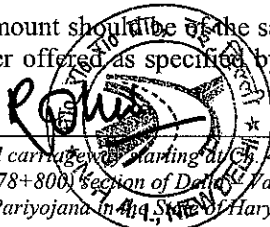
Major components are:

- Field components :
  - a) CCTV camera with housing
  - b) CCTV pole
  - c) Video transmission unit (encoder)
  - d) PTZ control
  - e) Power supply – solar panel
  - f) Lightning protection and earthing
- CCR components
  - a) Server with OS
  - b) CCTV decoder/ switcher unit
  - c) PTZ control/joystick
  - d) Video Wall
  - e) DVR
  - f) Application software
  - g) Database software

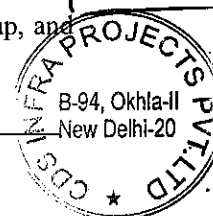
### **Functional Specifications**

- Camera
  - a. The CCTV shall be PTZ type video camera.
  - b. The Video Camera shall be of dome type to avoid pilferage, be resistant to vandalism and weather-proof. The dome shall be of smoked glass so that it shall not be possible to see the camera (inside the dome) from roadside.
  - c. PTZ Cameras shall have 6 or more pre-defined positions.
  - d. The camera viewing distance of at least 1km in each direction. The horizontal rotation shall be 360° continuous pan and vertical tilt shall be 90° down to 0° horizontal.
  - e. The video camera shall transmit a clear video even in low light and night conditions.
  - f. The camera and associated units shall be dust-proof and protected against water ingress.
  - g. The CCTV video camera roadside cabinet shall house the power supply system and video encoding and transmission equipment.
  - h. CCTV video camera shall preferably run on solar power.
  - i. There must be a single encoder for each camera.
- Camera mounting
  - a. The camera shall be mounted on a properly designed pole of at least 10m height. The Video Camera mounting shall have easy accessibility for maintenance purposes while being protected from unauthorized access.
  - b. The mounting and equipment housing shall be able to withstand adverse weather conditions.
  - c. The camera mount should be of the same make as that of camera and suitable for the model number offered as specified by the manufacturer and should be an integrated unit.

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- d. Should support the weight of camera and accessories in a wind speed of 180kmph (min).
- Camera control & display
  - a. The camera images from all cameras shall be transmitted to the CCR for monitoring and storage.
  - b. All CCTV cameras shall be controlled by the CCR operator. Each camera shall be individually selectable and also the Pan, Tilt and Zoom functions for each camera.
  - c. The CCR shall have the facility to decode the video, record the video, display live and recorded video on a large video display and have PTZ controls.
  - d. The video from CCTV video cameras shall be viewed in the CCR on a video wall. The video wall shall be formed of expandable modules. The system shall allow CCR operator to blow individual images to fit the entire screen or any other size.
  - e. The CCTV video shall be recorded in the CCR in a DVR or computer.
  - f. Privacy Zone Masking: the camera software shall blocks scenes/areas that should not be displayed.
  - g. The CCR shall be designed in a way to ergonomically seat the CCR operators. There shall be one operator for every 6 video images.
  - h. System to have facility of additional camera installation beyond the originally planned capacity.
- CCTV software and recording
  - a. The CCR shall have a server with latest specifications for image processing, control and display.
  - b. System shall be triplex i.e. it should provide facility of Viewing, Recording & Replay simultaneously.
  - c. CCR shall have facility to record all videos from all simultaneously and store at least 30 days of video. This may be done by a separate DVR or recording on the hard disk of the server. System shall have provision to automatically over-write the new information after the period of 30/31 days (First In First Out)
  - d. The old recording shall be overwritten by new recording after 30 days
  - e. The CCR Server shall have application software to control PTZ functions, select individual camera, playback video. It shall have access control (through password/login) so that no unauthorized person may view /edit any videos.
  - f. The software should be able to control all cameras i.e. PTZ control, Iris control, auto /manual focus, and color balance of camera, Selection of presets, Video tour selection etc.
  - g. The System should ensure that once recorded, the video cannot be altered, ensuring the audit trail is intact for evidential purposes.
  - h. System must provide built-in facility of watermarking or Digital certificate to ensure tamperproof recording so that these can be used as evidence at a later date, if so desired. The recording shall support audit trail feature.
  - i. The OS shall be off-the-shelf, preferably Windows.
  - j. The offered system shall have facility to export the desired portion of clipping (from a desired date/time to another desired date/time) on CD or DVD. Viewing of this recording shall be possible on standard PC using standard software like windows media player etc.
  - k. The software is required to generate reports of stored device configuration.
  - l. The system shall provide user activity log (audit trail) with user id, time stamp, and action performed etc.



- m. The administrator should be able to add, edit & delete users with rights. It shall be possible to view ability / rights of each user or the cameras which can be viewed & controlled as per the permission assigned by the administrator.
- n. The software for Employers should also be working on a browser based system for remote users. This will allow any authorized user to view the video of any desired camera on his monitor.
- o. Retrieval: The CCTV application should allow retrieval of data instantaneously or any date / time interval chosen through search functionality of the application software. In case data is older than 30 days and available, the retrieval should be possible. The system should also allow for backup of specific data on any drives like CD/DVD/Blu ray Recorders or any other device in a format which can be replayed through a standard PC based software. Log of any such activity should be maintained by the system which can be audited at a later date.
- p. Backup: Online backup should be maintained to protect against storage failure.
- Power
  - a. Surveillance CCTV System shall operate on 230 V, 50 Hz single -phase power supply.
  - b. Power for all the equipment will be conditioned using on-line UPS with minimum 30minutes back up.
  - c. If any equipment operates on any voltage other than the supply voltage and supply frequency, necessary conversion/correction device for supply shall be supplied along with the equipment

## 1.7 Mobile Radio Communication System

### *Purpose and General information*

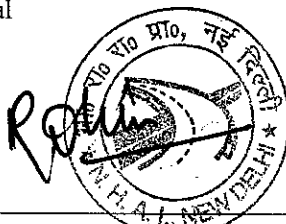
This Specification lays down the General, Functional and Technical requirements of Mobile Radio Communication System (MRCS) to be used as a sub-system of the Advanced Traffic Management System. All communication shall be to and from the CCR. The frequency band of operation is envisaged to be in the VHF band.

Mobile sets shall be installed in patrol vehicles, cranes and ambulances and shall communicate with CCR and also among themselves. The system shall use a pair of frequencies to be allotted to the concessionaire with the approval of relevant government bodies.

### *Major Components*

The MRCS shall comprise of:

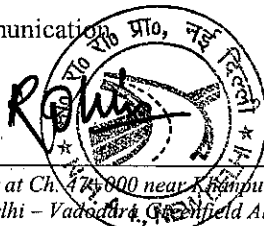
- Base Station Unit
- Repeater Unit
- Mobile Radio Unit
- Control Centre Equipment
- Rack
- a) **Base Station Unit:**
  - Transmitter
  - Receiver
  - Antenna with tower/mast
  - Switch
  - Radio Engineering terminal
  - Radio Operator terminal
  - Power Supply
- b) **Repeater Unit:**
  - Transmitter



- Receiver
- Antenna with tower/mast
- Repeater
- Power Supply
- c) **Mobile Radio Unit:**
  - Transmitter
  - Receiver
  - Antenna with tower/mast
  - Control Unit
  - Power Supply
- d) **Control Centre Equipment:**
  - Network Management System
  - Headphone and microphone
  - Voice recorder (optional)

**Specifications**

- 1) The system shall establish voice communication on radio between the Control Centre and the emergency mobile vehicles such as ambulances, cranes & patrolling vehicles.
- 2) The system shall cover the entire route.
- 3) The topology of the communication system shall cell centric (Repeater System).
- 4) All the Repeaters and Control Station shall be connected via Optical Fiber Cable (OFC) backbone on Ethernet port
- 5) There shall be minimum distortion in overlap areas of two towers.
- 6) All communication shall be half duplex
- 7) The system shall use one pair of VHF frequency allocated by WPC. In case two pairs are allocated, they may be reused in alternate sections.
- 8) The network shall be laid such that all the field mobiles are approachable to at least one Repeater.
- 9) The system design shall be modular in nature and easily configurable through on site programming.
- 10) The system shall have voice logger at the CCR to record all calls.
- 11) The system shall have Operator PC and microphone & speaker for the CCR operator.
- 12) The system design shall be modular in concept.
- 13) The radio base/repeater units shall be connected over OFC.
- 14) The system shall have the following features:
  - Operate in half or full duplex mode
  - Operate in VHF preferably using one pair of frequency (i.e. two frequencies- one RX and one TX). If only one frequency is available, half duplex mode is acceptable.
  - Programmable VOX operation.
  - CCIR / DTMF tones for Mobile to Repeater Communications.
  - Mobile/handheld to mobile/handheld communication.
  - Mobile/handheld to CCR communication
  - CCR to Mobile/handheld communication
  - Group call communication.
  - Broad Cast Communication



- Call Limit Timer.
  - Digital display on mobile units
  - OFC connectivity. The mobile radio shall be integrated with the Fibre Optic Communication system.
  - PTT (Push To Talk)
- 15) The system shall work satisfactorily under adverse conditions like storm, rain, and vandalism resistant. The system shall be compact & rugged in design having ease of maintenance.
- 16) The system shall neither affect functioning of other telecom equipment installed adjacent or along it, nor get affected by the presence of other equipment / systems.
- 17) The Mobile Radio shall have provision for mounting the mobile set on ambulances, cranes and patrolling vehicles.
- 18) The walkie-talkies shall work on re-chargeable batteries with 24 hrs. back-up. Mobile sets shall derive power from battery of the vehicle in which installed.
- 19) The equipment shall have facility to configure the network for individual, sub-group or broadcast mode of operation for both selective calling and group calling operation.
- 20) The system shall have the facility to terminate the mobile to mobile connection under the following conditions:
- One of the two parties hangs up
  - One of the two parties receives a call from the Control Centre
  - The duration of the conversation exceeds 5-minute limit

## 1.8 Meteorological Data System

### *Purpose and General Information*

#### **Purpose**

The Meteorological Data System shall be capable of providing data regarding weather including Air Pollution parameters, atmospheric temperature, humidity, visibility, wind speed & direction. The information based on these data shall be made available to the road users through VMS so that they are forewarned of the weather conditions on the expressway.

#### **Air Quality Index (AQI):**

An Air Quality Index (AQI) has been developed by Central Pollution Control Board based on the dose-response relationship of various pollutants. This is called Indian AQI or IND-AQI (for India).

A minimum number of three pollutant parameters (Suspended Particulate Matter (SPM), Sulphur Dioxide (SO<sub>2</sub>) and Nitrogen Dioxide (NO<sub>2</sub>) are essential to calculate the AQI. Any additional information on other pollutants such as Respirable Particulate Matter (RSPM or PM 10), Carbon Monoxide (CO) and Ozone (O<sub>3</sub>) are included to calculate conclusive and complete value of AQI.

The developed index is classified in five categories: Good (0-100), Moderate (101-200), Poor (201-300), Very poor (301-400) and severe (401-500).

The SPM, SO<sub>2</sub> and NO<sub>2</sub> shall be used and IND-AQI calculated.

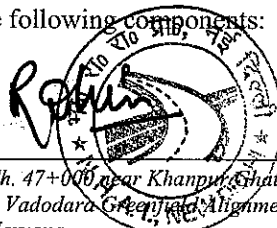
#### **Location**

The Meteorological Data System shall be located at an interval of average 100km. However, required adjustment in the locations can be made only with the consent of the NHAI.

#### **Major Components**

The Meteorological Data System shall have following components:

- a) Sensor for atmospheric temperature
- b) Sensor for road surface temperature
- c) Sensor for humidity



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- d) Sensor for visibility
- e) Sensor for wind speed & direction
- f) Sensor for air pollution parameters like SPM, NO<sub>2</sub> and SO<sub>2</sub>.
- g) Data Acquisition Unit / Logger
- h) Control room computer
- i) Software – application, OS, database

**Specifications**

- 1) The Meteorological Data System shall provide data regarding
  - atmospheric temperature
  - humidity
  - visibility,
  - wind speed & direction
  - air pollution parameters - SPM , NO<sub>2</sub> and SO<sub>2</sub>.
- 2) The data from all sensors shall be fed into the data logger.
- 3) This information shall be made available to the users through the variable message signs as per requirement.
- 4) The Meteorological Data System shall have the facility to communicate through PIJF/Optical fibre cable.
- 5) The Meteorological Data System shall be compact, rugged in design and have ease of maintenance.
- 6) The software in the CCR shall be capable of processing sensor data, store and retrieve it and draw reports.
- 7) The software shall also calculate AQI and generate reports.
- 8) All reports shall be tabular as well as graphical.
- 9) The weather data shall automatically be fed to the VMS subsystem. The VMS may also be then capable of display these data at fixed time intervals.
- 10) Specification of Application Software (in the CCR)
  - The application software for continuous air monitoring shall be Windows based.
  - Provision of Calibration windows for analyzer calibration from computer.
  - Main windows for real time display of all major parameters with status of all analyzers and sensors.
  - Control Panel window for control of each analyzer.
  - Alarm window for alarms of all analyzers and sensors
  - Real time and multi curves / graphs for all parameters.
  - Historic multi curves/ graphs over user selectable time period.
  - Real time status & diagnostics for maintenance people.
  - Programmable down loading of data from Analyser
  - Report generation over user selectable time period.

**1.9 Video Incident Detection System (VIDS)**

**Purpose and Geneal Information**

The purpose of the VIDS is to sense, detect and record the incident. The system shall be an intelligent image detection using camera. The VIDS shall have inbuilt intelligence to ascertain when the image has meaningfully deviated from the standard image originally recorded. A pilot run for VIDS is suggested before implementation.

**Location**

Construction of Eight Lane divided carriage way starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Road, Vadodara Greensfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Harvana





VIDS is established at strategic locations.

**Major Components**

The major components are

- Field components :
  - a) VID camera with housing
    - a) pole
    - b) Data transmission unit (encoder)
    - c) Power supply – solar panel
    - d) Lightning protection and earthing
  - CCR components
    - a) Server with OS
    - b) Data analyzer
    - c) DVR
    - d) Application software
    - e) Database software

**Functional Specifications**

The system shall capable to

- Measure traffic flow speed between 0 and design speed for up to 6 lanes
- Detect vehicles diving in wrong direction
- Detect stopped vehicles within 10 secs and for up to 16 detection zones
- Detect deceleration
- Detect fog/smoke
- Detect automatically types of traffic flow: normal, dense, delayed, congested and stop and go
- Monitor zone occupancy of the detection area
- Generate alarms for events: queue, stop, Inverse direction, speed drop, no video signal, fog/smoke and error,

**1.10 OFC Backbone**

**Purpose and General Information**

The purpose of the OFC backbone is to transport voice, data, LAN and video services between the field equipment and CCR.

As the transmission system would be used as a backbone network, the system shall have following characteristics:

- a) High Availability
- b) High Reliability
- c) Dual ring configuration
- d) Easy to install and operate
- e) Scalability
- f) High degree of flexibility with respect to the types of interfaces

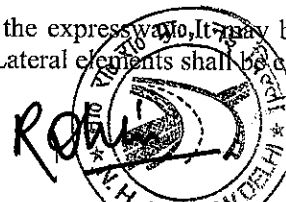
**Location**

OFC shall be laid all through the expressway. It may be laid on RHS or LHS of the main carriageway or in the median. Lateral elements shall be connected on OFC or copper.

**Major Components**

The major components are

- Optic fibers



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- Ducts
- Manholes/pulling chambers

**Specifications**

- 1) Number of cores shall be sufficient to carry all data with 100% spare data carrying capacity.
- 2) Topology

Each backbone shall consist of access nodes (see section on OTC) interconnected by a dual physical fiber optic ring for redundancy.

The standby ring shall take over automatically with minimum delay whenever a problem occurs on the active ring. If a complete cable break occurs, which means that both the active and standby rings are interrupted, the system shall automatically perform a loop-back operation, isolating the fault, and maintaining communications of all user equipment connected to the network.

After a power failure, a ring reconfiguration or when a new node is added to the ring, the complete network shall start up automatically.

- 1) The backbone OFC shall connect to field switches (in outdoor cabinets) which are further connected to field devices (cameras etc.). The ECBs may directly be connected with each other i.e. without external field switches.
- 2) The backbone OFC shall be single mode fiber.
- 3) Duct –HDPE ducts shall be used to carry OFC along the expressway. In areas where ducting is not possible, trenchless laying shall be done. Road crossovers shall be done using HDD.
- 4) All fiber optic cable runs installed shall be either main backbone cable or lateral cables. The main backbone cable shall be terminated in the Communications Node. The lateral fiber cables shall be terminated with a fan-out kit at the termination block in the field equipment cabinet.
- 5) Main backbone and lateral cables shall be suitable for conduit installation. Lateral cables that connect the main backbone cable to the equipment controller cabinets shall be completed with continuous runs of cable. All lateral cable shall include a maximum of three locations of appropriate strain relief within the field equipment cabinets.
- 6) All optical cables shall comply with International Telecommunications Union (ITU-T).
- 7) All optical cables shall be new, unused and of current design and manufacture.

**1.11 Outdoor Technical Cabinet (OTC)**

**Purpose and General Information**

There shall be data concentrators or integrator switches (also called “field switch” or simply “switch”) installed along the expressway which shall connect the field equipment to the OFC backbone. The purpose of the Outdoor Technical Cabinet (OTC) is to house these field integrator switches or data concentrators along with other necessary equipment and accessories.

The other purpose is to provide a secure and environment controlled surroundings to the equipment housed in it.

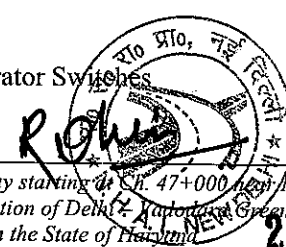
**Location**

The OTCs shall be located along the expressway on the central median.

**Major Components**

The OTC unit shall consist of:

- a) Cabinet
- b) Data Concentrator or integrator Switches
- c) Power supply and UPS



- d) Termination panels
- e) Environmental controls

**Specifications**

The functional specifications are as follows:

1) Cabinet & environmental controls

- The cabinet shall be mounted on concrete pads.
- It shall be lockable and shall have tamper proof labels affixed on it providing details of serial number, date of manufacture etc.
- It shall be weatherproof and shall not allow ingress of water and smoke. It shall maintain an internal temperature within the ambient range of all equipment housed in it. For this it shall have fans and heaters as necessary.
- It shall have a maintenance lamp which shall switch on automatically whenever the door is opened. The lamp shall be easily replaceable and shall be powered by the OTC's power supply.
- It shall be designed in such a manner that all the equipment mounted inside it are easily accessible. For this, it may have doors at the rear.
- It shall have two lifting eyes for lifting during installation.
- It shall have tamper switch and temperature sensors which give an alarm to the CCR if any tampering is being done or if the temperature goes out of the design limit. The sensors shall be connected to the CCR through the switch over NMS.
- The wires and connectors shall be neatly tied and harnessed through channels.
- It shall be properly earthed and have adequate protection from lightning.

2) Power Supply

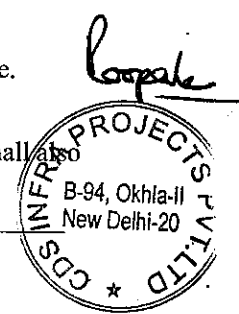
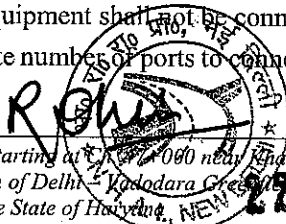
- The power supply shall be suitable for all the equipment housed in the cabinet. It may be DC or AC or a combination of both.
- The power supply / UPS shall have adequate protection from noise, surge and lightning. For this it may have fuse, MOV and circuit breaker.
- It shall be online type with automatic voltage regulation.
- It shall include sealed maintenance free batteries with backup time of at least 30minutes.
- It shall have overvoltage and over current shutdown.
- The power supply shall have a port which shall connect to the Data Concentrator switch. The data from this port shall notify the CCR of the health of the power supply through NMS.
- It shall have LEDs/display/audio alarm or other indicators on its cabinet which shall indicate health and fault conditions including input voltage, overload, battery charging etc.

3) Termination panels

- The termination panels shall be housed inside the cabinet.
- The communication cables from field equipment shall terminate in this panel.
- Patch-chords shall be used to connect this panel to the Data Concentrator.

4) Data Concentrator or Integrator switches

- The switches shall connect to all field equipment and also to the OFC backbone.
- ECBs and other ATMS equipment shall not be connected on the same switch.
- The switches shall have adequate number of ports to connect all field equipment. It shall also have 10% spare ports.



- The switch shall ports cable of handling all output types generated by the field equipment which may include analogue and digital - audio, video and data.

#### 1.12 Power Management System

##### *Functional specifications*

- 1) Solar power shall be preferred over State Electricity Board (mains) and DG power.
- 2) Mains power shall be preferred over DG.
- 3) Wherever DG is used, it shall be used to power as many equipment as possible.
- 4) UPS with minimum 60 min backup shall be used wherever DG power is used. The DG shall be rated to at least twice the UPS rating.
- 5) The preferred power distribution is as follows :
  - ECB – solar power
  - CCTV/VIDS – solar
  - VMS – DG
  - ATCC – solar
  - Mobile radio - DG
  - Meteorological Data System – DG
  - Outdoor cabinet – solar / DG
  - CCR – mains / DG

#### 1.13 Communication System

##### *Purpose and General information*

The purpose of the Communication System is to act as an interface between the field equipment and the CCR devices like displays and monitoring & control devices.

The communication system shall be “transparent” between field equipment and CCR i.e. it shall appear to the CCR device as if the remote field device is connected directly to it. The communication system shall be fast, reliable, support required data rates and have some built in redundancy.

##### *Location*

The communication system is located along the expressway and the CCR.

##### *Major components*

The communication system shall consist of:

- OFC (including termination panels, manholes, splicing, cables and connectors)
- OTC
- NMS
- Data concentrator at the CCR

##### *Functional specifications*

As defined in sections covering OFC, OTC and NMS

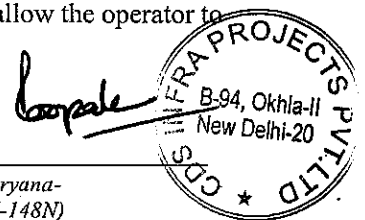
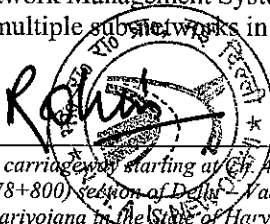
##### *Technical specifications*

As defined in sections covering OFC, OTC and NMS

#### 1.14 Network Management System (NMS)

##### *Purpose and General Information*

The Fibre Optic Transmission System shall be equipped with a user friendly, Microsoft® Windows®-based Network Management System (NMS). The NMS shall allow the operator to manage and monitor multiple sub-networks in an efficient way.



The NMS shall have the following functionality: network configuration, configuration of services, monitoring, diagnostics, activation-deactivation of interface modules, bandwidth allocation, alarms and event logging and graphical network representation.

The network management hardware shall consist of a Personal Computer, which at the time of installation is the current industry standard. The NMS architecture shall be based on Employer-server technology. It shall be possible to connect multiple active Employers to the NMS server allowing network management from multiple and/or remote locations or by multiple users

**Location**

Software at CCR

**Major Components**

- 1) Personal computer
- 2) NMS software

**Functional Specifications**

- 1) It shall be possible to connect the NMS system to the network at any node via Ethernet.
- 2) Using the NMS, it shall be possible to configure the hardware modules that make up the network: nodes, network cards, interface cards and optical transceivers.
- 3) The Network Management System shall allow the user to activate or deactivate an interface module.
- 4) It shall be possible to create various services over the network.
- 5) The NMS shall allocate the transmission channels to virtual point-to-point or multi-point services in order to achieve an optimal bandwidth allocation. It shall be possible to configure the network and the services without being connected to the network, either via the Graphical User Interface (GUI) or via scripting.
- 6) NMS shall display a simple map of the network in form of a tree.
- 7) NMS shall provide Real Time Management Information Bases (MIBs).
- 8) Automatic reconfiguration

The management platform shall not be critical in the reconfiguration sequence of the system. It will only report the event in detail to the network operator.

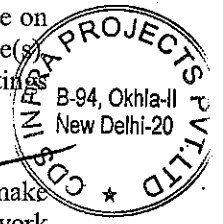
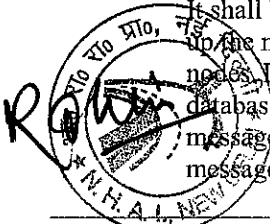
Relevant configuration details shall be stored in the Random Access Memory (RAM) module of each node. After configuration, the network shall continue to work autonomously and shall reconfigure in error situations. It is therefore necessary that the reconfiguration algorithm resides in the nodes themselves.

9) NMS database

The NMS shall contain the network database containing all kinds of information: sub-network names, node names, and node configurations including installed network and interface cards. It shall be possible to make the following on-line changes: activation or deactivation of interface cards, addition or removal of interface cards, and addition, changing or removal of services. Each change shall automatically update the database on the hard disk of the network management PC and the RAM memory of the relevant node. It shall be possible to use the database to restore the network configuration in case settings in one or more nodes are lost due to a hardware defect.

10) Fault and Alarm Management

It shall be possible to easily monitor the operation of the different sub-networks that make up the network. During normal operation, the NMS shall continuously poll all the network nodes. It shall compare the status of the network with the information resident in its network database. If a fault or change occurs, the GUI screen on the NMS PC will display an alarm message indicating the nature and location of possible errors or changes. The alarm messages shall include at least the date, time, node, interface slot and/or interface port,



alarm severity and description. Via the GUI, it shall be possible to register following events: loss of synchronization, network reconfiguration, node failure, interface card errors and external alarms. It shall be possible to store the events in the NMS database.

Errors and unexpected conditions shall be reported by the network management system in another color than the one used upon correct operation.

11) Internal alarm forwarding

The NMS shall be capable, via an alarm relay card, of forwarding the status of internal alarms to other devices such as beepers or lamps. It shall be possible to use this alarm relay card to convey network alarms to a third party umbrella alarm management system. An SNMP agent on the management system shall offer basic alarm forwarding and retrieval to an SNMP-based umbrella management system. It shall be possible to forward internal alarms to third party equipment via CORBA (Common Object Request Broker Architecture).

12) External event Management

It shall be possible to display the status of external events on the NMS system. It shall also be possible to forward this alarm information to an alarm relay card connected to the NMS PC.

1.15 Central Control Room (CCR)

*Purpose and General Information*

The purpose of the CCR is to monitor the expressway and to provide information to the road user. The CCR also houses the central servers and data processing equipment.

The CCR shall provide the real-time information and assistance to the Expressway users, collect data for the use of expressway authorities and to monitor and control the Traffic on the expressway as per the requirements.

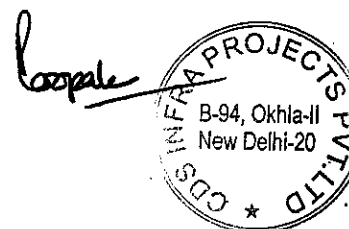
The CCR shall be designed for round the clock operations of monitoring, on-line information acquisition and processing the same for decision making. The CCR shall be the repository of all the data acquired from the field and their processing, storing, and archiving. All the information for real time monitoring on expressway shall be generated at the CCR and the relevant information shall be disseminated to the users through VMS, and to O&M teams through mobile radio.

*Location*

There shall be one CCR located in any toll plaza.

*Major Components*

- Emergency Call Operator Station (Emergency calls from ECB's)
- Mobile Call Operator Station (Mobile radio calls)
- Integrated Expressway Management / Traffic Manager station (Operating Variable Message Signs, Traffic Counting & Classifying System, Meteorological Data System, CCTV & Video Incident Detection)
- Video Wall
- Servers
- Switches
- Administration Computer and Network Printer
- Computer for NMS for fiber Optic Communication system
- CCTV console equipment
- VIDS control equipment
- Computers for VMS, AVCC, Met, Traffic Control



- A network printer
- An office computer (administration terminal)
- A power supply and backup system

#### Functional Specification

The CCR shall have the following functions and capabilities:

- 1) Real time images of the expressway locations (from camera locations) to the control centre.
- 2) Emergency communication system for communication from the predefined ECB locations to the control centre.
- 3) Real time information to the users from control centre (about the route conditions, traffic situation, etc.) using variable message signs installed on gantries.
- 4) Real time monitoring of the traffic situation and collection of traffic data using traffic counting and classifying system
- 5) Monitoring of the weather conditions
- 6) Dedicated Mobile Radio system for communication between the control centre, ambulances, patrol vehicles, etc.
- 7) Traffic Control System at the interchanges
- 8) Monitoring and control of the expressway traffic from the main control centre using integrated expressway system
- 9) Compilation, recording, analysis, processing, storage of traffic information and data
- 10) Monitoring and control of the various sub-systems and devices installed on the expressway
- 11) The following shall be the servers at CCR:
  - Server for Emergency Call System
  - Server for Video Surveillance system, VIDS system
  - Common server for VMS, ATCC, Meteorological Data System
  - Server for Mobile Radio Communication System

### 1.16 Miscellaneous Equipment

#### Server

Servers shall be located in the CCR and run application software. The server supplied shall be of the latest configuration at the time of installation. However the minimum specifications are as follows:

1. OS : Windows Server (Enterprise) preloaded
2. Processor : Quad Core, 3 GHz, 2x4MB shared cache, 1333MHz FSB
3. Memory : 8GB DDR2 , 800MHz
4. Drive controllers : Integrated serial ATA controller with RAID0, 1,5 and 10, removable boot drive option.
5. Hard drive : minimum 5 SATA drives of 500GB each with RAID5
6. Network adapter : Dual embedded gigabit Ethernet NIC & PCI NIC
7. Optical drives : DVD/CD RW combo
8. Database : Oracle, MySQL or equivalent shall be included
9. Monitor : 19 inch TFT included
10. Keyboard and mouse : included
11. Mounting : 19" rack mountable

### Printer

There shall be one network printer in the CCR for reports. The printer supplied shall be of the latest configuration at the time of installation. However the minimum specifications are as follows:

- 1) Print speed : upto 52ppm letter; upto 50ppm A4
- 2) Speed : first page out < 9sec
- 3) Resolution : min 1200x1200 dpi

### UPS

UPS shall be installed wherever necessary, for backup of all electronic equipment so that overall service levels and requirements mentioned in this document are met.

UPS of adequate backup time shall be installed at least for

- a) All CCR equipment's
- b) Outdoor Technical Cabinets
- c) All other equipment wherever power backup is required

### Specifications

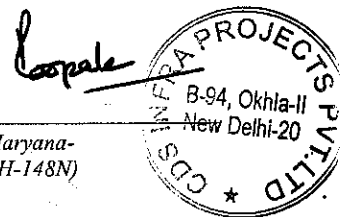
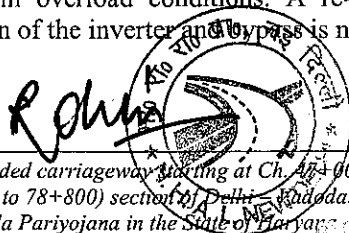
The UPS shall have the following specification:

- 1) Minimum backup time for UPS backed up by other power supply/DG shall be minimum 10 minutes. It shall be ensured by the vendor that power supply (combination of UPS, Solar, Generator, mains or any other supply) is provided in such a manner that all equipment is powered at all times, round the clock.
- 2) Input
  - Nominal Input Voltage : 220 V AC
  - Input Voltage Range : 140 V – 300 V AC on Full Load
  - Nominal Input Frequency : 50 Hz
  - Input Frequency Range : 45 – 55 Hz
  - Input Power factor : >0.97 at 220 V AC for full resistive

### Modes of Operation

The UPS shall be designed to operate continuously at rated capacity as an on-line, automatic system in the following modes:

- 1) Normal - The inverter continuously supplies AC power to the critical load. The converter converts commercial AC power to regulated DC power which then serve as the inverter input and, simultaneously, as a float charge input to the storage battery.
- 2) Emergency - In the event of a commercial AC power failure, the inverter shall derive its input from the system battery, thus providing uninterrupted power to the critical load. This transition shall be accomplished without any switching or coupling, and with no interruption of power to the critical load from either a failure or restoration of the commercial AC power.
- 3) Recharge - Subsequent to restoration of commercial AC power, the converter shall automatically reactivate and provide DC power to the inverter, simultaneously recharging the system battery. This occurs automatically and without interruption to the critical load.
- 4) Bypass - In the event that the UPS must be taken off line due to an overload condition or UPS failure, the critical load shall be transferred to the bypass source via the static switch without interruption of power to the critical load. The static switch shall only be utilized for automatic emergency transfers. A re-transfer from bypass to inverter shall be performed automatically in overload conditions. A re-transfer shall be inhibited if satisfactory synchronization of the inverter and bypass is not accomplished.





**Diesel Generator**

The Concessionaire shall provide diesel generators wherever required (primarily for VMS and CCR). The rating of the DG set shall depend on the connected load, however DG of 10kVA single phase for VMS and 175kVA 3phase for CCR is suggested, The DG arrangement shall have the following requirements:

- 1) DGs shall be provided in pairs i.e. two DGs per site with each running continuously for maximum 6 hours.
- 2) It shall be self-start with 12V DC starter motor.
- 3) Battery charging Alternator.
- 4) It shall be silent type.
- 5) Conform to BS 5514 / ISO 3046
- 6) Output per phase 220V  $\pm$ 1%, 50Hz
- 7) Instrument panel with starting switch & key, indication for battery voltage, water temperature, lube oil pressure, engine speed, engine hour counter, battery voltmeter, output voltage and frequency.

**Solar Panel**

The vendor shall provide Solar Panels of adequate capacity wherever required. The following are the minimum specifications.

- 1) Photo Voltaic (PV) cells shall be made of crystalline silicon
- 2) Cell encapsulation: ethylene vinyl acetate (EVA)
- 3) Mounting: pole mounted
- 4) Frame structure: Aluminum
- 5) Front side : Glass with thickness of min 3mm
- 6) Operating temp range ; -40 to +90 0C
- 7) Storage temp range ; -40 to +90 0C
- 8) Wind resistance: 60m/s

**Rack**

Equipment supplied at the CCR shall be rack mountable wherever possible. This includes servers, controllers, UPS, fiber patch panel etc.

**CCR Software**

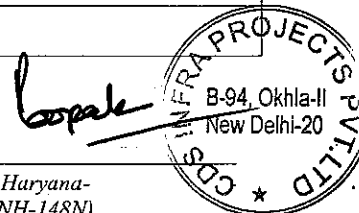
The requirements of individual ATMS subsystems have been defined in relevant sections. The following are the integration requirements of application softwares of the ATMS subsystems:

Sl.	Subsystem	Requirements
1	ECB	<ul style="list-style-type: none"> <li>• Separate Server with application software, OS and database</li> </ul>
2	Video Surveillance System, VIDS	<ul style="list-style-type: none"> <li>• Separate Server with application software, OS and database</li> <li>• Video may be recorded in Server or DVR</li> </ul>
3	VMS, ATCC, Meteorological Data System, Mobile radio	<ul style="list-style-type: none"> <li>• Common server and database for all these applications.</li> <li>• The relevant weather and ATCC data shall automatically be fed to VMS.</li> </ul>
4	VMS	<ul style="list-style-type: none"> <li>• Can be run on any server</li> </ul>



**Features**

The following features are required from the ATMS software



- 1) The following shall be provided as option –
  - Although separate servers have been specified for separate applications, it shall also be possible to run any application from any server and all applications from one server in which case there shall be one common database.
  - One additional server to function as database server.
- 2) Alarm conditions of each subsystem shall triggered in respective application software.
- 3) The software shall have facility to send e-mail to pre-configured e-mails as per the following :
  - Breakdown events – to maintenance team
  - Emergency events – to concerned relevant external authorities like police and to designated internal staff. Emergency events shall be triggered by the personnel manning the ECB, CCTV and Radio stations.

The “e-mail send” process shall be configurable to “manual” and “automatic”
- 4) The configuration as shown in the table above is suggestive. However, as all computers / servers are on the network, it shall be possible to run any application on any computer.
- 5) The system software shall run on industry standard server platform.
- 6) The integrated ATMS software shall monitor and record online all data from all sub-systems of ATMS

#### 1.17 Data Base Management

The database used by the ATMS software shall be an industry standard database like ORACLE, SQL, dbase etc. The system shall have facility to perform certain selected database operations only by authorized users.

#### 1.18 Storage

The system shall store at least 12 months of data. Older data may be archived. However, the system shall provide tools for the retrieval, manipulation and presentation of data. Data store shall be clearly marked with an indicator to show day or period type e.g. normal, holiday, weekly off; by reference to the system calendar. It shall be possible to export data to an external system for further analysis. Transfer shall be available in .xls, csv or any standard formats.

#### 1.19 Archive and Restore

This facility shall allow the archiving of the database to a tape/External HD/DVD . The data archived shall then be deleted from the database. Data may only be archived when it is more than two years old. Only one archive request may be outstanding at a time. Once archived, part or all of the data may be restored by copying from the tape back onto the system, where it remains for 30 days. Only one restore request may be outstanding at a time.

It shall be possible to define a series of notification levels which will raise an alarm when the disk space reaches a specified limit. This is used to alert an operator to the need to archive data.

#### 1.20 Database Back-Up

The system management procedures for producing daily and weekly back-ups shall not need any operator intervention.

#### 1.21 Timetable and Calendar

The system shall have a time table facility. The timetable shall allow commands by day of the week, time of day, day type. The system calendar shall allow days to be marked as normal, holiday, weekly off, etc.

#### 1.22 System Log

The system shall retain a log of all events, alarms, timetable actions, and operator actions (together with operator username). In addition to system generated events the operators shall have facilities to enter events or incidents into the log. It shall be possible to search the log by time/date, event type, operator user name, strategy; location.

The log facility shall provide the means to:

- a) Record all important events that occur in the operation of the integrated Expressway management system, both manual and automatic View and manage the status of alarm events,
- b) Collect and collate incident information from both manual and automatic sources,
- c) Allow the user to record routine operational messages,
- d) View all changes and actions taken on the ATMS,
- e) Record and view useful contact names and other details.

#### 1.23 Asset Management

- a) The system shall incorporate a facility to store records of assets for ATMS.
- b) The asset register shall store data relating to location, type, and number of equipment as well as electricity ratings.

#### 1.24 User Management

This facility shall provide the means to make user access to ATMS secure. Only the system administrator(s) shall have access to this facility and will set up details for other users. Each user shall have a username that needs to be configured so that it matches a PC log-in. Hence logging on to the PC will automatically mean that access to ATMS is available for the chosen users. Each user can also be configured to have access to none, some or all of the ATMS facilities.

#### 1.25 Availability Requirements

The inability to perform any required function, the occurrence of unexpected action or degradation of performance below the specifications shall be considered as a failure. The Mean-time-between-failure (MTBF) shall be the average operating time accumulated by the total population of identical items between failures. The system supplier/Concessionaire shall submit MTBF and MTTR figures. The ATMS shall have an overall system availability of better than 99 percent. The ATMS shall be considered unavailable if any of its function cannot be properly executed and when any of the following conditions persist for more than 8 hours on the entire stretch.

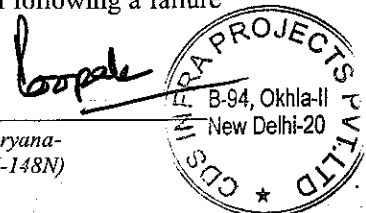
- i) Variable Message System Failure: No display/Improper Display of VMS or failure of their related transmission/control system which would render the VMS inoperative
- ii) Emergency Call System Failure: Failure of any three consecutive Call boxes or failure of their related transmission system which would render the call boxes inoperative.
- iii) ATCC Failure: Failure of more than one ATCC or failure of their related transmission system which would render the ATCC inoperative.
- iv) Met Failure: Failure of more than one Met or failure of their related transmission system which would render the Met inoperative.
- v) Video Surveillance System Failure: Failure of more than two Video Cameras or failure of their related transmission/control system which would render the cameras inoperative.
- vi) Video Incident Detection System Failure: Failure of more than one Video Cameras or failure of their related transmission/control system which would render the cameras inoperative.
- vii) Display at Control Centre: Whenever Control Centre is unable to get display of messages initiated by the Control Centre in-charge.

In addition to the above the system shall be considered unavailable when failure of the integrated ATMS Software or its hardware persists for more than 8 hours.

#### 1.26 Maintainability Requirements

The Mean-Time-to-Repair (MTTR) of the ATMS shall be in normal operation following a failure shall be less than 8 hours all inclusive.

#### 1.27 System Safety Requirements



All metal enclosures shall be provided with an earthing terminal and earthing of all equipment shall be carried out in accordance with overall earthing policy.

**1.28 Environmental/Climatic Requirements**

**Indoor Equipment:**

Temperature (Operating) : 0°C to + 50°C  
Relative Humidity : up to 95% (non-condensing)

**Outdoor Equipment**

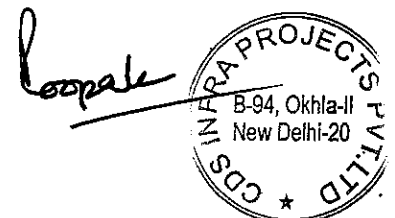
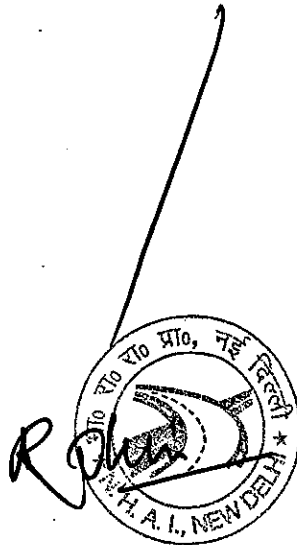
Temperature (Operating) : 5°C to + 60°C  
Relative Humidity : up to 95% (non-condensing)

The system and the equipment used as a minimum shall meet the following climatic and environmental requirements as specified in IS:9000:

Tests	Severities
Change of Temperature (Temp cycling) as per IS:9000 (part xiv/sec1)	(i) Low Temp 0°C + 3°C (ii) High Temp 60°C + 2°C
Rate of cooling and heating 1°C/m	(iii) Duration for each cycle 3 hours (iv) No of Cycles 3

**1.29 Warranty:** The Concessionaire/supplier of the advanced traffic management systems (ATMS) shall furnish the warranty/guarantee for successful commissioning and operation of ATMS for a minimum period of 5 years. The Concessionaire/supplier shall also furnish the certificate that there is no proprietary item and that the systems shall be interoperable. All components and equipment shall be tested for commissioning. The documents with regard to design, technical details, installation details, testing and commissioning, details of fault diagnostics, operation and maintenance manuals and reports shall be submitted to the NHAI by the Concessionaire/supplier.

These guidelines include hardware and software functionalities. Alternately, some guidelines are available in "Specifications for Road and Bridge Works (Fifth Revision) published by IRC" – also called Orange Book, Section 816.



Annex - III  
(Schedule-D)

**SPECIFICATIONS AND STANDARDS FOR DEVELOPMENT OF PROJECT FACILITIES**

**General**

1. The content of the scope / specifications is not necessarily complete and all items required for proper functioning of the envisaged facilities is deemed to be included in the scope. In certain locations, the Concessionaire is permitted to make additions/improvements to the specifications of the facilities at his own cost for proper functioning of the Wayside Amenities with prior permission from Authority. For example, the Food Court may be provided with Aluminum glazing all around.
2. For execution of any item, if the specifications are not available or need to be changed as per the site specific requirement or as directed by NHAI, the same shall be borrowed from relevant MES/ CPWD specifications duly complying the relevant BIS Codal provisions and IRC stipulations if available. However, the new or modified specifications shall be required to be approved by NHAI before incorporating the same in execution.

**I. a) Site Development**

**i. Site Clearances & Area Development: -**

- **Site Clearance, Leveling, Cutting & Filling of Soil (Total Plot Area) (for level ground):**

Scope includes cutting as required and/or, clearing vegetation bushes supplying, filling, spreading and consolidating of imported earth / murrum. Scope also includes transportation of unwanted earth from the site if found necessary.

- **Site Clearance**

Before site leveling work, area shall be cleaned by removing existing plantation, bushes etc., including suitable disposal of the same.

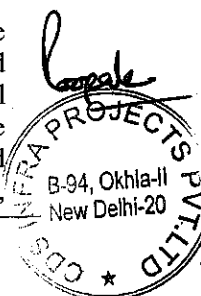
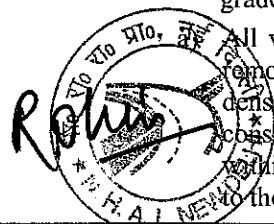
Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth upto 30 cm measured at a height of 1m above ground level and removal of rubbish to required distance of outside the periphery of the area cleared.

- **General Site Excavation and Filling:  
Site Excavation (Cutting):**

Earth work in excavation in all kinds of soil/ordinary rock/hard rock (blasting prohibited) by mechanical means (Hydraulic excavator) / manual means over areas (not exceeding 30cm in depth, 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, bailing out the water, dewatering if necessary, for required lift including getting out the excavated soil and disposal of surplus excavated soil for required lead.

General site excavation and fill shall establish a uniform stable working surface in the site areas, provide for positive drainage compatible with natural drainage system around buildings and other structures, and provide adequate soil cover for underground utilities, Before the placement of fill material, the existing sub grade shall be prepared as follows:

All vegetation, bushes, organic or otherwise incompetent material shall be removed. The remaining in-situ material shall be compacted to the depth and density determined by the detailed design. Compacted fill material shall consist of specified material obtained from an offsite source if not available within the limits of construction. This material shall be placed and compacted to the density and geometry determined by the detailed design. Slope stability,



moisture and density relationship and compaction requirements shall be determined as a result of the geotechnical field and laboratory investigations.

- b) Earth material shall be removed to the required lines and grades. Any remaining organic or otherwise incompetent material in an excavated shall be removed if so required. The remaining in-situ material shall be graded and compacted to the depth and density determined by the detailed design. Excavated material shall be used as general site fill or embankment fill provided it meets the necessary design requirements.
- c) The natural soil strata and fill material shall be tested for presence of sulphates and chlorides. In the event high percentages of such compounds are found to be present, required special treatment / coating shall be provided to the concrete and reinforcement surfaces for foundations and structures below ground for protection against the deterioration during the life-time of such structures.

• **Filling:**

**Moorum / Kankar / Gravel / Sand**

**Quality of moorum**

Moorum shall contain low plasticity (less than 6) & liquid limit should not be more than 20-binder material mixed with hard granular particles such as sand and / or gravel. Moorum shall be sound and hard of a quality not affected by weather, to be screened at the quarry and free from all impurities. Large lumps shall all be broken at the quarry and Moorum delivered at site must pass in every direction through a 63 mm ring. Moorum shall not contain more than 5% to 8% of fines passing a 75-micron sieve.

**Method of Filling**

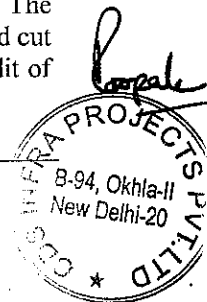
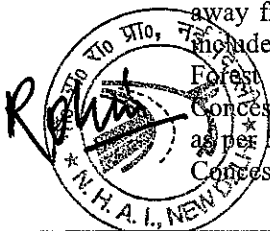
Filling shall be permitted after removing vegetation, trees, roots, etc. in layers not exceeding 20 cm depth and manual consolidation will not be acceptable. Filling shall be done in 20 cm layers and every layer shall be power rolled with 8 to 10 tonne roller so as to achieve at least 95% of the Proctor density, with OMC. However, for the last four top layers of 20 cm, each layer shall be rolled to achieve 90% of the modified Proctor density at its OMC. Before start of work, the Concessionaire shall supply three samples of moorum from each quarry to cover the variations expected in the supply. These samples shall be tested in a recognized laboratory in accordance with latest IS codes.

- i. Sieve analysis, silt and clay content.
- ii. Liquid limit and plastic limit
- iii. Moisture content and dry density relationship at Standard Proctor Density.
- iv. Moisture content and dry density relationship at modified Proctor density.
- v. CBR values after 48 hours soaking of the prepared samples consolidated to the maximum density at OMC indicated in items (iii) and (iv).

Carting away the excavated earth (by mechanical transport including loading, unloading, stacking) to an identified location.

ii. a) **Cutting of Trees: As required to match site Specific Layouts**

Identified and numbered trees including felling, Uprooting, Cleaning and carting away from the premises and cleaning the area of all twigs, leaves etc. Scope includes obtaining necessary approvals from concerned Authorities such as Forest Department etc. if necessary depending on the girth of the trees. The Concessionaire shall be fully responsible for planting more trees than he had cut as per State / Central Govt. Regulations. Value of trees shall be to the credit of Concessionaire.



- **Tree Cutting:**

Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of various girth dimensions and removal of rubbish to the necessary distance outside the periphery of the area cleared.

Clearing grass and removal of the rubbish to the necessary distance outside the periphery of the area cleared.

Felling trees of the girth, including cutting of trunks and branches, removing the roots and stacking of serviceable material and disposal of unserviceable material for various girth dimensions.

It is the responsibility of concessionaire to take necessary permission / permits from concerned relevant local authorities for transportation of cut materials. He is required to pay mandatory charges, taxes, forest development charges etc, direct to the statutory agencies directly.

- ii. **b) Dismantling / Demolishing including disposal:**

- **Dismantling:**

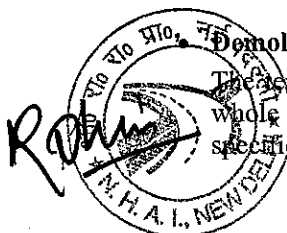
The term Dismantling implies carefully separating the parts without damage and removing. This may consist of dismantling one or more parts of the building as specified or as shown in the drawings.

- a) **Precautions**

- i. All usable materials obtained from dismantling shall be the property of the concessionaire unless otherwise specified.  
Due care shall be taken to maintain the safety measures prescribed in IS:4130-1991 – Code of safety (2<sup>nd</sup> Revision).
- ii. Necessary propping, shoring and or under pinning shall be provided to ensure the safety of the adjoining work or property before dismantling is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining work or property. Wherever specified, temporary enclosures or partitions shall also be provided.
- iii. Necessary precautions shall be taken to keep down the dust nuisance to the minimum.
- iv. Dismantling shall be done in a systematic manner. All materials which are likely to be damaged by dropping from a height or by demolishing roofs, masonry etc. shall be carefully removed first. The dismantled articles shall be removed manually or otherwise, lowered to the ground (and not thrown) and carting away to an identified area.
- v. Where existing fixing is done by nails, screws, bolts, rivets, etc., dismantling shall be done by taking out the fixing with proper tools and not by tearing or ripping off.
- vi. Any serviceable material, obtained during dismantling shall be separated out and the concessionaire shall be disposed off. All unserviceable materials rubbish etc. shall also be disposed off.
- vii. The concessionaire shall maintain / Disconnect existing services, whether temporary or permanent.

- Demolition:**

The term 'Demolition' implies breaking up. This shall consist of demolishing whole (including foundation) or part of work including all relevant items as specified or shown on the drawings.



Demolition is not envisaged in most of the sites. However, Demolition is included in a particular location if indicated in this Concessionaire Agreement.

Demolition by manual / implosion technique of existing buildings and other unusable structures etc., as shown in the drawing. The scope shall include municipal / statutory approvals, if applicable. Demolition means removing the entire building including foundation and the same is filled with the good soil with proper consolidation and make ground surface ready for further activities. During demolition the concessionaire shall adhere to necessary safety codes and environmental norms. Value of salvage material shall be to the credit of Concessionaire.

**a) Precautions**

- i. Necessary propping, shoring and or under pinning shall be provided to ensure the safety of the adjoining work or property before demolishing taken up and the work shall be carried out in such a way that no damage is caused to the adjoining work or property. Wherever specified, temporary enclosures or partitions shall also be provided.
- ii. Necessary precautions shall be taken to keep down the dust nuisance to the minimum.
- iii. Any serviceable material obtained during demolishing shall be account of Concessionaire.
- iv. The demolition shall always be well planned before hand and shall generally be done in reverse order of the one in which the structure was constructed. The operations shall be got approved from the authority before starting the work.

Due care shall be taken to maintain the safety measures prescribed in IS:4130-1991 – Code of safety (2<sup>nd</sup> Revision).

**ii. c) Rerouting of Existing EB, Water & Telephone Services Above / Below Ground - including local liasioning charges:**

As required, if any of the locations cited under schedule 'C'. Scope includes excavation, removal / relaying etc., of all existing underground or overhead electrical, EB, water, Telephone lines using the salvaged or new materials.

Scope includes obtaining necessary permission / approvals required if any from the concerned authorities.

**ii. d) Additional Filling/Cutting: To match levels indicated in the Site Specific Drawings.**

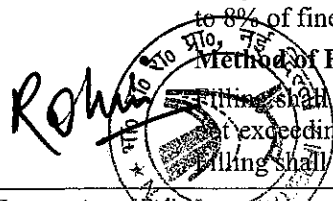
- **Filling:**
- **Moorum / Kankar / Gravel / Sand**

**Quality of moorum**

Moorum shall contain low plasticity (less than 6) & liquid limit should not be more than 20-binder material mixed with hard granular particles such as sand and / or gravel. Moorum shall be sound and hard of a quality not affected by weather, to be screened at the quarry and free from all impurities. Large lumps shall all be broken at the quarry and Moorum delivered at site must pass in every direction through a 63 mm ring. Moorum shall not contain more than 5% to 8% of fines passing a 75-micron sieve.

**Method of Filling**

Filling shall be permitted after removing vegetation, trees, roots, etc. in layers not exceeding 20 cm depth and manual consolidation will not be acceptable. Filling shall be done in 20 cm layers and every layer shall be power rolled with





8 to 10 tonne roller so as to achieve at least 95% of the Proctor density, with OMC. However, for the last four top layers of 20 cm, each layer shall be rolled to achieve 90% of the modified Proctor density at its OMC. Before start of work, the Concessionaire shall supply three samples of moorum from each quarry to cover the variations expected in the supply. These samples shall be tested in a recognized laboratory in accordance with latest IS codes.

- i) Sieve analysis, silt and clay content.
- ii) Liquid limit and plastic limit
- iii) Moisture content and dry density relationship at Standard Proctor Density.
- iv) Moisture content and dry density relationship at modified Proctor density.
- v) CBR values after 48 hours soaking of the prepared samples consolidated to the maximum density at OMC indicated in items (iii) and (iv).

The Concessionaire will also supply a box with locking arrangement to hold a part of the sample and a clear bottle for each sample. The moorum samples shall be put into the bottle upto 20% of its capacity and then filled with water upto 80%. When well soaked, it shall be well shaken and allowed to stand in order to settle the particles. An approximate layer of silt and clay on top of the coarser material will be marked. During progress of the work, if any sample by colour, texture, smell or otherwise appears to be outside the sample given or tested, using a test similar to the above site test. Till it is approved, the materials shall not be deposited at the site of filling.

- **Moisture Control**

The moisture content to be used where proctor density or modified proctor density is used shall be strictly controlled to within +/- 2% of the optimum moisture determined in accordance with latest IS codes (Part II). Where the moisture is higher, the soil shall be raked and the moisture allowed evaporating before rolling is commenced. Water shall always be sprayed and not poured. Ponding shall never be allowed. In wet weather, The work may have to be suspended for which no extras would be payable to the Concessionaire. Care shall be taken to see that moisture is uniformly spread throughout the layer and where necessary, mixing with harrows or rakes shall be done.

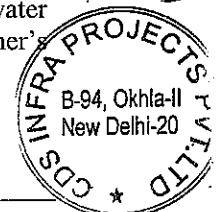
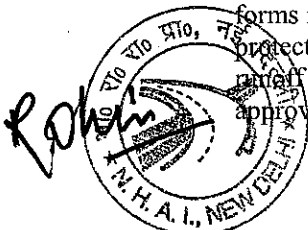
- **Cutting:**

Earth work in excavation in all kinds of soil/ordinary rock/hard rock (Blasting Prohibited) by mechanical means (Hydraulic excavator) / manual means over areas required depth and for required area including dressing of sides and ramming of bottoms, bailing out the water, dewatering if necessary, lift as required including getting out the excavated soil/ordinary rock/hard rock and disposal of surplus excavated item for required lead.

### iii. 1) Construction of Retaining wall / Slope Stability Arrangements:

- **Slope protection**

- i) Slope protection shall protect earth slopes from erosion due to storm water runoff and wind damage or other natural phenomena.
- ii) All earth slope surfaces subject to erosion shall be provided with slope protection. Slope protection shall consist of grass cover, grout filled fabric forms riprap, or other effective slope protection methods, the type of slope protection shall be determined by the expected velocities of storm water runoff and any other appropriate factors and shall be subject to the Owner's approval.



- iii) The extent of slope protection shall be defined by the amount of earth surface subject to erosion and the type of erosion present. The material shall be sound, durable, and able to resist the effects of abrasion.

• **Retaining Wall:**

Retaining wall shall be constructed by RCC / Random Rubble Masonry / Brick Masonry / Precast RCC slab / or other suitable structure as per design to withstand the well compacted filling material / soil. The dimensions of retaining wall to fulfill the design requirements and as per standard regular practice. The retaining wall shall be designed for SBC of natural soil to the extended plot area soil conditions and to withstand the quantity of filling material. Necessary weep holes with filter media shall be provided as per standard specifications and market regular practice. The weep holes shall be provided in sufficient nos. at suitable interval to withstand earth pressure during wet condition of filling material / soil. Special attention shall be taken care while constructing the retaining walls structure, such that the adjacent buildings / structures / lands / objects stability will not be disturbed.

• **Slope stability with Dry Stone Pitching:**

For retaining of earth to match formation levels as required. For driveway approach roads etc., stone pitching / alternative retaining arrangements for retaining to be provided to suite design requirements.

• **Stones**

These shall be clean, hard stones, free from decay and weathering. They shall be in block and hammer dressed on all sides.

The size of the pitching stones shall be approximately 22.5 cm in depth and not less than 15 cm. in any other direction.

• **Preparation of surface**

The sides and bottom of earth work to be pitched, shall be brought to the required slope and gradient and shall be compacted to a firm and even surface

• **Pitching**

Pitching shall be of 22.5cm depth unless specified otherwise. Profiles shall be put up by means of pegs and strings or by placing stones, at intervals of not more than 15 cm. Stones shall then be laid closely in position in between the profile and firmly embedded with joints staggered and with exposed faces true to line, gradient and in uniform slope throughout.

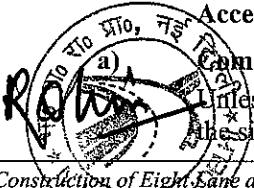
Cross bands of approximately 22.5 cm. width through bond stones equal to the full depth of pitching shall be provided at an interval of approximately 3 metres centre to centre both longitudinally and transversely.

The interstices between adjacent stones shall be filled in with stones of proper size, well driven in with crow bars to ensure tight packing and complete filling of all interstices. Such filling shall be carried on simultaneously with the placing in position of the large stones and shall in no case be permitted to fall behind. Final wedging shall be done with the largest sized chip practicable, each chip being well driven home with a hammer so that no chip is possible of being picked up or removed by hand.

2. **Compound Wall, Fencing, Gate, Culvert & Kerb wall, Deceleration Zone, Acceleration Zone, Buffer Zone and Service / Access Road.**

**Compound Wall:**

Unless shown otherwise in the drawings, compound wall shall be built on the all the sides other than the future expansion areas and other than the frontage.



In normal conditions at site, the foundation of the compound wall shall be Stone / Brick masonry / RCC of adequate depth and width to meet the design requirements. However, the scope includes the construction of RCC retaining wall or other foundations with retaining arrangements, if necessitated by design to suite site conditions. This is applicable for retaining structures also. The superstructure shall be of 230mm thick brick / cc blocks wall finished with coping and grooves of 20mm x 12mm as per drawing. Plastering and Painting is to be considered on both sides of the wall. Other equivalent or improved technologies may be approved subject to approval from I.E. The scope includes painting with acrylic cement paint as per specifications.

Refer drawing no. 1695/IHMCL/C2/STD/AR/128

- b. 1) **Chain link Fencing with Gate:** (Unless shown otherwise in the drawings, chain link fencing with gate shall be provided all around the Children's Play Area).

Providing and fixing G.I. chain link fabric fencing Made of G.I. wire of dia. 4 mm, PVC coated to achieve outer dia not less than 5 mm in required colour and shade of required width in mesh size 50x50 mm including strengthening with 2 mm dia wire or nuts, bolts and washers as required complete. The scope also includes necessary M.S hollow Tubes / M.S. angle frames all around fabric fencing, MS box section at suitable spacing with necessary foundation concrete etc., as shown in the drawing. The colour and shade of enamel paint for M.S hollow Tubes / M.S. angle frames & MS box section to match with the GI wire shall be as required.

Refer drawing no. 1695/IHMCL/C2/STD/AR/134

• **Chain Link:**

The chain link shall be of approved make and of correct size, gauge etc. It shall be of M.S. or G.I. as specified of approved manufacture and of required size, gauge etc. The base materials of the wire shall be of good quality mild steel. The wire shall be Circular in section, free from rust, scale, cuts, welds and together defects and shall be uniformly galvanized if specified.

• **Fixing of the Chain Link Fencing to MS post:**

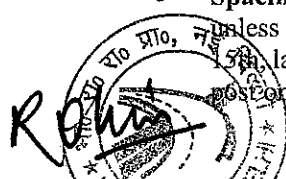
The chain link of specified height of fencing shall be fixed first to the end post with Necessary G.I. approved type U clamps threaded t both the ends and G.I. nut, bolts, washers etc. After fixing the chain link at the end post, it shall be stretched tightly and fixed to next post one after the other by the above mentioned clamps and bars etc. The point at the change in level of the fencing. top/bottom, necessary links shall be adjusted suitably as per the manufacturers specification. The entire link fence shall be painted with two coats of synthetic enamel paint of approved make and shade over a coat of approved primer or as specified in the BOQ item and drawing.

Refer drawing no. 1695/IHMCL/C2/STD/AR/134

- b. 2) **Barbed Wire Fencing:**

As indicated in the Site Specific Layouts.

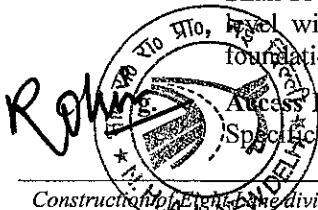
- **Materials:** G.I. Barbed wire shall be as per IS 278 and angle iron shall be as per standard specification. The angle shall be of size 50 × 50 × 6 mm.
- **Spacing of Posts and Struts** The spacing of posts shall be 3.00 m centre to centre, unless otherwise specified to suit the dimensions of the area to be fenced. Every last but one end posts and corner post shall be strutted on both sides and end post on one side only.



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- **Fixing of Posts and Struts** This shall be as per CPWD standard specifications. In addition, angle iron post at bottom shall be split and banded at right angle in opposite direction for 10 cm length to get proper grip.
  - **Fixing G.I. Barbed Wire** The barbed wire shall be stretched and fixed in specified number of rows and two diagonals. The bottom row should be suitable high above ground and the rest at spacing of 17 cm centre to centre. The diagonal shall be stretched between adjacent posts from the top wire of one post to the bottom wire of 2nd post. The diagonal wire will be inter woven with horizontal wires by fixing the odd rows of wires first, then the diagonal cross wires and lastly even rows of wires. The barbed wire shall be held by tearing the holes of 10 mm dia in the post and tied with G.I. wire; turn buckles and straining bolts shall be used at the end post, if so specified.
- c. **Gate:** Shall be provided for Entrance to Children Play Area.  
*Refer drawing no. 1695/IHMCL/C2/STD/AR/122*
- d. **RCC Slab / Box Culvert:** (Unless shown otherwise, in the drawings, culverts shall be provided for a minimum length of 14m (each) in all entry and exit points.) Shall be masonry or RCC Box culvert covered (along road crossings) with RCC Slab gratings as necessary, with vent sizes and construction to fulfill the statutory norms.  
*Refer drawing no. 1695/IHMCL/C2/STD/IWS/348j*
- e. **Kerbwall:** All along the Driveway, Parking Areas, Landscaping and Path ways.
- **Kerb Stone (Precast)**
  - **Laying**  
Trenches shall first be made along the edge of the wearing course of the road to receive the kerb stones of cement concrete of specified grade. The bed of the trenches shall be compacted manually with steel rammers to a firm and even surface and then the stones shall be set in cement mortar of specified proportion. The kerb stones with top 20 cm. wide shall be laid with their length running parallel to the road edge, true in line and gradient at a distance of 30 cm. from the road edge to allow for the channel and shall project about 12.5 cm. above the latter. The channel stones with top 30 cm. wide shall be laid in position in chamber with finished road surface and with sufficient slope towards the road gully chamber. The joints of kerb and channel stones shall be staggered and shall be not more than 10 mm. Wherever specified all joints shall be filled with mortar 1:3 (1 cement : 3 coarse sand) and pointed with mortar 1:2 (1 cement: 2 fine sand) which shall be cured for 7 days.  
The necessary drainage openings of specified sizes shall be made through the kerb as per drawings for connecting to storm water drains.
  - **Finishing Berms and road edges** shall be restored and all surplus earth including rubbish etc. disposed off.  
*Refer drawing no. 1695/IHMCL/C2/STD/AR/119*
- f. **Bollards:** To be provided in front of Dhaba / Food Court / Restaurants / Kiosks.  
Shall be of 900 mm height above, with spacing of 1200 mm c/c above driveway level with base plate, stainless steel 304 grade, 200 mm dia with suitable foundation.
- Access Road (outside the premises) / Approach road:** As shown in the Site Specific Drawings.



All roads, driveway and parking areas with bituminous surface shall conform to MORTH / IRC:SP 84-2014 for 10 MSA traffic design classification subject to minimum requirements shown in drawings.

The formation levels and construction of Approach Roads & culverts shall be in accordance with statutory approval drawings of NHAI.

**h. Deceleration Zone (outside the premises):**

Layout and cross sections as shown in the Site Specific and standard Drawings

**i. Acceleration Zone (outside the premises):**

Layout and cross sections as shown in the Site Specific and standard Drawings

**j. Buffer Zone: As shown in the Site Specific Drawings**

All roads, driveway and parking areas with bituminous surface shall conform to MORTH / IRC:SP 84-2014 for 10 MSA traffic design classification subject to minimum requirements shown in drawings.

The formation levels and construction of Approach Roads & culverts shall be in accordance with statutory approval drawings of NHAI.

**k. Service Road (outside the premises) / Exit Road / Existing Service Roads including necessary crash barriers as per codes: As shown in the Site Specific Drawings.**

All roads, driveway and parking areas with bituminous surface shall conform to MORTH / IRC:SP 84-2014 for 10 MSA traffic design classification subject to minimum requirements shown in drawings.

The formation levels and construction of Approach Roads & culverts shall be in accordance with statutory approval drawings of NHAI.

**I b. Services:**

**i. Roads & Path way as per MoRTH Specifications**

**a) Roads / Driveway, Parking & Path way (BT / CC Paver Block): (All Driveway / Roads / Parking facing Dhaba / Food Court / Restaurants / and Kiosks within the premises shall be of CC Paver Blocks. All other areas inside the premises and approach roads outside premises shall be of BT.**

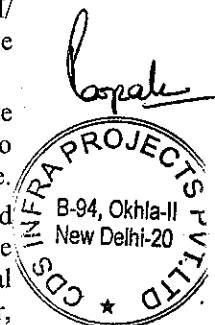
All roads, driveway and parking areas with bituminous surface shall conform to MORTH / IRC:SP 84-2014 for 10MSA traffic design classification subject to minimum requirements shown in drawings. CC paver blocks shall be of minimum M40 grade, 80mm thick conforming to BS (British Standards) 6717.

**• Basic Requirements**

The roads system shall be subjected to heavy vehicles and construction equipment during construction. All roads shall be subject to heavy wheel loads off-road haul trucks, wheel loaders, and scrapers. Road system shall be designed as per MORTH/ IRC:SP 84-2014 for 10MSA standards. All roads should be provided with adequate camber as per MORTH standards.

**i. The access roads for way side amenities shall be constructed during the site preparation phase of construction with RCC box culvert at road junctions to cater for crossing of drains/cables etc to avoid major road cuttings at later date.**

All roads shall be constructed on prepared sub grade and stone sub-base and base layers of granular sub-base / bitumen macadam & Bituminous concrete etc., as per MORTH standards. The sub-grade for the road shall be the natural prepared ground, which shall be cleared of all loose material, organic matter,



grass etc, scarified, rolled and compacted to proctor density of 95%. All the roads shall be topped with Premix carpet followed by Seal Coat. The total thickness and composition of the layers of the pavement shall be provided as per MORTH standards.

- iii. Crown of the Road shall be as required above the formation level.
- iv. At the time of handing over after completion of project, road shall be repaired including laying of new premix carpet & seal coat wherever required.

• **Road Sub-Grades**

- i. The sub-grades shall provide uniform and stable foundations for the roads.
- ii. Prior to construction of road sub-grades, all existing vegetation, organic or otherwise incompetent material, shall be removed. The remaining in-situ material shall be graded and compacted to the depth and density determined by the detailed design prior to the placement of fill material. During excavation, earth material shall be removed to the required lines and grades, any remaining organic or otherwise incompetent material shall be removed. The remaining in-situ material shall be graded and compacted to the depth and density determined by the detailed design before proceeding with the sub-grade construction.
- iii. Embankment fill material shall consist of specified fill material obtained from excavation at other onsite grading areas, buildings, or roadbeds. This material shall be placed and compacted to the density and geometry determined by the detailed design to provide the strength required and to limit settlements within the allowable limits. Slope stability, moisture and density relationship, and compaction requirements shall be determined based on results of geo-technical field and laboratory investigations.
- iv. Borrow material in excess of that provided by the sources described above shall be obtained from borrow areas or from an offsite source if not available within the limits of construction at the cost of Concessionaire.
- v. Sub-grade excavation shall be accomplished in the same manner as for general site excavation.
- vi. The sizing criteria and material selection criteria for road sub-grades shall be as described in general site excavation.

• **Sub - grade**

Preparation and consolidation of sub grade with power road roller of 8 to 12 tone capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earth.

• **Granular Sub-base**

Construction of granular sub-base by providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications.

• **Wet Mix Macadam**

Providing, laying, spreading and compacting graded stone aggregate (size range 53 mm to 0.075 mm) to wet mix macadam (WMM) specification including premixing the material with water at OMC in for all leads & lifts, laying in uniform layers with mechanical paver finisher in sub- base / base course on well prepared surface and compacting with vibratory roller of 8 to



10 tonne capacity to achieve the desired density, complete as per specifications.

- **Dense Bituminous Macadam**

Providing and laying Dense Graded Bituminous Macadam using crushed stone aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site by tippers, laying with paver finisher equipped with electronic sensor to the required grade, level and alignment and rolling with smooth wheeled, vibratory and tandem rollers as per specifications to achieve the desired compaction and density, complete as per specifications.

- **Bituminous concrete**

Providing and laying Bituminous concrete

- 30 mm compacted thickness with bitumen of grade VG-30 @ 5% (percentage by weight of total mix) and lime filler @ 2% (percentage by weight of Aggregate) prepared in Batch Type Hot Mix Plant of 100-120 TPH capacity.
- 30 mm compacted thickness with bitumen of grade VG-30 @ 5% (percentage by weight of total mix) and lime filler @ 2% (percentage by weight of Aggregate) prepared in Drum Type Hot Mix Plant of 60-90 TPH capacity.

- **Paver Block (as per BS codes)**

Providing and laying factory made coloured/grey chamfered edge Cement Concrete paver blocks of M40 grade, 80mm thick & size/shape, made by block making machine to attain superior smooth finish using PU or equivalent moulds, laid in required colour & pattern over 50mm thick compacted bed of fine sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with jamuna/river sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand in footpath, parks, lawns, drive ways or light traffic parking etc. complete as per manufacturer's specifications. 80mm thick C.C. paver block of M-40 grade with approved colour, design & pattern and as per standard specifications and as per BS Codes etc., complete

b) **Roads Marking and Rumble Strips, Speed Breakers (Readymade speed breakers with reflective arrow) for parking area.**

Shall be required for safety. Marking shall be for parking, directions and carriageway, zebra crossings, etc. Marking compounds shall be as per MORTH / IRC standards.

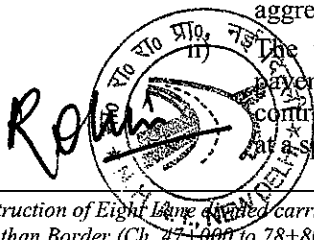
- **Road Markings Strips** The colour width and layout of road markings shall be in accordance with the Code of Practice for Road Markings with paints, IRC : 35, and as specified in the drawings.

- **Materials** Road markings shall be of ordinary road marking paint (retro-reflective), hot applied thermoplastic compound as specified in the item.

- **Hot Applied Thermoplastic Road Marking General**

- i) The thermoplastic material shall be homogeneously composed of aggregate, pigment, resins and glass reflectorising beads.

The thermoplastic compound shall be screeded/extruded on to the pavement surface in a molten state by suitable machine capable of controlled preparation and laying with surface application of glass beads at a specific rate. Upon cooling to ambient pavement temperature, it shall



produce an adherent pavement marking of specified thickness and width and capable of resisting deformation by traffic.

- iii) The thermoplastic material shall conform to ASTM D36/BS-3262-(Part I).
- iv) The material shall meet the requirements of these specifications for a period of one year. The thermoplastic material must also melt uniformly with no evidence of skins or un-melted particles or the one year storage period. Any material not meeting the above requirements shall be replaced by the manufacturer/supplier/ Concessionaire.
- v) **Marking:** Each container of the thermoplastic material shall be clearly and indelibly marked with the following information:
  - 1. The name, trade mark or other means of identification of manufacturer.
  - 2. Batch number
  - 3. Date of manufacture
  - 4. Colour (White or yellow)
  - 5. Maximum application temperature and maximum safe heating temperature.
- vi) **Sampling and Testing:** The thermoplastic material shall be sampled and tested in accordance with the appropriate ASTM/BS method. A copy of certified test reports from the manufacturers of the thermoplastic material showing results of all tests specified herein and shall certify that the material meets all requirements of this Specification.

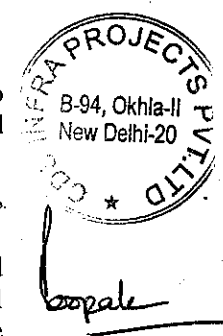
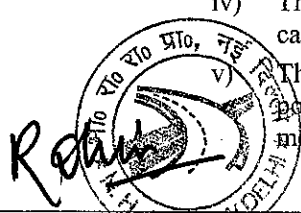
• **Preparation**

- i) The material shall be melted in accordance with the manufacturer's instructions in a heater fitted with a mechanical stirrer to give a smooth consistency to the thermoplastic material to avoid local overheating. The temperature of the mass shall be within the range specified by the manufacturer, and shall on no account be allowed to exceed the maximum temperature stated by the manufacturer. The molten material should be used as expeditiously as possible and for thermoplastic material which has natural binders or is otherwise sensitive to prolonged heating, the material shall not be maintained in a molten condition for more than 4 hours.
- ii) After transfer to the laying equipment, the material shall be maintained within the temperature range specified by the manufacturer for achieving the desired consistency for laying.

• **Properties of Finished Road Marking**

- i) The stripe shall not be slippery when wet.
- ii) The marking shall not lift from the pavement in freezing weather.
- iii) After application and proper drying, the stripe shall show no appreciable deformation or discolouration under traffic and under road temperatures upto 60°C.
- iv) The marking shall not deteriorate by contact with sodium chloride, calcium chloride or oil drippings from traffic.

The stripe or marking shall maintain its original dimensions and position. Cold ductility of the material shall be such as to permit normal movement with the road surface without chopping or cracking. (f) The





colour of White marking shall conform to IS Colour No. 356 as given in IS 164.

- **Application** Marking shall be done by fully /semi automatic paint applicator machine fitted with profile shoe, glass beads dispenser, propane tank heater and profile shoe heater, driven by experienced operator as specified in item. For locations where painting cannot be done by machine, approved manual methods shall be used with prior approval. The Concessionaire shall maintain control over traffic while painting operations are in progress so as to cause minimum inconvenience to traffic compatible with protecting the workmen. The thermoplastic material shall be applied hot either by screeding or extrusion process. After transfer to the laying apparatus, the material shall be laid at a temperature within the range specified by the manufacturer for the particular method of laying being used. The paint shall be applied using a screed or extrusion machine. The pavement temperature shall not be less than 10°C during application. All surfaces to be marked shall be thoroughly cleaned of all dust, dirt, grease, oil and all other foreign matter before application of the paint. Thermoplastic paint shall be applied in intermittent or continuous lines of uniform thickness of at least 2.5 mm unless specified otherwise. Where arrows or letters are to be provided, thermoplastic compound may be hand-sprayed. The minimum thickness specified is exclusive of surface applied glass beads. The finished lines shall be free from ruggedness on sides and ends and be parallel to the general alignment of the carriageway. The upper surface of the lines shall be level, uniform and free from streaks.

ii. **Sewer Lines including Chambers, Manholes, Gully Trap etc.**

The scope of work includes but not limited to the following:

- RCC NP2 class / PVC SWR pipes to achieve self cleaning velocity with R.C.C / Brick masonry Manholes. Manhole covers shall be of factory made ductile iron heavy duty covers (as per EN-124 Standards) complete as shown in drawings.
- Providing and fixing PVC SWR pipes, including all PVC fittings, including fixing the pipe with clamps at 1.00 m waste water lines. This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete.
- Discharge from Toilets shall be collected through underground pipe network of sewerage lines which preferably shall be running along the road (unless shown otherwise in the drawings). Sewer line shall be laid with required slope to attain the self cleaning velocity.
- Cement concrete pipes of class NP-2 as per IS: 458 shall be laid below ground as per IS: 783, for sewage disposal in all areas. Proper corrosion protection to the pipes shall also be provided as per requirement.
- RCC / Brick manholes with DI cover shall be provided at every 30m along the length, at connection points, and at every change of alignment, gradient or diameter of a sewer pipeline. Details of manholes shall be as per IS: 4111 (Part - I).

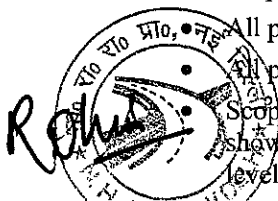
iii. **Water Supply & Distribution System:**

The scope of work includes but not limited to the following:

All pipes below ground - D.I. / G.I. / CPVC SDR II class I.S. 15778/2007.

All pipes above ground - G.I. / CPVC SDR II class I.S. 15778/2007.

Scope includes all control valves / chambers / pumps / tube wells complete as shown in drawings. All fixtures and fittings are CP Brass / PTMT. Terrace level Pressure pump of appropriate capacity to be provided to ensure the



required pressure at the far most tail of the line. Scope includes necessary provisions for hot water supply.

- Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete.
- Providing and fixing gun metal gate valve with C.I. wheel of approved quality.
- Providing and fixing gun metal non- return valve of approved quality.
- Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc.
- Constructing RCC / Masonry Chamber 30x30x50 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for stop cock, with C.I. surface box 100x100 x75 mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 ( 1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size ) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick, finished with a floating coat of neat cement complete.
- Constructing RCC / Masonry Chamber 60x60x75 cm inside, (or as shown in the drawings) in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep ( inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete.
- Providing and fixing C.I. double acting air valve of approved quality with bolts, nuts, rubber insertions etc. complete.
- Providing and fixing enclosed type water meter (bulk type) conforming to IS : 2373 and tested by Municipal Board complete with bolts, nuts, rubber insertions etc.
- Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc. complete.

iv. **Storm Water Drain with Gratings / Cover Slab:**

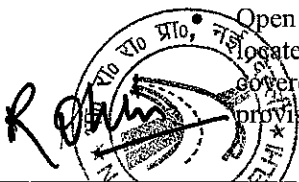
The scope of work includes but not limited to the following:

- Cover slab with D.I. gratings to be provided at road / driveway crossings.
- Storm water drains outside the premises shall be as per Statutory Norms / local bye-laws.
- All storm water drainage shall generally be through open drains with ductile iron gratings, however all plant effluent drainage shall be through separate buried concrete pipes unless otherwise shown in the drawings.

Open RCC rectangular section shall be provided for all drains. RCC drains located within and along both sides of peripheral roads of the area shall be covered with perforated precast RCC slabs of minimum 75mm thickness with provision of openable Ductile iron grill grating covers at about 4.0M intervals.



*Signature*



- Similarly, all artillery drains and the drains along the periphery of building shall also have perforated precast RCC covers of minimum 75 mm thickness with provision of openable Ductile iron grill grating covers at about 4.0 m intervals. In areas where vehicular loads would be applied, precast RCC covers of suitable thickness with / without perforations and designed for the vehicular loading shall be provided. The thickness of side walls and bottom slab of RCC drains shall be minimum as per design considerations. RCC box/pre-cast RCC pipe culverts shall be provided for road crossing. All drains in the site shall be provided with heavy duty ductile iron grill grating.

v. **External Electrical Works Including Street Light**

The scope of work includes but not limited to the following:

- L.T. Supply shall be received from the respective state electricity board and L.T. distribution will be carried out through 1.1 Kv. Grade armoured cables laid underground trenches upto the building from LT panel board. All electrical works shall be carried out as per CEIG/CEA and shall comply with the Indian Electricity Rules, 1956 as amended to date,
- Cable size shall be finalized considering 0.95 power factor and the voltage drop in the cables shall be within permissible limits as per NBC 2005. Suitable derating factor of the cable due to temperature rise and grouping of cables etc. shall also be considered for selection of cables.
- Electrical works shall deem to include 'Telephone and/or data points, associated cabling and ducting works.

**General:**

- i) All equipments and materials for electrical works shall be suitable for continuous operations on 415 V / 240 V  $\pm$  10% (3 Phase/Single Phase), 50 Hz. AC System. Where the use of high voltage equipments is specified in particular works, all the respective equipments shall be suitable for continuous operation on such specified high voltage.
- ii) All electrical works shall be carried out complying with the Indian Electrical Rules, 1956 as amended to date.
- iii) All parts of electrical works shall be carried out as per appropriate CPWD General specifications for Electricity works, namely, Part I (Internal) 1994, Part II (External) 1994 work, and Part IV (Sub-station), 1982 all as amended to date.
- iv) All materials and components used shall conform to the relevant IS specifications amended to date.
- v) All internal and external wiring shall be concealed

**Switch Boards**

- i) The main switch board shall be floor mounted, free standing cubical type and shall be factory built fabricated by one of the reputed switch board manufacturer. It shall be suitable for termination of the incoming cable(s) bus trunking from top/ bottom. The switchboards shall be wall mounted, or floor mounted as feasible at site. But they shall be cubical design, unless otherwise specified and open able from front.

The capacity of switch gear, starters etc. shall be suitable for the requirements of loads fed/controlled. Starting currents shall be duly considered in case of motor loads / equipments.

- iii) Switch boards controlling motors shall house starters for motors, unless otherwise specified. Independent single phasing preventers for each such starter shall be provided.
- iv) One volt meter with selector switch, a set of indicating lamps and fuses for voltmeters and lamps shall be provided at each switchboard. One ammeter with CTS, and selector switch shall be provided with each motor starter. Instruments shall be flush mounted with the panel and have a glass index not higher than 1.5. The instruments and accessories shall be provided whether or not specifically indicated.
- v) The layout of bus bars and cable alleys shall be designed for convenient connections and inter-connections with the various switchgears. Connections from individual compartments to cable alleys shall be such as not to shut down healthy circuits in the event of maintenance work becoming necessary on a defective circuit.
- vi) Care shall be taken to provide adequate clearances between phase bus bars as well as between phase bus bars, neutral and earth.
- vii) Where terminations are done on the bus bars by drilling holes therein, extra cross section shall be provided for the bus bars. Alternatively, terminations may be made by clamping.
- viii) Provision shall be made for proper termination of cables at the switchboards such that there is no strain either on the cables, or on the terminators. Cables connected to the upper tiers shall be duly clamped within the switchboard.
- ix) Identification labels shall be provided against each switchgear and starter compartment, using plastic engraved labels.
- x) Metallic danger board conforming to relevant IS shall be fixed on each electrical switchboard.
- xi) Switchboard housing only isolators near cooling towers shall be housed in weather proof enclosure, to suit the site conditions.

#### Power Cabling

- i) Unless otherwise specified, the power cables shall be XLPE insulated, PVC outer sheathed aluminium conductor, armoured cables rated for 1100 V grade. The power cables shall be of 3 core for single phase, 4 core for sizes upto and including 25 sq.mm, 3-1/2 core for sizes higher than 25 sq.mm for 3 phase. Where high voltage equipments are to be fed, the cables shall be rated for continuous operation at the voltages to suit the same.
- ii) Cables shall be laid directly in ground or clamped on structures, as may be required. Cable ducts shall not be provided in rooms.

#### Power Factor Capacitors

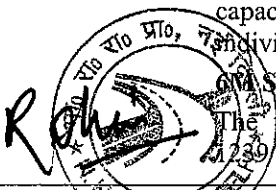
- i) PF capacitors shall be provided for all motor loads of 5 HP and above. These capacitors shall come into circuit when the respective motor load is switched on. For this purpose, necessary interconnections between the capacitors and the motors/starters shall be included.
- ii) The power capacitors shall be of such value as to improve the PF to 0.95 lagging when the motor is running at full load. In the case of large size motors, the capacitors may be made in suitable banks so that the required bank(s) of capacitors may be switched under partial load conditions. Such operations of individual banks shall be automatic.

#### Swaged Pole for Street Lighting:

The tubular pole made up of M.S pipe conforming to IS specification IS 1239 1973, with a bottom plate 450mm x 450mm x 10 mm thick and JB for



*Signature*



cable termination. Installation includes construction of required foundation. All poles shall be earthed properly. A Suitable base flange will be welded and plate reinforcements will be provided between base flange & pole. Lighting luminaries along with its control gear and lamp shall be aligned properly in order to ensure desired light distribution and to avoid glare. Fixing arrangements of luminaries shall be such that even during stormy weather conditions the fixtures shall not get misaligned. The typical arrangements for 6m street light pole are shown in Drawing No: 1695/IHMCL/C2/STD/ELE/112 - Typical street light pole arrangements.

vi. a) **Underground Sump / RCC water Retaining Structures**

The scope of work includes but not limited to the following:

- R.C.C. sump of required capacity as shown in the drawings. For sizes and design refer drawing no.1695/IHMCL/C2/STD/IWS/348g.
- Design, supply and installation of submersible pump sets 2 nos. (1 working + 1 Stand by) of 3 phase electric motor frame with coupling guard and it's fasteners for pumping water from bore well (capacity as per site conditions and yield of tube well)
- All RCC structure for water storage shall be as per latest IS 6494 - 1988 (reaffirmed 2010)
- The grade of concrete shall be of M30.
- If the sump is located at the parking area, the cover slab shall be designed to take care of heavy vehicle load (maximum).

**Testing:**

- The tank shall thereafter be got filled into the full height immediately and water stored for a minimum period of seven days so as to observe any leakages / defects for necessary compliance. In the case of tanks whose external faces are exposed, the requirements of the test shall be deemed to be satisfied if the external faces shown no sign of leakage and remain apparently dry over the period of observation of seven days after allowing a seven days period for absorption after filling the tank for full height. If the structure does not satisfy the conditions of test, the period of test shall be extended for a further period of seven days and if specified limit is then reached, the structure may be considered a satisfactory.
- In the case of tanks whose external faces are exposed or can be left exposed prior to testing all leakages, wet patches and the like, shall be marked out on the outside of walls during test. The tank shall then be dewatered and the defects made good by grouting, waterproofing, plastering etc. as necessary to the entire satisfaction. The tank shall again be tested for leakage after rectification. The work shall not be accepted unless the water tightness is established.
- Pressure grouting shall be carried out in the event of any leakages in the underground sump as well as in any RCC structure.

vi. b) **Fire Fighting:**

The design and planning of Fire Protection System shall be done keeping in view the following criteria:

- a) National Building Code Sept 2005: Part IV for Fire Protection
  - b) Local Bye-Laws and in consultation with local Chief Fire Officer.
  - c) Relevant BIS codes: Specifically IS: 3044, IS: 5290 and IS: 5312, IS: 908 and IS:2190, IS: 3844, IS: 15105., IS:15683
- MTPA & TAC Manual (for reference and guideline).



The scope of work includes but not limited to the following:

- Providing and fixing of 6Kg ABC Dry powder (Stored pressure) type fire extinguisher. Pressurized with dry nitrogen gas at 15 bar. Design, Construction, and testing as per IS15683 with fire rating 3A 21B, Body Hydro-tested at 35 bar, Operating temperature - 30°C to +55°C, external epoxy powder coating with PO red shade No.538 of IS 5, with standard accessories.

**vii. Signages:**

**a) External Signages**

- External signages shall include Building Signages (as per branding requirements)
- Other signages such as way finding signages, parking, prohibition signages etc. shall be generally as per standard drawings at locations required for proper movement of vehicles and pedestrians.
- Traffic signages inside the premises and along the approach roads shall comply to IRC / MoRTH Standards.

**b) Internal Signages**

As required for operations and branding: Prohibition signages are mandatory (No smoking / Non consumption of alcohol etc.)

Refer drawing no. 1695/IHMCL/C2/STD/AR/130.

**Signages**

**Supplying, providing and fixing of signages / Pictorial Signages for the wayside amenities as per standards and regular market practice.**

Providing and fixing of signages, modular curved frame technology, of various widths and lengths, to form suggested usages, made of aluminium extruded sections, duly anodized all signages shall be provided with 0.6-0.8mm polycarbonate protecting film over the prints, of appropriate size, Model : Illusion by SIGNSUTRA or Equivalent of approved make.

**a. Way finding Signs**

Ceiling direction sign board (300x1200mm)

Direction arrows (300x400mm)

• **Toilets**

Gents Wall Projected (both side) (210x250mm) Door plate (125x150mm) + a large picture for Man

Ladies Wall Projected (both side) (210x250mm) Door plate (125x150mm) + a large picture for Woman

Differently able Person Wall Projected (both side) (210x250mm) + a large picture Differently able Person Door plate (125x150mm)

• **Others**

• Door/ Wall mounted Signage's

• Drinking Water

• Electric / AHU rooms

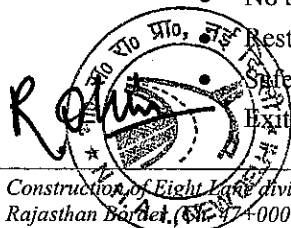
• **Prohibition Signage**

• No Smoking

• Restricted area-authorized personnel only

• Safety Notice- be kept clear to Emergency

• Exit Light with 2 Hr Backup (Exit)



- c) **Neon Signages**  
As required for operations and branding
- d) **Key Map Signages**  
As required for operations
- e) **Highway Way finding Signages on the Highway:-** Shall be provided at a distances of 1Km, 500m and 100m before the entry of the site on both sides of the project  
Design, construction and fabrication shall be in accordance with the standard drawings  
Refer drawing no. 1695/IHMCL/C2/STD/AR/132
- f) **Totem (Minimum 2 Nos for each site - LHS or RHS)**  
A minimum of one totem (main totem) shall be provided. Design, construction and fabrication and number of other Totems shall be in accordance with the standard drawings. Refer drawing no. 1695/IHMCL/C2/STD/AR/132
- g) **Front light Facia for Food Court & Dhaba**  
Shall be ACP of approved colour and shade with front lighting as shown in drawings.
- I. c. **Landscaping and Arboriculture (as per site specific and standard drawings)**

a) **Landscaping:**

**Soil Preparation & Planting:** Trenching in ordinary soil upto required depth as suggested for respective planting species and refilling the same pit with manure earth including all preparation and measures for plants like Groundcover (lawn), Shrubs, creepers, Climbers etc., with all leads and lifts.

Providing and planting Groundcover (lawn), Shrubs, Creepers, and Climbers etc., of suggested height and as per standard specification /- as per best market methodology. Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the standard ratio, flooding with water, dressing including removal of rubbish and surplus earth with all leads and lifts. Providing and planting of ornamental flowering & foliage trees as indicated height in the drawing. *Note: The plants and tree, species to be selected to suit respective Agro-climatic conditions.*

**Sprinkler System:** Proving, laying and testing of HDPE pipe lines of required dia. with PTMT self revolving type sprinkler fittings at appropriate fixed location to cover the entire landscaped area for water supply including all necessary tools and tackles. The water supply for the Arboriculture area may be taped from the recycled water from up flow anaerobic filtered water of septic tank.

**Landscaping and Area development**

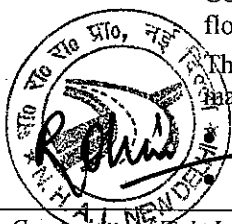
The landscaping and ground cover system having hard and soft treatment shall enhance the appearance of selected areas, enhance soil and slope stabilization on the generating station, and assisted in reducing the noise level and fugitive dust generated by the plant.

Comprehensive landscaping & area development shall be provided included flower bed for seasonal flower, water body and fountains for important area

The landscaping system shall include a routine maintenance program. Expected maintenance for the area shall be as follows:

Disease and insect control for plant material and turf.

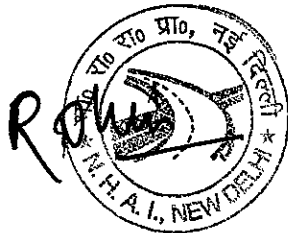
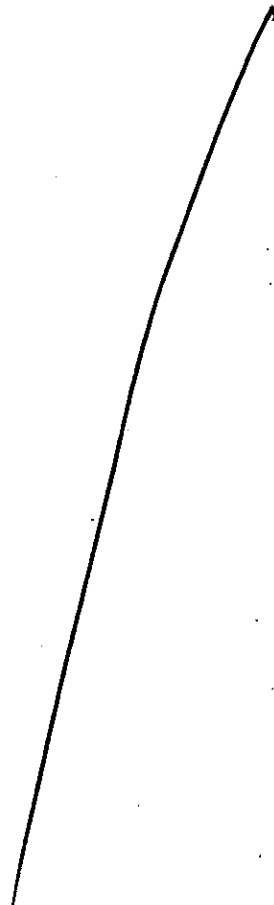
Weed control



- Fertilization
- Mowing and trimming
- Pruning
- Watering

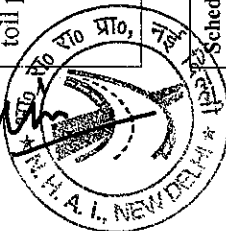
Landscaping and stabilization of the site should begin after excavation, trenching, backfilling, rough grading, surfacing and paving have been completed. Slopes of three-to-one (3:1) or steeper shall be stabilized as soon as possible after final grading.

b) Horticulture Operations/Arboriculture: -do-





II. Civil Works / Buildings:-	
Foundation	Design as per Geo Technical Investigation, Hard Soil: Isolated Footing/ Combined Footing. Clay soil: Raft Foundation/ Pile Foundation
Super Structure	1. Conventional / Pre Engineered Building/ Steel Structure / RCC Frame Structure with masonry Wall (Bricks min. designation clash 50 or CC blocks) 2. Brick masonry with cement mortar 1.6, internal plastering (12mm) 1:4, External plastering (18mm – 1 <sup>st</sup> layer 12mm 1:5, 2 <sup>nd</sup> Layer 6mm 1:3)
Slabs/ Roofing	Steel deck sheet with RCC screed/ Double skin steel roof with insulation (Clip-Lock System) without drilling
Anti-termite Treatment	Applicable for all buildings as per CPWD DSR code numbers



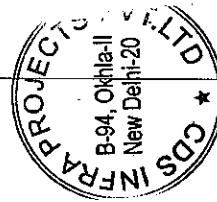
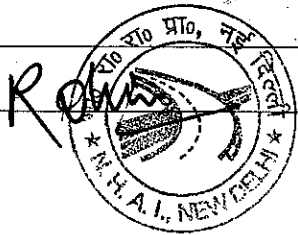
## Schedule of finishes / Service Areas and Toll plaza

S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior False Ceiling	
									Doors	Window & Ventilators		
1	FOOD PLAZA											
	Pantry		Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
	Toilet		Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high								



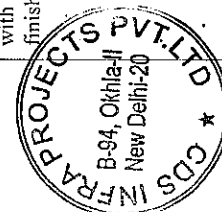
Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior Paints (outer surface of building).	Exterior False Ceiling
									Doors	Window & Ventilators		
	Restaurant, Departmental Store		Vitrified Tiles (600 X600 MM)	100mm High Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Mineral fibre ceiling/ Metal False ceiling/ Seamless gypsum board false ceiling with multi surface paint (Emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable	
	Shop, Kiosk		Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Mineral fibre ceiling/ Metal False ceiling/ Seamless gypsum board false ceiling with multi surface paint (Emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable	
	Open to Sky.		Red sand stone	100mm High Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Snowcem Paints (outer surface of building).	Not Applicable	



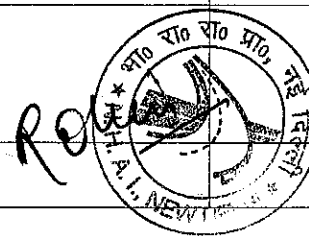
Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Kharpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharumala Pariyojana in the State of Haryana

Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Staircase	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material	Partition Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Mineral fibre False ceiling/ Metal False ceiling/ Seamless gypsum board false ceiling with multi surface paint (Emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Passage	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material	Partition Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Not Applicable	Not Applicable	Not Applicable	Not Applicable
2	TRAVEL INFORMATION & PASSENGER FACILITIES											
		Passenger Information	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material	Partition Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen,	Snowcem Paints (outer surface of building).	Not Applicable



Consent of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghatti to Haryana-Rajasthan Border. (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

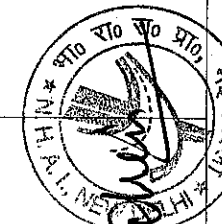
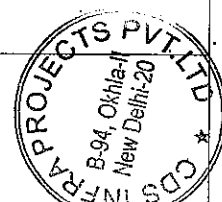
Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Travel Information	Vitrified Tiles (600 X600 MM)	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		TOILET	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		PASSAGE	Polished Kota Stone With	100mm High Skirting as per flooring material		20 mm thick polished Kota stone	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Not Applicable	Not Applicable	Not Applicable	Not Applicable



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

## Schedule of finishes\_ Way side Amenities / Service Areas and Toll plaza

S. No.	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
3	TOILET		White marble Strip			with edge finish	emulsion paint)	emulsion paint)				
	LADIES TOILET		Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
	GENTS TOILET		Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen,	Snowcem Paints (outer surface of building).	Not Applicable

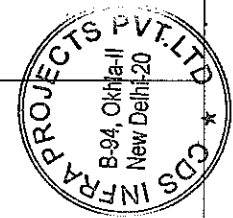


Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Yadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes - Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
4	<b>DORMITORY</b>											
	Toilet		Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC Joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
	Room		Polished Kota Stone With White marble Skirting	100mm High Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC Joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen,	Snowcem Paints (outer surface of building).	Not Applicable

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Yadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
5	MOTEL	Staircase	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Reception	Vitrified Tiles (600 X600 MM)	100mm High Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

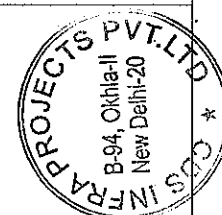
Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Rooms	Vitrified Tiles (600 X600 MM)	100mm High Skirting as per flooring material	Partition Walls as per	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill.	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Passage	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material	Partition Walls as per	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill.	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Dining	Marble	100mm High Skirting as per flooring material	Partition Walls as per	20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder	Snowcem Paints (outer surface of building).	Not Applicable

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Yadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmata Pariyojana in the State of Haryana



## Schedule of finishes\_ Way side Amenities / Service Areas and Toll plaza

S. No.	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
									Galvanized steel hollow metal door/rolling shutter with grill	coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)		
		Kitchen	Marble Stone	100mm High Skirting as per flooring material	20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Health Club	Marble Stone	100mm High Skirting as per flooring material	20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes - Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Shop	Marble Stone	100mm High Skirting as per flooring material		20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Toilet	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Staircase	Stone	100mm High Skirting as per flooring material		20 mm thick polished Kota stone	Multi surface paint	Multi surface paint	ABS (Acrylonite, Butadiene	UPVC joineries/ Steel roll	Snowcem Paints (outer	Not Applicable

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Kharpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
6	TRUMA		With White marble Strip			with edge finish	(plastic emulsion paint)	(plastic emulsion paint)	and Styrene smart Doors in wooden texture finish/Galva nized steel hollow metal door /rolling shutter with grill	formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	surface of building).	
	Reception	Marble Stone	Marble Stone	100mm High Skirting as per flooring material		20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicabl e
	O.T.			100mm High Skirting as per flooring material		20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture	UPVC joineries/ Steel roll formed sections made of Galvanized color coated	Snowcem Paints (outer surface of building).	Not Applicabl e

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
									finish/Galvanised steel hollow metal door/rolling shutter with grill	or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)		
	Doctors Room		Vitrified Tiles (600 X 600 MM)	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvanised steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Not Applicable
	Ward		Polished Kota Stone	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvanised steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Not Applicable

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

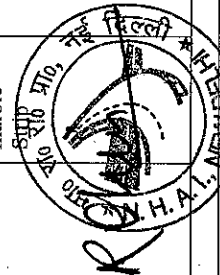
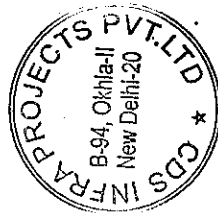
Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza													
S. No.	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling	
									Doors	Window & Ventilators			
										shutter with grill	mesh for kitchen, toilets and dormitory)	(M S grills and fly proof mesh for kitchen, toilets and dormitory)	
	Staircase		Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Not Applicable	
	Toilet		Ceramic Tiles (300 X300	Ceramic Tiles (300 X600mm) upto 2100 mm high	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with	Snowcem Paints (outer surface of building).	Not Applicable	

Construction of Eight Lane divided highway with skirting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) on the National Highway No. 152, Delhi - Yadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes - Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All SHI Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
7	FUEL PLAZA											
	Office		Ceramic Tiles (300 X300 MM)		Partition Walls upto 2100 mm high	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
	Toilet		Ceramic Tiles (300 X300 MM)		Ceramic Tiles (300 X600mm) upto 2100 mm high	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable

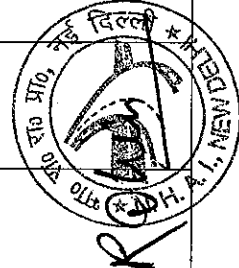
Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
8												
<b>SERVICE STATIONS &amp; REPAIR SHOPS</b>												
		Service Bay	Hardomite concrete flooring	100mm High Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Office	Polished Kota Stone With White marble	100mm High Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Kharpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes - Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Toilet	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
<b>9 HIGHWAY PETROLLING</b>												
		Parkings/ Generator/ Battery Rooms	Hardonite concrete flooring	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Offices/Kitchen/Pantry	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material	Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Toilet	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
10	SHOPPING/COMMUNICATION CENTRE	Shops	Polished Kota Stone With	100mm High Skirting as per flooring material		20 mm thick polished Kota stone	Multi surface paint (plastic)	Multi surface paint (plastic)	ABS (Acrylonite, Butadiene and Styrene) smart Doors	UPVC joineries/ Steel roll formed sections made of Galvanized	Snowcem Paints (outer surface of building).	Not Applicable

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharumala Pariyojana in the State of Haryana

CDSP INFRA PROJECTS PVT. LTD.  
B-94, Okhla-II  
New Delhi-20



*Signature*

Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
			White marble Strip			with edge finish	emulsion paint)	emulsion paint)	in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	surface of building).	
	Toilet		Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
11	<b>ELECTRICAL SUB STATION (ESS)</b>											
	HT Panel /LT Panel Room		Hardonite concrete flooring	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof	Snowcem Paints (outer surface of building).	Not Applicable

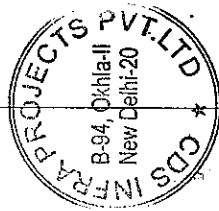
Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Yadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
										mesh for kitchen, toilets and dormitory)		
		HT T/R-1,2	Hardonite concrete flooring	100mm High Skirting as per flooring material		Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		DG SET-1,2	Hardonite concrete flooring	Not Applicable		Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Toilet	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
12	SPA	Reception	Marble Stone	100mm High Skirting as per flooring material		20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder	Snowcem Paints (outer surface of building).	Not Applicable

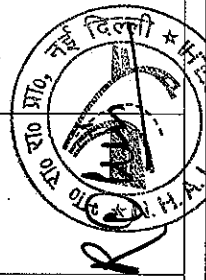


Construction of Eight Lane divided (4 lanes in each direction) Starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) Section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
									nized steel hollow metal door/rolling shutter with grill	coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)		
		Halls	Marble Stone	100mm High Skirting as per flooring material		20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Toilet	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof	Snowcem Paints (outer surface of building).	Not Applicable



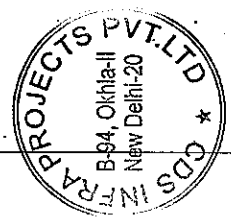
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Construction of Eight Lane divided Highway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Yadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

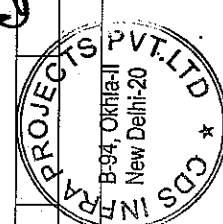
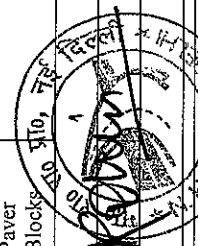
Schedule of finishes\_ Way side Amenities / Service Areas and Toll plaza

S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling	
									Doors	Window & Ventilators			
13	HEALTH												
		Reception	Marble Stone	100mm High Skirting as per flooring material		20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)		ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galva nized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Halls	Marble Stone	100mm High Skirting as per flooring material		20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)		ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza												
S. No.	Buildings Name	Area	Flooring	Wall skirting/ clado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
	Toilet		Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvanized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
14	<b>PETROL PUMP</b>											
	Petrol Pump		Heavy Duty Concrete Paver Blocks.	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	ACP Canopy
15	<b>PARKINGS</b>											
	Pavements (Parkings)		Heavy Duty Concrete Paver Blocks.	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
16	<b>INTERNAL ROADS</b>											
	Internal Road		Heavy Duty Concrete Paver Blocks.	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
17	<b>HELIPAD</b>											
	Internal Road		Heavy Duty Concrete Paver Blocks.	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable



Construction of Eight Lane divided carriageway alignment at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Yadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmata Pariyojana in the State of Haryana

Schedule of finishes_ Way side Amenities / Service Areas and Toll plaza											
S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior False Ceiling
									Doors	Window & Ventilators	
		Helpad									
18	<b>BOUNDARY WALL</b>										
		Boundary Wall/Barbed wire Fencing									

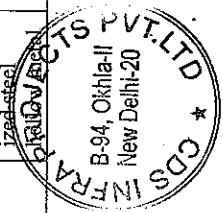
Schedule of finishes_ Smaller Parking places with Toilet Facilities Service Area											
S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior False Ceiling
									Doors	Window & Ventilators	
1.		Shop	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material	Partition Walls	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonitrile, Butadiene and Styrene) smart doors in wooden texture finish/Galvanized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building). Not Applicable
2.		Toilet	Tiles (300	Ceramic Tiles upto 2100 mm high	Partition Walls	20 mm thick polished	Multi surface	Multi surface	ABS (Acrylonitrile, Butadiene and Styrene) smart doors in wooden texture finish/Galvanized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building). Not Applicable

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Yadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharumala Pariyojana in the State of Haryana

Schedule of finishes_ Smaller Parking places with Toilet Facilities Service Area													
S. No.	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling	
									Doors	Window & Ventilators			
			X300 (MM)			Kota stone with edge finish	paint (plastic emulsion paint)	paint (plastic emulsion paint)		Doors e, Butadiene and Styrene smart Doors in wooden texture finish/Galvanized steel hollow metal door/rolling shutter with grill	Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	(outer surface of building).	

Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
1	FUEL STATION PLAZA	Office	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvanized steel	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with	Snowcem Paints (outer surface of building).	Not Applicable

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana





Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
									door/rolling shutter with grill	(M S grills and fly proof mesh for kitchen, toilets and dormitory)		
	Toilet		Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvanized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
2	<b>TRUMA CENTRE</b>											
			Marble Stone	100mm High Skirting as per flooring material		20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvanized steel hollow metal door/rolling	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills	Snowcem Paints (outer surface of building).	Not Applicable

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmata Pariyojana in the State of Haryana

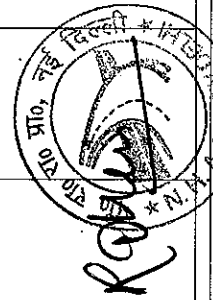
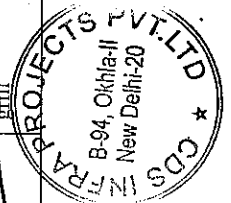


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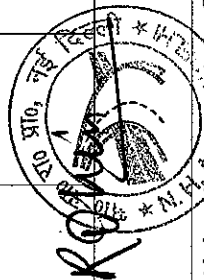


Schedule of finishes_ Service Areas for Truck Parking													
S. No	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling	
									Doors	Window & Ventilators			
		O.T.	Marble Stone	100mm High Skirting as per flooring material		20 mm thick polished Marble Stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	shutter with grill	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Doctors Room	Vitrified Tiles (600 X600 MM)	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	shutter with grill	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable

Construction of Eight Lane divided carriage way spanning at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

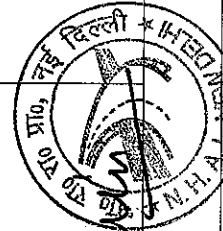


Schedule of finishes - Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Ward	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvanized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Staircase	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvanized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable



Construction of Eight Lane divided carriage way starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

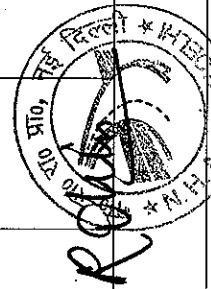
Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Toilet	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
3	<b>SHOPPING PLUS COMMUNICATION CENTRE</b>											
		Shops	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable



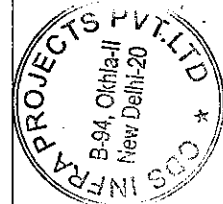
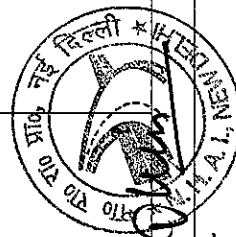
Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/ claddo	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Toilet	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
4	<b>SERVICE CENTRE &amp; MAINTENANCE WORKSHOP</b>											
		Repair, Maintenance & Washing Area	Hardomite concrete flooring	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvani zed steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable

Construction of Eight Lane divided carriageway skirting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

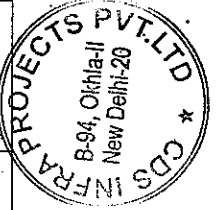


Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Spare PART Shop	Hardonite concrete flooring	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Toilet	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
5	DHABA-1											



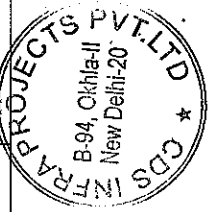
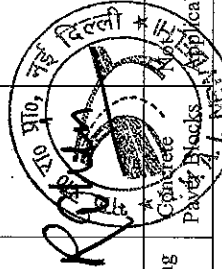
Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/ clado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Toilet with Bath	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Store	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Cooking Area	Polished Kota Stone	100mm High Skirting as per flooring material		20 mm thick	Multi surface paint	Multi surface paint	Multi surface paint (plastic)	UPVC joineries/	Snowcem Paints	Not Applicable



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

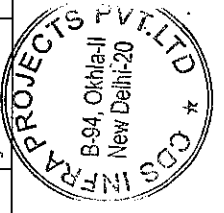
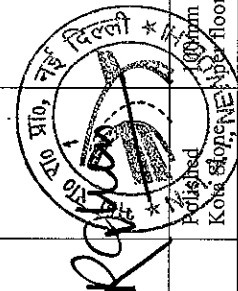
Schedule of finishes - Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
			With White marble Strip			polished Kota stone with edge finish	paint (plastic emulsion paint)	paint (plastic emulsion paint)	emulsion paint	Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	(outer surface of building).	
	Dinning Area		Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
	Cloth Drying Area			Concrete Paver Blocks			Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable



Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



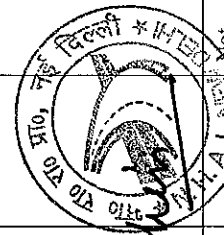
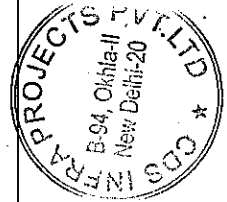
Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
6	DEHABA-2											
		Toilet with Bath	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Store	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Cooking Area	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick	Multi surface paint	Multi surface paint	Multi surface paint (plastic)	UPVC joineries/	Snowcem Paints	Not Applicable



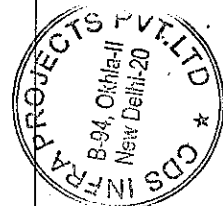
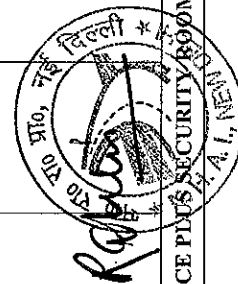
Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
			With White marble Strip			polished Kota stone with edge finish	paint (plastic emulsion paint)	paint (plastic emulsion paint)	emulsion paint	Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	(outer surface of building).	
		Dinning Area	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Cloth Drying Area	CONCRETE PAVER BLOCKS	Not Applicable		Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
7	<b>DORMITORY</b>											

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



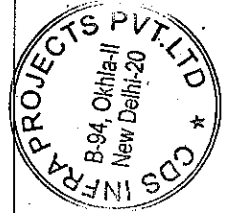
Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Rest Area	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, oillets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Toilet with Bath	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	Snowcem Paints (outer surface of building).	Not Applicable
8	MAINTENANCE OFFICE PLUS SECURITY ROOM											



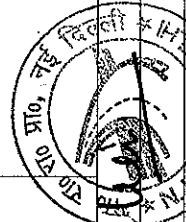
Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Office	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Toilet with Bath	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	Snowcem Paints (outer surface of building).	Not Applicable
9	SECURITY ROOM											

Construction of Eight Lane divided carriageway having an length of 7000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi-Jaipur Road at Adodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



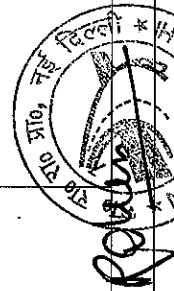
Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/ clado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		Office	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		Toilet with Bath	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvanized steel hollow metal door/rolling shutter with grill	Snowcem Paints (outer surface of building).	Not Applicable
10	SHED/DEAD STORAGE											



Construction of Eight Lane divided carriageway starting up to 7+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi-Vadodra Greenfield Alignment (NH-148N) on EPC Mode under Bharatmata Pariyojana in the State of Haryana

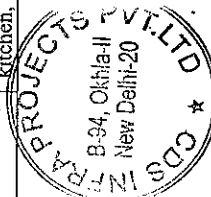
Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/ clado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		HALL	Hardonite concrete flooring	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowceem Paints (outer surface of building).	Not Applicable
11	<b>WASTE/GARBAGE DUMP &amp; TREATMENT AREA</b>											
		Hall	Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowceem Paints (outer surface of building).	Not Applicable
12	<b>ELECTRICAL SUB STATION</b>											

Construction of Eight Lane divided carriageway starting at Ch. 77+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi-Vadodra Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
		HT PANEL /LT PANEL ROOM	Hardomite concrete flooring	100mm High Skirting as per flooring material		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvanized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
		HT T/R-1,2	Hardomite concrete flooring	100mm High Skirting as per flooring material		Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		DG SET-1,2	Hardomite concrete flooring	Not Applicable		Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		TOILET	Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high		20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvanized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen,	Snowcem Paints (outer surface of building).	Not Applicable

Construction of Eight Lane divided carriageway starting at Ch. 7+800 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi-Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



## Schedule of finishes\_ Service Areas for Truck Parking

S. No	Buildings Name	Area	Flooring	Wall skirting/dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
13										toilets and dormitory)		
WATER RESERVOIR TANK												
DRINKING WATER KIOSK												
BORE WELL												
WEIGHING BRIDGE OFFICE												
	Room		Polished Kota Stone With White marble Strip	100mm High Skirting as per flooring material	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling shutter with grill	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills and fly proof mesh for kitchen, toilets and dormitory)	Snowcem Paints (outer surface of building).	Not Applicable
	Toilet		Ceramic Tiles (300 X300 MM)	Ceramic Tiles (300 X600mm) upto 2100 mm high	20 mm thick polished Kota stone with edge finish	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	Multi surface paint (plastic emulsion paint)	ABS (Acrylonite, Butadiene and Styrene) smart Doors in wooden texture finish/Galvan ized steel hollow metal door/rolling	UPVC joineries/ Steel roll formed sections made of Galvanized color coated or powder coated with (M S grills	Snowcem Paints (outer surface of building).	Not Applicable

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana





Schedule of finishes_ Service Areas for Truck Parking												
S. No	Buildings Name	Area	Flooring	Wall skirting/ dado	Partition Walls	All Sill Tops	Internal Painting	Ceiling	Joineries		Exterior	Exterior False Ceiling
									Doors	Window & Ventilators		
17									shutter with grill	and fly proof mesh for kitchen, toilets and dormitory)		
18												
<b>WEIGHING BRIDGE</b>												
<b>UNLOADING- PLATFOR</b>												
		Unloading Platform	Hardonite concrete flooring	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
19												
<b>PETROL PUMP</b>												
		petrol Pump	Heavy Duty Concrete Paver Blocks	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	ACP CANOPY
20												
<b>PARKINGS</b>												
		Pavements (Parkings)	Heavy Duty Concrete Paver Blocks	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
21												
<b>INTERNAL ROADS</b>												
		Internal Road										
22												
<b>BOUNDARY WALL</b>												
		Boundary Wall/Barbed Wire Fencing										



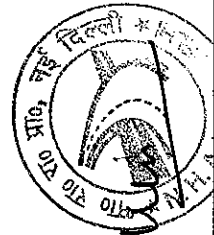
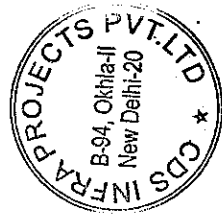
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Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmata Pariyojana in the State of Haryana

Colour Shades/ Finishing Schedule: for all the buildings	
<ol style="list-style-type: none"> <li>1. Polished Granite: Jeera White/ Imperial White/ Raw Silk for flooring and wall Cladding.</li> <li>2. Specifications superior to the above (Schedule of Finishes) may be considered subject to approval of the Authority.</li> </ol>	<ol style="list-style-type: none"> <li>3. Vitrified Tiles: Matt finish/ Glossy finish or combination of both</li> <li>4. Counter tops for wash basin / troughs: Blue Pearl – Polished Granite</li> <li>5. Colour scheme of all finishes shall be as approved by the Authority.</li> </ol>

*Loosda*



*Raj*

Construction of Eight Lane divided carriageway starting at Ch. 47+000-near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Yadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

**III. Furniture & Fixtures:**

1. Furniture and fittings and overall ambience shall generally conform to minimum Two Star category standards as stipulated by the Department of Tourism, Govt. of India (Except for Dhaba and Dormitory).
2. The number of chairs / Beds / Table etc., shall not be less than the capacity indicated in the relevant schedules. Mismatch of tables and chairs is not permitted. The condition and quality of materials used shall be suitable such that the furniture continues to be of meticulous condition, without evidence of any wear and tear.
3. Scope of work under furniture and fittings includes but not limited to the following:
  - i) Tables, luggage, beds, clothes storage, seating, etc.
  - ii) Soft furniture including, mattress, pillows, curtains, cushions etc.
  - iii) Fittings such as mirrors, light fittings, heating appliances, light shades etc.
4. Basic specifications for finishing schedule of furniture shall be as follows:

Food Court						
Counter Tops	Finished with polished Granite Slab (18mm thick) / Acrylic Polymer or similar materials.					
Restaurant Table	Table top with polished granite slabs or Acrylic polymer slabs or similar materials supported by stainless steel frame / pedestal or with similar materials.					
Chairs	Modular chairs with legs of stainless steel or similar materials.					
Conference Hall						
Conference Table	Polished fittings wooden sofas / veneer with top and bottom Melamine finish or Factory made modular conference table.					
Chairs	Revolving Chairs with arms					
Specialty Restaurant	Shall conform to minimum standards specified under the food court. However, a higher standard of furniture and fittings to match the branding standards of the operator is permitted.					
Rooms						
Rooms	The furniture for rooms shall include the following					
	Twin Bed (900x1800) Double Bed (1800x1800)	Mini Bar (800x600)	Writing Table (1200x600)	Luggage Rack	Easy Chair	Tables
	The finishing of the furniture shall be of laminate or veneer with Melamine polish.					
Dhaba / Dormitory						
Dhaba/Dormitory	As required for operations to suite local conditions.					

**IV. Equipments:****a) Special Items of Work:-****i. RO Water Plant**

The scope of work includes but not limited to the following:

- Design, supply, erection, commissioning and testing of water treatment plant (Reverse Osmosis) of capacity 4000 Lph (litres per hour) for required treated water quality confirming IS, including the cost of all necessary accessories, fittings etc., complete.

**Technical details:**

- FRP - Pressure sand filter with necessary fittings
- Antiscalent dosing system
- Complete set skid mounted RO plant of the said capacity and recovery system which shall consists of RO membranes, pressure vessels to house the membrane, micron cartridge filter, high pressure pumpsets and motor mounted in a skid etc, complete
- High pressure piping shall be in SS pipes and low pressure piping shall be in PVC pipes confirming to IS.
- Reject water disposal arrangements
- Water and electrical connection to the plant
- PH correction system
- Necessary civil works and piping works etc. complete

**Required Treated water quality**

- TDS: < 100 PPM
- Hardness: < 50 PPM

**ii. Rainwater Harvesting**

(as per standard drawing No. 1695/IHMCL/C2/STD/IWS/348d)

- Rainwater harvesting to be carried out as per drawings and / or as per statutory requirements. Scope includes
  - Trench without Recharge well, or
  - Trench with Recharge well
- Permission to install various Artificial Recharge structures and Recharge wells is governed by the prevailing rules and laws in the area.

**a. Trench without Recharge well**

Roof Top Area (Sq. m)	Highest Rainfall intensity (mtr/hr)	Run-off Coefficient	Run off / hr (cu.m)	Annual Runoff (cu.m)	Size of recharge Structure (mtr)
a	b	c	d (aXbXc)	e (aX0.54Xc)	LXBXH
100	0.025	0.8	2.0	43.20	1.2X1.2X1.4
200	0.025	0.8	4.0	86.40	1.8X1.5X1.5
300	0.025	0.8	6.0	129.6	2.4X1.8X1.4
400	0.025	0.8	8.0	172.8	2.7X2.1X1.4
500	0.025	0.8	10.0	216	3.3X2.1X1.5

**Points to be taken into consideration for implementation of the above**

structures  
 for buildings without basements (Cellar) and for areas for alluvial formation where ground water level is more than 5 meter upto 15 meter below ground level.  
 buildings with basements should adopt rain water harvesting through storage tank

- Only the rain water from the roof top area has to be diverted to recharge structure through connection of down pipe.
- Before the onset of the monsoon all the catchment area (roof top) considered for recharge is to be cleaned. The recharge structures are to be in operation during the monsoon season only so as to avoid any contamination.
- A mesh should be provided at the roof so that leaves or any other solid waste/debris is prevented from entering the pit. By-pass arrangement be provided before the collection chamber to reject the first showers.
- The depth of the inlet pipe should be within 10 cm below ground level for easy overflow through outlet pipe that has to be connected to storm water drain.
- Based on site condition length and breadth of the recharge chamber may be altered keepings its volumetric capacity the same.
- RCC slab thickness and reinforcement shall be dependent on structural loads. Access manhole frame and covers to be provided.
- Filter media of 1.0 meter thick will be in three layers comprising of 0.4 meter thick layer of boulders (5-20cm) at the bottom, 0.3 meter thick layer of gravels (5-10cm) in the middle and 0.3 meter thick layer of coarse sand (1.5-2.0mm) at the top so that the silt content that will come with runoff will be deposited on the top and can easily be removed.
- A 10 cm thick layer of pea gravels will be provided over the coarse sand layer of the filter media.
- Prior to monsoon season the top most sand layer in the pit may be scrapped and replaces with the fresh and cleaned coarse sand. 11. Recharge chambers shall be checked and cleaned at 7 days interval or more frequently during rainy season.
- Recharge chambers shall be checked and cleaned at 7 days interval or more frequently during rainy season.

**b. Trench with Recharge well**

Roof Top Area (Sq. m)	Highest Rainfall intensity (mtr/hr)	Run-off Coefficient	Run off / hr (cu.m)	Annual Runoff (cu.m)	Size of recharge Structure (mtr)
a	b	c	d (aXbXc)	e (aX0.54Xc)	LXBXH
100	0.025	0.8	2.0	43.20	1.0X0.5X0.5
200	0.025	0.8	4.0	86.40	1.0X1.0X1.0
300	0.025	0.8	6.0	129.6	1.0X1.0X1.0
400	0.025	0.8	8.0	172.8	1.0X1.0X1.0
500	0.025	0.8	10.0	216	2.0X1.5X1.0

**Points to be taken into consideration for implementation of the above structures:**

- Valid for all buildings and for both alluvial and hard rock formation where ground water level is more than 15 meter below ground level.

Only the rain water from the roof top area has to be diverted to recharge structure through connection of down pipe.

Before the onset of the monsoon all the catchment area (roof top) considered for recharge is to be cleaned. The recharge structures are to be in operation during the monsoon season only so as to avoid any contamination.

- A mesh should be provided at the roof so that leaves or any other solid waste/debris is prevented from entering the pit. By-pass arrangement be provided before the collection chamber to reject the first showers.
- The depth of the inlet pipe should be within 10 cm below ground level for easy overflow through outlet pipe that has to be connected to storm water drain.
- Based on site condition length and breadth of the recharge chamber may be altered keeping its volumetric capacity the same.
- RCC slab thickness and reinforcement shall be dependent on structural loads. Access manhole frame and covers to be provided.
- Filter media of 1.0 meter thick will be in three layers comprising of 0.4 meter thick layer of boulders (5-20cm) at the bottom, 0.3 meter thick layer of gravels (5-10cm) in the middle and 0.3 meter thick layer of coarse sand (1.5-2.0mm) at the top so that the silt content that will come with runoff will be deposited on the top and can easily be removed.
- A 10 cm thick layer of pea gravels will be provided over the coarse sand layer of the filter media.
- Prior to monsoon season the top most sand layer in the pit may be scrapped and replaces with the fresh and cleaned coarse sand.
- Recharge chambers shall be checked and cleaned at 7 days interval or more frequently during rainy season.
- Depth of the recharge wells should be kept 2to 3 meter above post monsoon water level and the slotted pipe must be placed against the granular (Sandy or Fracture) zone.
- On non-acceptance of water by the recharge well, the same may be cleaned using air compressor.

**iii. Septic Tank & Soak Pit with Anaerobic Filter:**

The scope of work includes but not limited to the following:

- Up-flow anaerobic filter type septic tank shall be provided. For sizes and design of septic tank refer drawing no: 1695/IHMCL/C2/STD/IWS/348h.
- Anaerobic filtered water may be recycled for watering of Arboriculture area.
- Construction of septic tank & soak pit for required capacity as per IS 2470 Part-I 1985 (As per drawing).

**iv. Tube wells & pumps including overhead water tank and sump:**

The scope of work includes but not limited to the following:

- Identification of points for drilling as recommended by authorised / certified agencies.
- Providing and constructing bore well of 165mm dia & 75 m depth / actual as per site condition including providing and fixing PVC casing pipes of approved quality 165mm dia including accessories, labour tools and required equipment etc., complete.
- Providing and fixing 160mm dia PVC casing pipes Confirming to IS in bore well to a required depth etc., complete.
- Testing of water samples as per standard norms.
- Providing and fixing heavy duty clamp of size 900mmx100mmx15mm with bolts and nuts etc. complete

Providing and fixing top cap of PVC Dummy (Heavy Duty) suitable for 165mm dia nominal bore PVC pipe etc. complete.

- Design, supply and installation of submersible pump sets of 3 phase electric motor, frame with coupling guard and it's fasteners for pumping water from bore well.

v. **CCTV & Security System:-**

- Design, Supply, Testing & Commissioning of Closed Circuit Television System (CCTV system) shall be provided an on-line display of video images on monitor including Digital Video Recorder (DVR) of suitable storage capacity for recording and play back. Cameras with suitable lenses shall be used to view specific areas of interest. Cameras shall be capability of delivering High Speed Motion JPEG images with Pan/Tilt/Zoom facilities including night vision and infrared provisions. The primary objective of implementing a CCTV system is to ensure effective surveillance of the area and also create a record for post event analysis. The following table lists the minimum requirements.

S. No.	Description	unit	Location	Minimum Numbers		
				(Type-I) - Comprehensive Wayside Amenities	(Type-II) - Wayside Amenities for Car & Bus users including fuel station	(Type-III) - Wayside Amenities for Truck users including fuel station
<b>Supply, Installation, Testing Commissioning of CCTV System comprising of following:</b>						
1	1/4" Sony or similar Equivalent high performance CCD, Capable of operation at resolution of 500 TVL high resolution; True day/night, 3D intelligent positioning function, Powerful PTZ control, Programmable alarm triggering, 10x optical zoom & upto 12 Mtr coverage with wall or ceiling mount accessories as per specification.	Nos.	Public waiting area/stair case /exit	8	6	2
2	<b>Vari-focal Dome Camera</b>					
	1/3" Sony or similar Equivalent CCD 650 TVL high resolution Super low illumination	Nos.	Entrance/ Exit of Food court, Dhaba, Branded	4	3	1

	<ul style="list-style-type: none"> <li>• True day / night</li> <li>• Smart IR</li> <li>• 3-axis adjustment</li> </ul>		Restaurant etc.,			
3	<b>650TVL IR Bullet Camera</b>					
	1/3" Sony or similar Equivalent EXVIEW HAD CCD II • 650 TVL high resolution <ul style="list-style-type: none"> <li>• Up to 110m IR range</li> <li>• Super low illumination,</li> <li>• Day / night auto switch • IP66 rating</li> </ul>	Nos.	Parking area/ compound wall/ fencing	3	2	2
4	Supply and laying of RG 6 Co axial Multistranded PVC insulated Cable in 1"-2mm thick FRLS PVC conduit in wall or ceiling etc. including associated civil works	mtr		as per site conditions	as per site conditions	as per site conditions
5	Supply and laying of 2 Core x 1.0 Sq.mm, CU Multistranded PVC insulated Cable (for camera power) in 1"-2mm thick FRLS PVC conduit in wall or ceiling etc. including associated civil works	mtr		as per site conditions	as per site conditions	as per site conditions
6	Supply, Installation Testing & Commissioning of 32" LED Monitor	Nos.	control room / receipt counter	3	2	1
	Power Supply with Input 230VAC +/- 10% Output 12V +/- 5V, load regulation & line regulation less than 0.1% Electronic	each		15	11	5

Construction of ~~the~~ one divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



	protection against overload & short circuit, output ripple less than 1 milli volt RMS, with <b>Redundacy mode facility. 10 Amps output</b>					
8	SITC of 16 Channel Networkable Digital Video Recorder with HDD to hold 60 days of video storage at minimum 2 CIF resolution and 4 FPS capable of 2 TB storages as per tender specification	Nos.	control room / receipt counter	3	2	1

vi. **Electrical substation / Transformer / Panel Board / Earth pit / LT Switch Board / Panel Boards**

The scope of work includes but not limited to the following:

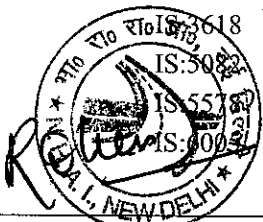
**LT Switch Board/Panel Boards**

- This specification covers the technical requirements for Design, Engineering, Manufacture, Testing at manufacture works of 433 V LV Panel complete with all accessories for efficient and trouble-free operation. The LT panel with metering arrangements shall be erected along the wall/compound wall as shown in the drawing No.:1695/IHMCL/C2/STD/ELE/118

**Standards**

- The equipment covered by this specification shall, unless otherwise stated, be designed, constructed and tested in accordance with the latest revisions of relevant Indian Standards and shall conform to the regulations of Local Statutory Authorities.

IS:722	A.C. electricity meters
IS:732	Code of practice for Electrical wiring installation
IS:375	Marking and arrangement for switchgear busbar main connections and auxiliary wiring
IS:1248	Direct acting electrical indicating instruments.
IS:13947	LV Switchgear and Control Gear.
IS: 2705	Current Transformers.
IS: 2824	Method for determining the comparative tracking index of solid insulating materials under moist' conditions.
IS:3156	Voltage transformers
IS:3231	Electrical relays for power system protection.
IS:5082	Phosphate treatment of iron and steel for protection against corrosion
IS:5578	Material data for aluminium bus bars.
IS:6003	Guide for marking of insulated conductor.
	Code of practice of Phosphating of iron and steel.



*Corporate*



IS:8623	Specification for factory Built assemblies for Voltages upto 1000V A.C. and 1200V D.C.
IS:4237	General requirement of switchgear and control gear for voltage not exceeding 1000V
IS:2959	AC Contactors for voltage not exceeding 1000V.
BS:162	Specification for Electric Power Switchgear and Associated apparatus.
IS:2834	Capacitors
IS:1353	Guide for uniform system marking and identification of conductors and apparatus terminals.
IS:13703	Low voltage fuses.
IS:13947	LV Switchgear and control gear

**General**

- The panel shall be factory built assembly, metal-enclosed, free standing, compartmentalized, modular type Main MV panel (form 4B) and Sub Panels (Form 4A) suitable for indoor installation. The panel shall be dust and vermin proof and the enclosure shall provide a degree of protection of not less than IP-42/44. The panel shall be of uniform height not exceeding 2200mm. The fabrication shall be rigid, robust, flaw less and shall have a smooth finish.
- The board shall be fabricated out of sheet steel of not less than 2.0mm thickness. The internal partition shall be 1.6mm thick.
- The panel shall be extendable on either side by the addition of a module. It shall be possible to extend the switch board irrespective of the type of end panel. The busbars shall be suitably drilled for future extension.
- Incomers and outgoing feeders shall be provided with their own separate modules having separate doors, isolating switch of each units shall be mechanically interlocked with its respective doors. Knob type screws shall be provided for securing the doors.
- The Number of Modules in one vertical panel shall not exceed six.
- All doors shall be provided with concealed hinges.
- All identical cover plates shall be interchangeable.
- The rear cover shall be Bolted type. No Hinged Door is acceptable.
- Each cable chamber shall have cable entry from top / bottom and suitable removable Aluminium gland plates shall be provided for this purpose. The cable chamber shall be provided with suitable supporting arrangement between the gland plate and terminals, in the middle.
- All feeder terminals shall be segregated fully and efficiently, using SMC / DMC / FRP Shroudes such that it shall be possible to work on one set of terminals when the other feeders are live.
- Due consideration shall be given to the following during design of the Switchgear Panel and locating the various components viz. Circuit Breakers, Instruments & Relays, Busbar and secondary wiring.
- Facility for inspection, maintenance & repair
- Minimum vibration and Noise
- Risk of accidental short circuit, open circuit and damage to personnel due to accidental contact with live parts.
- Inter changeability of Components
- Secure and vibration proof connection for power and control circuit
- Shrouding of all live parts in feeder component and cable chamber.



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- All retaining catches, screws and bolts for doors and covers shall be zinc passivated. Screws and bolts shall be captive. All covers, doors and joints shall be gasketed.
- Equipment to be mounted outside cubicles shall be flush mounted on cubicle door. No externally mounted equipment shall be mounted above 1.9m or below 0.4m from floor level. The panel shall be fabricated in suitable transport sections and assembled on rolled steel channel box frames, to form a continuous flush fronted switchboard.
- All components like ACB/MCCB/ Contactor shall be of same make & shall be suitably rated to achieve type - 2 co-ordination.
- Main Distribution Board shall be provided with Voltage Surge Devices and current related arc protection devices.

#### Busbars

- The busbars shall be air insulated and made up of high conductivity, electrolytic Aluminium.
- All busbars shall be fully screened by means of PVC sleeves in their own compartment running throughout the length of the panel both vertical as well as horizontal and also suitable allowance shall be made for bus expansion. Suitable segregation shall be provided in between busbar chamber and adjoining compartments.
- The busbars shall be 0.7 Amps per Sq mm. of TPN with Neutral Bus being half the size of phase busbar.
- The busbar shall be PVC sleeved with colour strips of red, yellow, blue and black and the same shall be arranged in accordance with IS-375.
- The busbar shall be properly segregated, suitably braced with insulated supports (SMC) placed at appropriate intervals to withstand the electro magnetic stresses during short circuit.
- Minimum electrical clearances shall be maintained between phase, neutral and body as per standards.
- The insulation used shall be non - hygroscopic and shall be treated for preventing fungus growth. The main incoming busbars shall be brought up to the top rear busduct flange and shall be provided with necessary drilled holes for fixing the fish plates for connection to the busbars of the busduct.

#### Interconnection

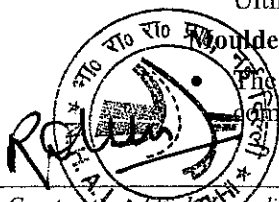
- The interconnections of all the phases between the busbars and the incoming side of the switch control shall be inaccessible when the doors of the controls are opened.
- For each and every tappings from the busbars, separate connections shall be made.
- No direct tappings from the busbar shall be made for any feeder without control and protection. All interconnections shall be by rigid busbars only. Wherever lugs are used for terminations of rigid busbars, it shall be soldered and not crimped.

#### Breaking Capacity

- The circuit breaker shall have minimum service breaking capacity (Ics) equal to Ultimate breaking capacity (ICU)

#### Enclosed Case Circuit Breaker

The MCCB shall conform to IS:13947 / IEC947 in all respects. The MCCB shall comprise of switching mechanism, contact system, arc extinguishing device, all



mounted in a moulded case, made of high strength heat resistant and flame retardant thermosetting insulating material.

- MCCB shall employ quick make and quick break switching mechanism independent of the speed of operation of the operating handle. The operating mechanism shall be trip free. The operating handle shall indicate the position of the MCCB in ON / OFF / TRIPPED. The operating handle shall have provision for door interlock and padlocking.
- The MCCB shall be provided with micro Processor based relay suitable for short circuit and overload and earth fault protection.
- The over load protection shall be field settable. MCCB shall be suitable for horizontal and vertical mounting and with line load reversibility. All MCCB shall be of current limiting type.
- MCCB shall be provided with RS 485 ports for Communication.
- MCCB in Main Panel shall be CAT B Type and Sub Panels shall be CAT A Type.

#### Indicating Lamps

- Indicating lamps shall be LED type.

#### Measuring Instruments

- Measuring instrument shall be of digital type with LED Display, they shall be capable of carrying the normal full load current (via CTs) and shall not be damaged by effects of rated fault current. The instruments shall have an accuracy class of 1.0 as per IS - 1248.

#### Control Wiring

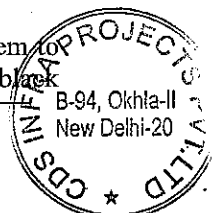
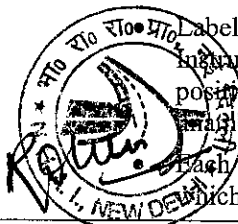
- Panel shall be supplied with all internal wiring comprising of PVC insulated 1.1 KV grade, multi stranded flexible copper conductor of 2.5sqmm wire shall be used for current element & 1.5sqmm wires shall be used for voltage elements.
- Wiring associated with a particular phase shall be the colour of that phase viz. Red / Yellow, or Blue, wiring associated with earthing shall be with green colour insulation and for neutral it shall be with black colour insulation.
- Wiring shall be neatly laid and run on insulated cleats of limited compression type insulated straps.
- All cables shall have crimped terminations and shall be identified by means of glossy plastic ferrules at both ends, showing the wire number as indicated in the schematic diagrams. The ferrules shall be indelibly marked.
- Wiring to items mounted on hinged doors or wiring that is subject to movement, shall run in helical binding. The binding shall be securely anchored at both ends and sufficient slack provided to prevent any strain being imposed on wiring.

#### Terminal Block

- Terminal blocks shall preferably be grouped according to circuit functions and each terminal block group shall have at least 30% spare terminals. Terminal blocks for control circuit shall be of 650V grade with contact ratings not less than 10A and stud type.
- Not more than two wires shall be connected to any terminal block. Labels

Labels shall be provided to describe the duty of or otherwise identify every instrument, or other item of equipment mounted internally and externally. Switch positions shall be fully identified. Wording shall be clear, concise and unambiguous.

Each labels shall be permanently secured to the panel surface below the item to which it refers. The labels shall be engraved in plastic with white letters in black



background. In addition to component labels, each cubicle door shall bear a large identification labels and the panel shall include large, prominent overall identification label.

#### Painting

- Care shall be taken in workmanship and selection of materials to prevent the occurrence of any form of damage or corrosion due to damp or humid conditions.
- The Board shall be prepared, primed, filled and painted to the highest standards.
- All items shall be cleaned and deburred, after fabrication and welding is completed. External surfaces shall be filled and rubbed down as necessary to obtain a perfectly flat smooth surface, free from blemishes and imperfections.
- The painting process shall be using a seven tank phosphating system with primer coating within 4 hours of phosphating and two coats of Epoxy Powder Coating.
- The paint shall not rust especially in corners and holes. Mention colour RAL-7032 or else.

#### Tests

- The panel shall be completely assembled, wired, adjusted and tested for operation under simulated conditions to ensure accuracy of wiring, correctness of control scheme and proper functioning of all equipment.

#### Routine Tests

- The Vendor shall offer the panel for inspection and the following routine test shall be conducted during the inspection.
  1. Mechanical operation test
  2. Dielectric tests
  3. Physical check & dimension check megger test
- The typical LT panel/feeder pillar is shown in Drg.No: 1695/ IHMCL/ C2/STD /ELE/113 for typical Feeder pillar layout

#### Earth pit Arrangements

- All electrical equipments shall be erected as per CEIG/CEA regulations and IS standards. The LT panel board and DG set body earth shall be pipe earth and the neutral of the DG set to be connected with Plate earth as shown in standard Drg. No: 1695/ IHMCL/ C2/STD /ELE/111 for pipe earthing, Drg. No.1695/IHMCL/C2/STD/ELE/117 for plate earthing, Drg. No. 1695/IHMCL/C2/STD/ELE/116 for typical Grid earthing.

#### vii. Trenches/Ducts for UG cables / Pipe line

The scope of work includes but not limited to the following:

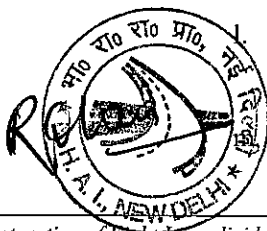
- Designing and construction of Trenches / Ducts as per Architectural and other service requirements including Earthwork excavation, concreting, Brickwork (or) RCC concrete walls to required width and depth, covering with suitable RCC cover slabs for driveway and non-driveway areas etc., complete. The Ducts / Trenches shall contain suitable fixtures, like angles, holdfasts etc, to run the cables & pipes lines etc., complete as per standard specifications and as per drawings No: Drg.No: 1695/IHMCL/C2/STD/ELE/115 - Cable Trench / cable laying details.

#### viii. DG Set(s)

This Specification covers the technical requirements of design, supply, testing and manufacture works, packing, forwarding with transit insurance, unloading at site, storage at provided space, Installation, testing and commissioning of 100% capacity Silent Power Diesel Generator (acoustic enclosure) complete with AMF panel and all accessories for efficient and trouble - free operation.

as per CEIG/CEA regulation and IS specification. No DG set is envisaged for Village Hatt/Gram Bazaar.

- **Capacity:** The capacity and arrangement of DG set(s) shall be as shown in the site specific project drawings.
  - **Standards:**
    - The Equipment covered by this specification shall , unless otherwise stated , be designed constructed and tested in accordance with latest revision of relevant Indian Standards and shall conform to the regulations of local statutory Authorities.
      - > IS 3046: Engine
      - > IS 10000/10002: Diesel Engine
      - > IS 8528: Alternator
      - > IS 13364 (Part II): Alternator self regulated
      - > IS 8528-4 -> Generator Controller
  - **General requirements:**
    - All installations shall comply with the requirement of Indian electricity rules, 1956 as amended up to date. In case of items not covered by the above specification, the work shall be carried out.
    - **The following works shall be deemed to be included in their project cost whether specifically indicated in the schedule of work or not: -**
      - a. Diesel engine & Alternator of required capacity complete with all accessories.
      - b. Necessary battery for starting including connected cable work.
      - c. Necessary cable work between control panel and the alternator both for power and control as per site requirement
      - d. Necessary earthing comprising of earth electrodes, neutral earthing, earth bar and loop earthing etc., as per schedule.
      - e. Duct for hot air from radiator wherever required
      - f. Alternator to develop specified capacity under the site conditions at 0.8 P.F with an output voltage of 415 +/-5% 3phase 4 wire system
      - g. Providing and installation of sound proof enclosure for controlling noise level of the D.G.Set within the parameters laid down by the Central/State Pollution Control Boards. (As per latest amendments)
      - h. Foundations for equipment including vibration isolation spring / pads,
      - i. Making good all damages caused to the existing structure during installation and restoring the same to their original finish.
      - j. Minor building works necessary for installation of equipments, foundation trench for fuel line & cable, making of opening in walls or in floors and restoring them to their original condition / finish and necessary grouting etc. as required.
      - k. All supports for exhaust & water pipes, chimney, bus trunking (if required), cables, anti- vibration pads etc. as are necessary.
- All electrical work and neutral earthing, body earthing, required for engine & alternator, main board/control panels, and control wiring including loop earthing, as required to complete the works requirement.
- All pipes, bus trunking and/or cable connections.



- n. POL i.e. HSD oil and lub. oil for diesel engine for testing & commissioning and for trial run as per conditions of the contract
- o. Painting of all exposed metal surfaces of equipments and components with appropriate colour.
- p. Clearance/Approval of the complete installation from CPCB/State Pollution Control Board/Central Electricity Authority (CEA)/Local Bodies and other licensing authorities, wherever required.
- q. The exhaust pipe system shall be cladding as per CPCB/State Pollution Control Board

All DG sets will be tested on load of unity power factor for the rated KW rating. During testing, each of the D.G. sets covered under scope of work, shall be operated for a period of 12 hours on the rated KW at DG set's KW rating including one hour on 10% overload after continuous run of the 12 Hours. During testing all controls/operations safeties will be checked and proper record will be maintained. Any defect/abnormality noticed during testing shall be rectified.

**a) Trial Run/Running-in-Period**

After successful testing of the DG Set, a trial run at available load will be carried out for 120 Hours or 15 Days whichever is earlier. The DG Set will be operated and a log of all relevant parameters will be maintained during this period. The arrangement of staff for trial run / running in period will be made at site by the successful tenderer. However, diesel shall be provided by client. The agency will be free to carry out necessary adjustments. The DG Set will be said to have successfully completed the trial run, if no break down or abnormal/ unsatisfactory operation of any component of the entire installation included in the scope of work of the contract, occurs during this period. After this the DG Set will be made available for beneficial use. After the DG Set has operated without any major break down/ trouble, it shall be taken over by the department subject to guarantee clause of this contract. This date of taking over of the DG Set, after trouble free operation during the trial run/running-in period, shall be consider as the date of acceptance / taking over for further correspondence.

**b) Safety measures**

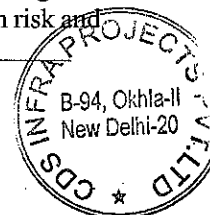
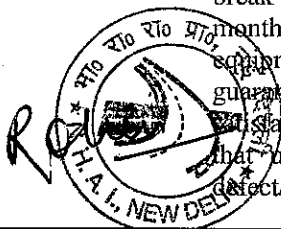
All equipments shall incorporate suitable safety provisions to ensure safety of the operating personnel as per manufacturers' standard practice.

• **Statutory Clearance(S)**

Approval / clearance of the complete installation shall be obtained by the Concessionaire from CPCB/ State pollution Control Boards/ Local Bodies/ Central Electricity Authority (CEA)/ other licensing authorities wherever required. However, application shall be made by Authority / Concessionaire and any statutory fee, as applicable, shall be paid by client & Contactor directly to the govt. authorities concerned.

• **Guarantee**

All equipments shall be guaranteed, against unsatisfactory performance and/or break down due to defective design, workmanship or material, for a period of 12 months from the date of taking over the installation by the client & Contactor. The equipments or components, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost, to the satisfaction of the Independent Engineer./ Authority. In case it is felt by the client that undue delay is being caused by the Concessionaire in attending the defect/fault, the same will be carried out by the Concessionaire at the own risk and



cost of the same shall be levied by the Concessionaire. The decision of the Independent Engineer / Authority in this regard shall be final.

- **Drawings for Approval & Completion Drawings**

- **(i) Drawings for approval on award of the work**

The following drawings to be prepared and get them approved from the Independent Engineer / Authority before the start of the work. The approval of drawings how ever does not absolve the Concessionaire not to supply the equipments/ materials as per agreement, if there is any contradiction between the approved drawings and agreement.

- a) Lay out drawings of the equipments to be installed including control cables, fuel/lube oil pipes and supports /structure for exhaust piping, Chimney and bus ducts/cable trays.
- b) Drawings including section, showing the details of erection of entire equipments.
- c) Electrical wiring diagrams from engine-alternator set to Electrical control panel, Electrical control panel to essential LT board including the sizes and capacities of the various electrical/control cables and equipments.
- d) Dimensioned drawings of Acoustic enclosure/ Engine- Alternator set and Electrical control panel.
- e) Test certificate issued by competent authority in respect of COP for engine & noise level for enclosure and type test certificates of DG set.
- f) Drawings showing details of supports for pipes, chimney cable trays, ducts etc.
- g) Any other drawings relevant to the work.
- h) DG set installation drawings giving complete details of all the equipments, including their foundations.
- i) Line diagram and layout of all electrical control/AMF panels giving switchgear ratings and their disposition, cable feeder sizes and their layout.
- j) Control wiring drawings with all control components and sequence of operations to explain the operation of control circuits in AMF panel/PCC.
- k) Manufacturer's technical catalogues of all equipments and accessories.
- l) Operation and maintenance manual of all major equipments, detailing all adjustments, operation and maintenance procedure.

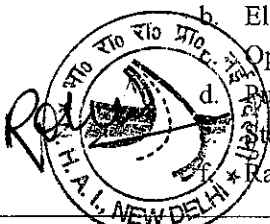
**DG Set, Acoustic Enclosure and Generator Control Panel shall be procured from OEM / OEA only**

- **Factory Test**

A. Standard factory tests shall be performed on the equipment provided under this section. The neutral ground resistor shall conform to IEEE Standard 32-1972.

- **Additional Requirement for Diesel Generator**

- i) The Diesel Generator Shall be with **CPCB-II Approved Acoustic enclosure** comprising of radiator cooled , Diesel Engine at 1500 RPM complete with following,
  - a. PT Fuel Pump
  - b. Electrical Step Timing Control (ESTC) injector.
  - c. Optimized Turbocharger.
  - d. Pulse tuned exhaust manifold.
  - e. Stainless steel exhaust flexible connection.
  - f. Radiator or Heat Exchanger.



*Corporate*





- g. Plate Type lube oil cooler.
- h. Spin – on filters-Fuel, Lube oil and by- Pass.
- i. Dry type replaceable paper element air cleaner with restriction indicator.
- j. Flywheel housing and flywheel to suit single bearing alternator.
- k. Starting Motor –Electric, Battery charging alternator.
- l. First fill lube oil and coolant.
- ii) The Brushless alternator shall be comprising,
  - a. Self-Excited ,Self regulated
  - b. Class 'H' insulation
  - c. Salient pole revolving field
  - d. Automatic voltage regulator
- iii) The accessories shall be comprising,
  - a. Silencer suitability optimized to meet stringent sound emission standard as laid down by MOEF / CPCB
  - b. Base rail with integral fuel tank is provided with a drain Plug, air vent, inlet and outlet connections ,Level indicator , Man hole etc.
  - c. Sub-Base Fuel tank of 700 liters capacity.
  - d. 2 x 12 V dry, uncharged batteries with connecting leads and terminals.
- iv) The control panel is manufacture with 14/16 gauge CRCA sheet and is Powder Coated for weather –Proof and Long lasting finish and the control Panel consisting the following,
  - a. PC 1.2 Controllers
  - b. Aluminium Bus bar with suitable current carrying capacity with In /Out going terminals.
  - c. Instrument fuses duly wired and ferruled.
  - d. MCCB of Suitable rating with overload and circuit protections.

• **Technical Requirement for Diesel Generator**

**Diesel engine:**

Diesel engine rated at 1500 RPM, air cooled, four strokes, electric start, conforming to BS: 5514 with capacity of 10% over loading for one hour in twelve hours duration having following accessories as scope of supply:

**Air Intake System**

- Air intake manifold.
- Dry type Air cleaner.

**Exhaust System**

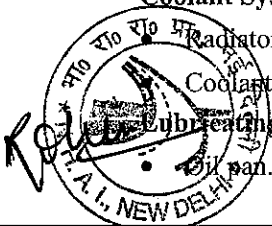
- Turbocharger.
- Flexible connection.
- Exhaust manifold.
- Exhaust silencer.

**Coolant System**

- Radiator.
- Coolant additive concentrate.

**Lubricating System**

- Oil pan.



*Corpale*



- Engine mounted lube oil pump.
- Lube oil filter.

**Fuel System**

- Inline fuel system with Mechanical Governor.
- 12V DC solenoid coil.
- Spin-on fuel filter.

**Starting System**

- 12V DC electric starter.
- 12V DC battery charging.

**ix. Entertainment - Satellite TV & Wi-Fi****Wi-Fi System**

The scope of work includes but not limited to the following:

**A) Wireless Hardware Controller:**

- Supply installation testing and commissioning of Wireless Hardware Controller should have minimum 1 nos. of Gigabit Ethernet Ports (GBIC or SFP) and console port which includes Rack mountable 1U height
- Each controller (primary and Redundant) should be ready for 5 Access points and should be scalable up to 15 Access Points with support for seamless roaming access across all connected Access Points.,

**B) Indoor / outdoor access points:**

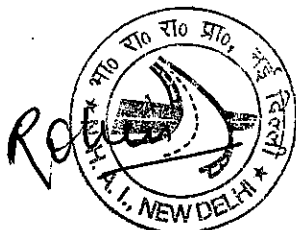
- Supply installation testing and commissioning of centrally managed Indoor/outdoor access points, Access points should be dual-band 2.4 GHz & 5Ghz concurrent users with 802.11 a/b/g/n capability and Access Points should be able to handle a minimum of 15% concurrent usage of the total seating capacity (Restaurant + Food Court + Dhaba) of the Wayside Amenities and more would be preferred, Access points shall include Power adaptors.
- Access points operating Frequency shall follow the standards of IEEE 802.11n: 2.4 – 2.484 GHz and 5.15 - 5.85 GHz, IEEE 802.11a: 5.15 – 5.85 GHz, IEEE 802.11b: 2.4 – 2.484 GHz.
- Access Points should preferably support Dual Polarized internal antennas.
- The access point should support following security mechanism: WEP, WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i.

**x. Shading Devices**

As required for operations.

(For certain openings / areas requiring protection from sun/rain.

Shading devices include Awnings, Tension structures, etc.,)



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**xi. Outdoor Furniture**

1. Outdoor seating: as required for operations

- (a) Enchant Bench / Poise Bench / Siamese Bench / Jazz Bench : BuildIndia / Arihant or similar equivalents from other brands.

2. Dust bins: as required for operations

- (b) Poubelle Bin / SS dust bin / Aluminum Dust Bin : BuildIndia / Arihant or similar equivalents from other brands.

**xii. Children Play Area Developments:**

- Children Play Area Shall be provided as ear marked in the drawings.
- Surface shall be country grass & sand cushion as required.
- The following minimum Outdoor play equipments shall be provided:

1. Garden Multiplay System/ Multi-Activity Play System : Raj Equipment (India) Pvt. Ltd. / Kalia Recreations / BuildIndia / Arihant or similar equivalents from other brands.
2. Multi-Line Swing / Swings : Raj Equipment (India) Pvt. Ltd. / Kalia Recreations / BuildIndia / Arihant or similar equivalents from other brands.
3. Boat Shape See Saw / See-Saw : Raj Equipment (India) Pvt. Ltd. / Kalia Recreations / BuildIndia / Arihant or similar equivalents from other brands.
4. Snake Climber / Scramblers : Raj Equipment (India) Pvt. Ltd. / Kalia Recreations / BuildIndia / Arihant or similar equivalents from other brands.
5. Chair Merry Go Round / Merry Go Round : Raj Equipment (India) Pvt. Ltd. / Kalia Recreations / BuildIndia / Arihant or similar equivalents from other brands.
6. Playground Slide / Slides : Raj Equipment (India) Pvt. Ltd. / Kalia Recreations / BuildIndia / Arihant or similar equivalents from other brands.
7. Cast Iron Park Bench / Bench - 2 Nos. : Raj Equipment (India) Pvt. Ltd. / Kalia Recreations / BuildIndia / Arihant or similar equivalents from other brands.

**xiii. Digital Display Wall system**

Supply, installation, testing, commissioning of digital display system comprising the following,

**A) P10 mm OUTDOOR FULL COLOUR LED VIDEO WALL:**

To provide High professional Full HD display and provision of Vertical and Horizontal orientation of LED display board of minimum Display Size 2.0x3.0m and module size 160x160mm or 320x160mm along with customize display software and controller.

Specification of P10MM Outdoor LED Video Wall

**P10 Full Color LED VIDED WALL**

Item	Unit	Parameter
Pixel Pitch	mm	10.00
Pixel Density	dots/sqm	10,000
Resolution of Module	dots	16*16
Module Size	mm	160*160 (DR) 320*160
Led Package	DIP Oval 346 lamp (DR) SMD.	
Pixel Configuration	IRIGIB	
Chip Brand of LEDs	Epistar/Cree/Nichia	
Cabinet Weight	kgs/pc	20 (Approx.)
Brightness (White Balance)	nits(cd/sq.m)	7000
Red Wavelength	nm	620-625
Green Wavelength	nm	520-525
Blue Wavelength	nm	470-475
Scan Mode	¼ Scan	
View Distance	M	5~100
Best View Distance	M	12.5~33
Viewing Angle-Horizontal	deg.	110
Viewing Angle-Vertical	deg.	60
Module Maximum Power	W	33.4
Max. Power Consumption	W/sq.m	700
Avg. Power Consumption	W/sq.m	380
Working Voltage	5V	
Power Supply	AC 220V	
Waterproof Grade	IP65	
Refresh Rate	Hz/S	3,000
Frame Rate	Hz/S	≥ 60
Gray Scale	4096 grades gray	
Display Color	256*256*256	
Display Function	Text, news, advertising, flash, animation	
Input Signal	RF,S-Video, RGB,RGBHV, YUV, YC, SDI, HDS □ □ DVI,UXGA, COMPOSITION, etc	

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 77+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Defective Dot Rate		<0.0001
Life Span	hours	100,000
MTBF	hours	>10,000
Storage Temperature	°C	-35 -- +80
Working Temperature	°C	-20 -- +80
Working Humidity	10% - 90% RH	
Control System	Synchronization or A synchronization	
Warranty	2 years	
Working Environment	Outdoor	
Other Features	LED & ICs in Departed PCB	

**B) Fixing and installation of the display boards:**

- Physically fixing and erecting all LED displays on the ground at multiple locations (outdoor) with a pole height of about min.4 m above the ground. Location area will be made available at drawing. This work should include civil works-earth pit, foundation structure, super structure for digital display and earthing. Unit poles should be well painted for rust free and good shining color preferably silver.

**C) Display and Media Software, Servers and Networking:**

- Main Display control Server /PC (along with 1 standby as mirror image) with required customized software to capture data from FTP /AQMS server, process and then display remotely in all indoor and outdoor display boards, development of Web portal, content development and SMS-alert service to mobile.

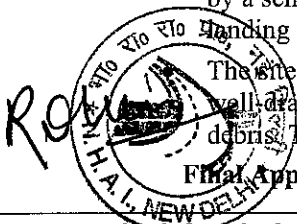
**xiv. Advertisement Balloon**

- Sky balloon round shape with vinyl stick printing, 100 feet rope one time hydrogen filling with erection & transportation.
- Size 4.57m sphere shape, PVC tubing.
- As per drawing (No.1695/IHMCL/C2/STD/AR/133) with logo as required for operations and branding

**xv. Helipad:**

- Helipad is envisaged in limited locations where feasible as shown in drawings.
- The proposed Helipad is designed for temporary operations with overall maximum dimension Helicopter - Bell 407 of size in accordance with Civil Aviation Requirements Section 4 - Aerodrome standards & Air traffic services, Series 'B' Part - II, 21<sup>st</sup> December, 2005 (Minimum safety requirement for temporary Helicopter Landing Areas).
- Heliport or helicopter sites are not required to be licensed unless they are to be used by a schedule transport service and/or for public transportation involving series of landing and/or hire and reward.

The site to be used for temporary helicopter operations should be a level piece of well-drained ground, either good grass or solid surface free from loose stones, debris. The Final Approach and Take off Area should be obstruction free.

**Final Approach and Take-off area (FATO)**

- The minimum dimensions of the FATO shall be 1.5 A x 1.5 A, where A equals the maximum overall length of the helicopter used. This area shall be without obstructions. The surface shall be suitable for forced landings and free from loose objects, which may endanger the safe performance of the flight.

**Safety Area**

- The Take-off and landing area should be surrounded by a safety area, the width of which should not be less than 10m. Within the safety area no obstacle must be higher than 1m. The surface shall be suitable for any forced landings, if required.

**Approach and Take off climb surface**

- An Approach and Take-off climb surface in an inclined plane sloping upwards (8%) from the end of the safety area and centered on a line passing through the centre of the FATO, should be available for a distance of at least 245 meters.
- The Approach and take-off climb surface should comprise:
  - a) An inner edge horizontal and equal in length to the minimum specified width of the FATO plus the safety area, perpendicular to the center line of the take-off climb surface and located at the outer edge of the safety area; and
  - b) Two side edges originating at the ends of the inner edge and diverging uniformly at a specified rate of 10% from the vertical plane containing the centre line of the FATO.
- At least one 12 kg powder (DCP) fire extinguisher shall be available at the landing / take-off area, clearly marked and situated so that it can be used quickly in case of fire. A first aid box shall be placed within easy reach and clearly marked. The box shall be maintained in accordance with the instructions and its contents shall be supplemented whenever used.
- The planting of trees, landscaping and maintenance shall generally conform to Civil Aviation Requirements Section 4 - Aerodrome standards & Air traffic services, Series 'B' Part - II, 21st December, 2005 or any amendments issued (Minimum safety requirement for temporary Helicopter Landing Areas).
- The Helipad shall be as per drawing no.1695/IHMCL/C2/STD/AR/138.

**xvi. Solar Power Panel**

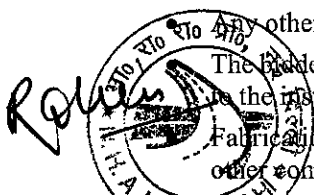
The scope of work includes but not limited to the following:

- The capacity of solar power panel shall be as shown in the drawings and as per technical specifications.
- Supply of the complete systems, including all necessary components, sub components, spares, tools etc. as per technical specifications given elsewhere in this document.
- Erection and commissioning of the supplied systems on the specified site.
- Providing the control room near the building along with necessary partition
- Providing pedestals it required for mounting of the PCU'S and control panels
- Water pump with shed along with full GI C class piping as per IS 1239 for water supply for panels cleaning and washing along with water discharge piping.
- All structural drawings to be got approved from authority.

any other work urgently required as per site conditions.

The bidder must also provide a detailed operation and maintenance manual specific to the installed systems.

Fabrications, supply and the installation of suitable support for the PV panels and other components whichever is required with the accessories.



- Civil work (grouting) for PV structure.
- SPV Power plant shall be installed as per the specifications provided in the technical offer.
- Provide sealed & tested energy meter at consumption side & generation side of SPV Power Plant.
- Provide solar module with laminated plate inside the module showing name/ logo of manufacturer, model no. and serial no. along with RFID.
- Transmission and Distribution line up to VCB. It shall be the responsibility of the tenderer to provide distribution system.
- Supply of manual for Operation and Maintenance of all the system in English.
- Supply and installation of control equipments required for the system.
- Training to the user for operation and maintenance of the system after three year.
- Any additional works not covered above, but necessary for the functioning of the system and required as per specifications incorporated.
- Regarding cabling work (external & internal) & construction of control room, the tenderer is required to visit the site and as per actual site conditions quote (including drawing & design) accordingly.
- The grid supply connection would be provided with auto change over.
- All cabling and load connections should be carried by the tenderer with proper synergy with the existing electrical systems of SU.
- The tenderer shall install LED lights only wherever to be installed, for lighting of the project area/ cabins.
- The tenderer will provide a minimum of 3 number of LED signages powered by Solar

**Warranty/guarantee:**

- The entire solar power plant should consist of...
  - a) The mechanical structures, electrical works including power conditioners with built in charge controllers, maximum power point tracker, distribution boards/digital meters / switchgear / transformer etc. and overall workmanship of the SPV power plant/system must be warranted against any manufacturing / design / installation defects for a minimum period of 5 years from the date of commissioning and handing over to SU.
  - b) The PV modules used in solar power plant / system must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years from the date of commissioning and handing over to SU.
- Further, a comprehensive maintenance of the GISPVs for Five years from the date of completion of Warranty period is also required. The prices for the same shall also be indicated in the bid with unit rate of each system/unit. The bidder shall have an established service setup.
- The scope of work under warranty and maintenance periods includes supply of all required spares necessary for smooth operation of the system. List of minimum tools and tackles proposed to be kept at site by the vendor during warranty and maintenance period shall be indicated in the bid.

**Completeness of Equipment**

All the fittings and accessories that might not have been mentioned specifically in the specification / tender but are required for the installation and commissioning of

the plant shall be deemed to be included in the specification and shall be supplied and furnished by the Concessionaire without any extra charge.

- The Concessionaire shall furnish following details in their technical bids:
  - a) The details of manufacturer from where the Concessionaire procures solar PV modules.
  - b) The Type of PV/PCU/Transformer/VCB proposed and their make.

#### Codes and Standards

- All Equipment and accessories shall comply with the requirement of standards published by Bureau of Indian Standards (BIS). In case no BIS code exists the equipments shall meet the requirement of international standard including IEC/IEEE for design and installation of grid connected PV system. The list of standards adopted shall be indicated in the bid.
- The SPV Module must be provided with acceptable Test & Certified documents.
- The quality of equipment supplied shall be generally controlled to meet the guidelines for engineering design included in the standards and codes listed in the relevant IEC and other standards, such as:

Component	Standard description	Standard Number
Solar PV modules	Photovoltaic (PV) modules – Design qualification and type approval	IEC : 61646
Power Conditioning Unit including Inverter	Efficiency Measurements Environment Testing	IEC 61683 IEC 60068 2 (6,21,27,30,75,78)
Charge controller/MPPT units	Design Qualification Environmental Testing	IEC 62093 IEC 60068 2 (6,21,27,30,75,78)
String Monitoring Box 22 in 1 out	IP 65, Ambient Temperature, Max Altitude from sea level	EN: 60529 -20°C to +55°C and 1800M
Cables	General Test and Measuring Methods PVC insulated cables for working Voltages up to and including 1100 V- Do-, UV resistant for outdoor installation	IEC 60189 IS 694/ IS 1554 IS/ IEC 69947
Transformer(405V-405V/11KV)	Constructed, IP-55 protection and tested	IS1180/IEC/BIS Standards.
Switches/ Circuit Breakers/ Connectors	General Requirements Connectors- Safety	IS/ IEC 60947 part I, II, III EN 50521
Junction Boxes/ Enclosures	General Requirements	IP 65 (for outdoor) IP 21/42 (for indoor)
PV system Design	PV Stand-alone System design verification	IEC 62124



Installation Practices	Electrical installation of buildings Requirements for SPV power supply systems	IE 60364-7-712
	Recommended practice for utility interface of residential and intermediate PV systems	IEEE 929
	Guide for harmonic control and reactive compensation of Static Power Controllers.	IEEE 519
	Requirements for construction, testing and safety qualification	IEC 61730 part-1& Part-2
	Basic environmental testing Procedure for Electronic and electrical items	IS 9000
	Recommended Criteria for terrestrial PV power systems	IEEE 928
	Measurement of Photovoltaic current-Voltage Characteristic	IEC: 60904-1
	Photovoltaic system performance monitoring, measurement.	IEC: 61724
	Testing of modules to be used in a highly corrosive environment.	IEC 61701
	Standard for Safety for Flat-Plate Photovoltaic Modules	ANSI UL 1703

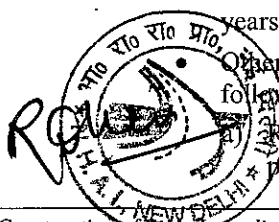
- The bidders shall provide a sample copy of the type of test certificates/reports with the bid.
- Pre dispatch factory inspection (Factory Acceptance Test) shall be arranged by vendor. The test certificates/reports for equipment to be submitted.

#### Solar Photovoltaic Modules

- The total solar PV array capacity should not be less than 200Wp. The module type must be qualified as per IEC 61215 latest editions for multi - crystalline silicon SPV module conversion efficiency should be equal to or greater than 15% under STC. Modules must qualify to IEC61646/IEC 61730 Part I and II for safety qualification testing. Certificate for module qualification from IEC or equivalent to be submitted as part of the bid offer. Self undertaking from manufacturer / supplier that the modules being supplied are as per above.
- The PV module shall perform satisfactorily in humidity up to 100% with temperature between -40oC to +85oC. Since the modules would be used in a high voltage circuit, the high voltage insulation test shall be carried out on each module and a test certificate to that effect provided.
- The predicted electrical degradation of power generated not exceeding 20% of the minimum rated power over the 25 year period and not more than 10% after ten years period of the full rated original output (As per MNRE Standards).

Other general requirement for the PV modules and subsystems shall be the following

Raw materials(solar Cells) and technology employed in the module production processes shall have to be certified and a certificate giving details of major



*Aspale*



- materials i.e. cells, Glass, back sheet, their makes and data sheets to be submitted for the modules being supplied by the bidder.
- The rated output power of any supplied module shall have tolerance of +/- 4.99% as per MNRE standard specs.
  - The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary more than 2 (two) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be. The rated power of the module specified in "watt Peak" under STC may not have any negative tolerance.
  - Except where specified, the front module surface shall consist of impact resistant, low-iron and high-transmission toughened glass.
  - The module frame, if any, shall be made of a corrosion-resistant material which shall be electrolytically compatible with the structural material used for mounting the modules.
  - The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP65/IP67 rated.

#### Inverter - power conditioning unit (pcu).

- The stacks of redundant inverters with total equivalent capacity of 75Wp are required. Technical data sheet of the inverter proposed for the project indicating operating modes, protection, efficiency etc. should be provided

#### Common Technical Specification:

Control Type	: Voltage Source, Microprocessor assisted, output regulation
Output Voltage	: 1 Phase, 200 V /220 V AC
Frequency	: 50 Hz
Continuous rating	: 300VA Inverter at 25°C - to suit site condition
DC Link Voltage range	: 0 to 850 V
Power factor	: 1
Standard Conformation	: IEC 61683
Total Harmonic Distortion	: Less than 3%
Operating temperature Range	: -25° to 62°C
Housing cabinet	: PCU to be housed in suitable switch cabinet, Within IP 54 degree of ingress protection
PCU Efficiency	: 98.6 % and above at full load.
Power Control	: MPPT
Communication	: RS 485

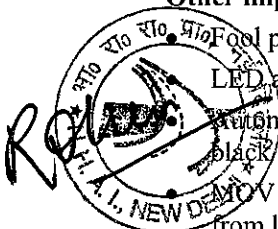
#### Other important Features/Protections required in the PCU:

• Flood proof protection against Islanding.

• LED and piezoelectric keypad operator interface Menu driven

• Automatic fault conditions reset for all parameters like voltage, frequency and/or black/out.

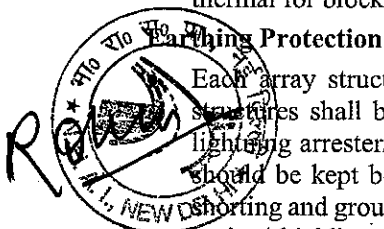
• 10kV type surge arresters on AC and DC terminals for over voltage protection from lightning-induced surges as per IEC 62305-1.



- PCU should be rated to operate at 0 - 62 deg. Centigrade unless provision for air conditioning is included in PCU
- All parameters should be accessible through an industrial standard communication link.

#### Electrical safety, earthing and protection

- Internal Faults: In built protection for internal faults including excess temperature, commutation failure, and overload and cooling fan failure (if fitted) is obligatory.
- Galvanic Isolation: Galvanic Isolation is required to avoid any DC component being injected into the grid and the potential for AC components appearing at the array.
- Over Voltage Protection: Over Voltage Protection against atmospheric lightning discharge to the PV array is required. Protection is to be provided against voltage fluctuations in the grid itself and internal faults in the power conditioner, operational errors and switching transients.
- Earth fault supervision: An integrated earth fault device shall have to be provided to detect eventual earth fault on DC side and shall send message to the supervisory system.
- Cabling practice: Cable connections must be made using PVC Cu cables, as per BIS standards. All cable connections must be made using suitable terminations for effective contact. The PVC Cu cables must be run in GL trays with covers for protection.
- Fast acting semiconductor type current limiting fuses at the main bus-bar to protect from the grid short circuit contribution.
- All exposed surfaces of ferrous parts shall be thoroughly cleaned, primed, and painted or otherwise suitably protected to survive a nominal 30 years design life of the unit.
- The PCU enclosure shall be weatherproof and capable of surviving climatic changes and should keep the PCU intact under all conditions in the room where it will be housed. The inverter shall be located indoor and should be either wall / pad mounted. Moisture condensation and entry of rodents and insects shall be prevented in the PCU enclosure.
- Components and circuit boards mounted inside the enclosures shall be clearly identified with appropriate permanent designations, which shall also serve to identify the items on the supplied drawings.
- All doors, covers, panels and cable exits shall be gasket or otherwise designed to limit the entry of dust and moisture. All doors shall be equipped with locks. All openings shall be provided with grills or screens with openings no larger than 0.95 cm. (about 3x8 inch).
- In the design and fabrication of the PCU the site temperature (-25° to 62°C), incident sunlight and the effect of ambient temperature on component life shall be considered carefully. Similar consideration shall be given to the heat sinking and thermal for blocking diodes and similar components.



#### Earthing Protection

Each array structure of the PV yard should be grounded properly. The array structures shall be connected to earth pits as per IS Standards. In addition the lightning arrester/masts should also be provided inside the array field. Provision should be kept for lightning arrester/masts should also be provided inside the array field. Provision should be kept for shorting and grounding of the PV array at the time of maintenance work. All metal casing/shielding of the plant should be thoroughly grounded in accordance with

*Capak*



Indian electricity Act./IE Rules. Earth resistance should be tested in presence of the representative of PMC/Client after earthing by calibrated earth tester. PCU ACDB & DCDB should be earthed properly.

**xvii. Hoarding Board (Minimum 2 Nos for each site - LHS or RHS) .**

The scope of work includes but not limited to the following:

- Pre fabricated steel structure at all elevations for hoarding boards (double side - 6.00 x 1.80m) using structural steel sections ISMB/ISMC conforming to IS 2062, using 20SWG plain GI sheet with cutting, welding or bolting, including painting with two coats of synthetic enamel paint 1st quality over two coats of zinc phosphate primer after necessary surface preparation using wire brush and sand paper with necessary earth work, PCC 1:3:6 Mix, RCC 1:1.5:3 Mix using 20mm metal including reinforcement, formwork etc as per drawing No: 1695/IHMCL/C2/STD/AR/137 & 137a

**xviii. High Mast Lamp & Lightning Arrester**

The scope of work includes but not limited to the following:

- This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding of 17m High Mast with 12 nos of LED IP 65 floodlight as per standard drawing.

**Application standards:**

- The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian, International standards and shall confirm to the regulations of the local authorities.
  - a) IS 875 (Part III) 1987 (Code and practices for design loads for structures).
  - b) IS 2062 : 2006 (Hot rolled low, medium and high Tensile structural steel)
  - c) BSEN 10025/DIN 17100 (Grades of MS plates)
  - d) BSEN 60529 (Degree of provided by Enclosures- IP code)
  - e) BS 5135 / AWS (Welding)
  - f) BS EN ISO 1461 : 1999 (Galvanizing)
  - g) BS EN 5649-4 : 1982 (Lighting columns, Recommendations for surface protection of metal lighting columns)
  - h) TR No. 7 1996 of ILE, UK (Specifications of Masts and foundations)

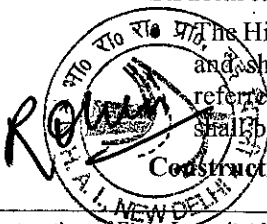
**General constructions:**

- The High Mast shall be designed to withstand the maximum wind speed as per IS: 875. The top loading, i.e. the weight and the area of luminaries are to be considered to calculate maximum deflection of the pole and the same shall meet the requirement of BS: 5649 Part VI – 1982. The Mast shall be designed using limit state principle. The limit states to be considered are: (i) Ultimate and (ii) Serviceability; based on a design wind speed with a return period of 25 years. The total Height of the High Mast, with luminaries mounting carriage cum head frame and luminaries installed shall be measured as the vertical distance between the base flange plate and the plane in which the lamps lie in their operating position.

**Structure:**

The High Mast shall be of continuously tapered, polygonal cross section; 20 sided, and shall be based on proven In-Tension design conforming to the standards referred above, to give an assured performance and reliable service. The structure shall be suitable for wind loading as per IS 875 part3 1987.

**Construction:**



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- The High Mast shall be manufactured using steel plates, conforming to BS-EN 10-025. The high mast shall be manufactured in two sections for Each mast section shall be fabricated out of single plate duly folded and welded. The Mast shaft shall have polygonal cross section and shall be continuously tapered with single/Double longitudinal welding. There shall not be any circumferential welding and pole shafts with more than two longitudinal welds shall not be acceptable. The welding of pole shaft shall be done by Submerged Arc Welding (SAW) process. No site welding and bolted joints shall be done on the mast. The minimum overlap distance shall be 1.5 times the diameter at penetration. The minimum top diameter and bottom diameter shall be as specified in data sheets and plate thickness shall be as per the structural design requirements. The calculation for civil design and foundation details shall be submitted by the vendor for Purchaser's approval after receipt of Soil Bearing Capacity. The mast shall be provided with fully penetrated flange, which shall be free from any lamination or incursion. The welded connection of the base flange shall be fully developed to the strength of the entire section. The base flange shall be provided with supplementary gussets between the bolt-holes to ensure elimination of helical stress concentration.

**Galvanizing:**

- For environmental protection of the mast the entire fabricated mast shall be hot dip galvanized internally and externally as per BS EN ISO 1461 standards with an average coating thickness of minimum 85 micron. The galvanizing shall be done in single dipping only. Double dip-galvanized shafts with overlapping are not acceptable. Further, no post galvanizing painting, touch-up or rectification shall be allowed.

**Door opening:**

- An adequate door opening shall be provided as per the GTP such that the minimum distance from the mast flange plate to the bottom of the door opening shall be twice the width of the door opening. The door shall be flushed with the exterior surface. The door opening shall be such that it permits clear access to equipment like winches, cables, plug and socket, etc. and also facilitate easy removal of the winch. The door opening shall be complete with a close fitting, vandal resistant, weatherproof door, provided with heavy duty double internal lock with special paddle key. The minimum radius at the corners of openings shall be 20mm. The door opening shall be carefully designed and reinforced with welded steel section, so that the mast section at the base shall be unaffected and undue buckling of the cut portion is prevented.

**Dynamic loading for the mast:**

- The mast structure shall be suitable to sustain an assumed maximum reaction arising from a wind speed as per IS: 875 (Part-III) 1987 (three second gust) and shall be measured at a height of 10 meters above ground level. The design life of the mast shall be minimum of 25 years.

**Lantern carriage:****Fabrication:**

- A fabricated raising and lowering type Lantern Carriage cum head frame shall be provided at the top of high mast shaft properly secured for fixing and holding the flood light fittings and control gear boxes. The Lantern Carriage shall be of special design and shall be of steel channel construction. The Lantern Carriage shall be so designed and fabricated to hold the required number of flood light fittings and the control gear boxes, and also have a perfect self-balance. The Lantern Carriage shall be fabricated in two/three halves and joined by bolted flanges with stainless steel bolts and nyloc type stainless steel nuts to enable easy installation or removal from the erected mast. The inner lining of the carriage shall be provided with protective PVC arrangement, so that no damage is caused to the surface of the mast during the raising and lowering operation of the carriage. The entire Lantern



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Carriage shall be hot dip galvanized after fabrication. The lantern carriage shall be fabricated out of M.S. channel with suitable reinforcements. Also a certificate to this effect quoting safe working load shall be supplied with each carriage. The carriage shall carry a permanently attached label stating the safe working load. Both the Mast Shaft and Luminaries Mounting Carriage shall be sourced from one manufacturer only so as to ensure compatibility and overall finish of the material.

**Junction box:**

- Weather proof junction box, made of Cast Aluminum shall be provided on the Carriage Assembly as required, from which the inter-connections to the designed number of the flood light luminaries and associated control gears fixed on the carriage shall be made.

**Raising and lowering mechanism:**

- For the installation and maintenance of the luminaries and lamps, it will be necessary to lower and raise the Lantern Carriage Assembly. To enable this, a suitable Winch Arrangement shall be provided, with the winch fixed at the base of the mast and the specially designed head frame assembly at the top.

**Winch:**

- The winch shall be of completely self sustaining type, without the need for brake shoe, springs or clutches. Each driving spindle of the winch shall be positively locked when not in use by gravity activated PAWLS. The capacity, operating speed, safe working load, recommended lubrication and serial number of the winch shall be clearly marked on each winch. The gear ratio of the winch shall be 53: 1. However, the minimum working load shall be not less than 750 kg. The winch shall be self-lubricating type by means of an oil bath and the oil shall be readily available grades of reputed producers. The winch drums shall be grooved to ensure perfect seat for stable and tidy rope lay, with no chances of rope slippage. It shall be possible to operate the winch manually by a suitable handle and electrically by an external power tool also. It shall be possible to remove the double drum after dismantling, through the door opening provided at the base of the mast. A test certificate shall be furnished by the Concessionaire from the original equipment manufacturer, for each winch in support of the maximum load operated by the winch.

**Stainless steel wire ropes:**

- The suspension system shall essentially be without any intermediate joint and shall consist of only non-corrodible stainless steel of AISI 316 grade. The stainless steel wire ropes shall be of marine grade 7/19 construction, the central core being of the same material. The overall diameter of the rope shall not be less than 6mm for 16mtr. The breaking load of each rope shall not be less than 2350 kg giving a factor of safety of over 5 for the system at full load as per the TR-7 referred to in the beginning of this specification. The end constructions of ropes by compression splices. Continuous lengths of stainless steel wire ropes shall be used in the system and no intermediate joints are acceptable in view of the required safety. No intermediate joints/ terminations, either bolted or else, shall be provided on the wire ropes between winch and lantern carriage. The design of the whole suspension system shall be such that the wire ropes can be removed and replaced from ground level without the necessity of lowering the mast or use of special equipment.

**Electrical system, cable and cable connections:**

The control panel at the bottom of the mast shall have facility for terminating up to 11kV, 40 x 25 sq. mm, Al conductor, armored, XLPE incoming cable. The outgoing from this panel shall be the trailing cable which is terminated at the weather proof junction box provided at the top. This cable shall be minimum 6 cores, 2.5 sq. mm, 1100V, electrolytic grade, EPR insulated, copper conductor and PCP sheath.

cable to get flexibility and endurance. The connections from the top junction box to the individual luminaries shall be made by using 3 core 4 sq.mm flexible or otherwise specified.

- PVC cables of reputed make. The cable shall run via metal ducts or tubes provided in luminary's carriage up to individual luminaries and control gear units. All steel conduits shall be of heavy gauge welded type with hot dipped galvanized finish.

#### Lightning spike:

- One number heavy duty hot dip galvanized lightning spike shall be provided for each mast. The lightning spike shall be minimum 1.2 M in length (except for 12.5m where it will be 0.6m) and shall be provided at the centre of the head frame. It shall be bolted solidly to the head frame to get a direct conducting path to the earth through the mast. The lightning spike shall not be provided on the lantern carriage under any circumstances in view of safety of the system.

#### Technical specifications:

17m HIGHMAST Description Lighting Mast	Specification
High mast Height mtrs incl. Luminaires Carriage	17
Material Construction	BSEN100025 or Equivalent
Welding	As per IS
No. of Sides	20
WIND LOAD DATA taken for this project	as per IS 875
Mast Section Details	
Top Diameter In mm	166
Base Diameter In mm	415
Number of Sections Nos	2
Top Sections lengthmm x thicknessmm	8375X3
Middle Section Length mm x thicknessmm	NA
Bottom Section Lengthmm x thicknessmm	8375 X 4
over lappingbetween Sections	375
Base Flange Diametermm	730
Base FlangeThicknessmm	25
Top Flange Hole Dimensionsmm	-
No. Of BoltsQty	12
Foundation bolts Details	1200x30 mm
Metal Treatment protection for Mast	Galvanised

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodra Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

Thickness of Galvanisation(min.)	min 65 micron for sheet thickness of 2mm up to 4 mm and 86 Microns for 5 mm and above.
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High mast Drg. No: 1695/IHMCL/C2/STD/ELE/114

IV b) Additional Green Building Features:-

a) Wind Mill

Wind Mill is not envisaged in most of the locations. However, where such feature is envisaged, it shall be as required for operations, branding and for non conventional energy source.

Typical Specification for 20kw wind Turbine: Alternative similar specification shall also be considered

Type	Battery Charging or Grid Tied
<b>PERFORMANCE PARAMETERS:</b>	
Rated Electrical Power	20000W @ 10.5m/s
Rated Wind Speed	10.5 m/s
cut-in	3.5 m/s
shut-down (high wind)	23 m/s
peak (survival)	50 m/s
<b>ROTOR</b>	
Type of Hub	Fixed Pitch
Rotor Diameter	10.5m
Swept Area	86.54 m2
Number of Blades	3
Rotor Speed @ rated wind speed	140 RPM
Location Relative to Tower	Down Wind
Rotor Tip Speed	47 m/s
Design Tip Speed	7
<b>BLADE</b>	
Length	5 m
Material	Class Fiber
Airfoil (type)	NACA 44012
Twist	16 outer blade
Root Chord	150 mm
Tip Chord	450 mm
Blade Tapering Edge	160mm
System Weight	950 Kg
	Taperd and Stright



Blade Weight -approx	75 Kg
<b>GENERATOR</b>	
Type	PM Alternator
Voltage for Grid Tied system	415 -3 Phase
Voltage for Grid Tied system	415 - 3 Phase
Rectifier	Applicable
Output Voltage	150 DC to 550 DC
Watts @ Rated Wind Speed	20000 Watts
Rated Generator RPM	150
Speed RPM (nominal)	200
Battery Bank (Min)	12-v 150 Ah - 20 Nos
<b>TRANSMISSION</b>	
Type	Direct Drive
Ratio (rotor to gen. speed)	1 to 1
Lubrication	Crease
<b>YAW SYSTEM</b>	
Normal	By Tail Vane with Slip Ring
Structural	Yaw bearing mounted on tower top
<b>TOWER</b>	
Type	Lattice type
Tower Height	25 m
Options	30 m
<b>CONTROL SYSTEM</b>	
Type	PLC Based
Over speed Device	Mechanical Governor
Manual Brake	Electro Magnetic
<b>Inverter</b>	
Type	Sin Wave
Inverter Output Voltage	415 V AC

**b) Solar Lighting:****i. Internal lighting for Food Court and Toilet block (car & bus passenger):**

Solar panels are placed in terrace floor of food court for emergency lighting for areas indicated in the single line diagram.

**ii. External lighting:**

Solar panels placed above EB meter shed for 20% street lighting.

**iii. External lighting for Village Haat / Gram Bazaar:**

Solar street lights provided with solar panels, battery backup etc., in pole.

The scope of work includes but not limited to the following:

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

- The Pole height shall be 5 meter and the LED luminaire efficiency shall be greater than 100 lux. The colour be warm white, power factor 0.95 with surge protection of 10 kV, total harmonic distortions less than 20%, IP rating shall be IP 65 and the system power is 45 Watts. Refer Drawing No.: 1695/IHMCL/C2/STD/ELE/119.
- c) **Provision for Cooking Gas (Bio Gas) from Food Waste**
- The equipment shall provide cooking gas from kitchen waste for operations, efficiency and energy conservation.
  - The easily degradable waste material from kitchen mixed with wastewater from the kitchen shall be fed into the plant through the inlet chamber of the plant. This waste is converted into cooking gas with the help of a special type of anaerobic bacteria. The main component of the gas produced shall be methane which is a renewable source of energy.
  - The major components of the bio-gas plant shall include a digester tank, an inlet for feeding the kitchen waste, gas holder tank, an outlet for the digested slurry and the gas delivery system for taking out and utilizing the produced gas.
- d) **All Utility Connections, Deposits etc.**
- Scope of works includes liaisoning and obtaining all utility connections including making necessary security deposits and all other related activities
- e) **Other Equipments:-**

**HVAC**

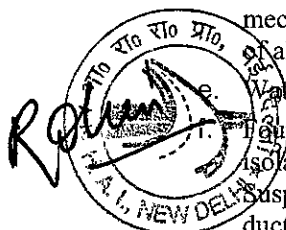
The scope of work includes but not limited to the following:

- (i) All HVAC works shall conform to General Specifications for Heating, Ventilation, Air-Conditioning (HVAC) works 2004 and subsequent amendments, published by DGW, CPWD, New Delhi.
- (ii) Specialty Restaurants, Meeting Halls, Guest Rooms are to be air-conditioned mandatorily.
- (iii) Recommended types of systems include the following
  - a. Packaged type Air-Conditioning Plants
  - b. VRV / VRF
  - c. Split units (including ductable)
  - d. Window units is prohibited. For split units / other systems, the outdoor units shall be placed in the terrace or away from the exposed façade. Drain pipes duly insulated shall be concealed and connected to nearest drains in the toilets or to the rain water downtake pipes.
- (iv) The scope of work to the extent relevant shall be deemed to include the following.
  - a. Air-conditioning systems (outdoor units / plants / indoor units, AHUs / Fan coil units / cooling towers etc.)
  - b. Circulating pumps
  - c. Ducts
  - d. Insulations pipes, controls related electrical works, related plumbing works, mechanical ventilation systems and inspection, testing and commissioning of all the installations.

e. Water of required quality for proper functioning and operations.  
 f. Foundations for equipments including foundation bolts and vibration isolation spring / pads, Support columns and beams for all equipments, Suspenders, brackets and floor / wall supports for suspending / supporting ducts and pipes, Suspenders and / or cable trays for laying the cables,



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Excavation and refilling of trenches in soil wherever the pipes are to be laid directly in ground, including necessary base treatment and supports, Sealing of all floor slab / wall openings provided by the Department or Concessionaire for pipes and cables, from fire safety point of view, after laying of the same, painting of all exposed metal surfaces of equipments and components with appropriate colour, making openings in the walls / floors / slabs or modification in the existing openings wherever provided for carrying pipeline, ducts, cables etc., providing wooden / metallic frames for fixing grills / diffusers, under deck insulation of top floor slab, if top floor is air-conditioned and if specified in schedule of work, Making good all damages caused to the structure during installation and restoring the same to their original finish.

g. Power supply, water supply and drainage as applicable for HVAC.

**(v) Quality of Materials and Workmanship**

- a. The components of the installation shall be of such design so as to satisfactorily function under all conditions of operation
- b. The entire work of manufacture/fabrication, assembly and installation shall conform to sound engineering practice. The entire installation shall be such as to cause minimum transmission of noise and vibration to the building structure.

**(vi) Care of the building**

- a. Care shall be taken by the Concessionaire during execution of the work to avoid damage to the building. He shall be responsible for repairing all such damages and restoring the same to the original finish at his cost. He shall also remove all unwanted and waste materials arising out of the installation from the site of work from time to time.

**(vii) Conformity with Statutory Acts, Rules, Standards and Codes**

All components shall conform to relevant Indian Standard Specifications, wherever existing, amended to date. A list of such standards is as follows.

All electrical works shall be carried out in accordance with the provisions of Indian Electricity Act, 2003 and Indian Electricity Rules, 1956 amended to date. They shall also conform to CPWD General Specifications for Electrical works, Part-I: Internal, 1994 and Part-II: External, 1994 and Part-IV (Sub-station) 1983, amended to date.

- a. IS-325 - Three Phase Induction Motors
- b. IS-1822 - Motors Starters of voltage not exceeding 1000 volts
- c. IS-3624 - Bourden Tube Pressure and Vacuum Gauges
- d. IS-996 - Single phase small AC and Universal motors
- e. IS-1239 - Mild steel tubes, tubular and other wrought steel fittings
- f. IS-3589 - Electrically welded steel pipes for water, gas and sewage
- g. IS-277 - Galvanised steel sheets
- IS-655 - Metal air ducts
- IS-2516 - AC circuit breakers
- IS-900 - Code of practice for installation and maintenance of induction motors
- IS-1248 - Direct acting electrical indicating instruments
- IS-8183 - Specification for bonded glass wool/mineral wool



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- m. IS-4671- Specification for expanded polystyrene for thermal insulation purposes
- n. IS-7896 - Data for outside design conditions for air conditioning for summer months
- o. IS-8148 - Packages for air conditioners
- p. IS-5111 - Testing of refrigerant compressors
- \* Kitchen Equipments / Installation As required for operations
- \* Mechanical Equipments, Pumps, etc. As required for operations
- \* Water Filtration System As required for operations
- \* Other Equipments & Accessories As required for operations

**Miscellaneous Items:****1. Earth work**

Earth work excavation in all kinds of soil/ordinary rock/hard rock by mechanical means (Hydraulic excavator)/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan and required depth) including dressing of sides and ramming of bottoms, bailing out water, dewatering if necessary, for required lift including getting out the excavated soil / rock and disposal of surplus excavated soil / rock with required lead.

Supply and filling with approved good quality filling materials under plinth, foundation and wherever specified in layouts of not exceeding 200mm thick including breaking clods, storing, transportation, double handling, watering, compacting each layer with wooden / steel rammers to achieve 90 to 95% proctor density at optimum moisture content, all leads and lifts, bailing / pumping out of water to keep site dry while filling; cost shall include, labour, machinery etc. complete as directed.

- a) with approved quality murrum brought from outside
- b) with approved quality river sand brought from outside
- c) with available excavated earth

Carting away the excavated earth (by mechanical transport including loading, unloading, stacking) to an identified location.

- a) Lime, murrum, bldg rubbish
- b) Earth
- c) Excavated rock

Supplying and filling of Hardcore layer using 45 mm to 63 mm well graded hand broken stone metal and sand in void portion to required thickness including shuttering, watering, consolidation etc. complete.

**2. Mandatory waterproofing for toilets**

Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C., kitchen and the like consisting of:

- a) 1<sup>st</sup> course of applying cement slurry @ 4.4 kg/sqm mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface.

2<sup>nd</sup> course of 20 mm cement plaster 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface.

3<sup>rd</sup> course of applying blown or residual bitumen applied hot at 1.7 kg. per sqm of area.

- d) IV<sup>th</sup> course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 kg/sqm)

3. **Mandatory waterproofing for terraces / roofing:**

Providing and laying in situ seven course water proofing treatment with APP (Atactic Polypropylene) modified Polymeric membrane over roof consisting of first coat of bitumen primer as per IS 3384 @ 0.40 Kg per sqm, 2<sup>nd</sup>, 4<sup>th</sup> & 6<sup>th</sup> courses of bonding material @ 1.20 kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702 or residual bitumen 85/25 as per IS 73 where penetration of bitumen should not be more than 40 mm in accordance with IS 1203, 3<sup>rd</sup> and 5<sup>th</sup> layers of roofing membrane APP modified Polymeric membrane 2.0 mm thick of 3.00 Kg/sqm weight consisting of five layers prefabricated with centre core as 100 micron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20 micron HMHDPE film. 7<sup>th</sup>, the top most layer shall be finished with brick tiles of class designation 10 grouted with cement mortar 1:3 (1 cement: 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12 mm layer of cement mortar 1:3 (1 cement: 3 fine sand) and finished neat (item of laying brick tiles shall be paid for separately).

All exposed (external / internal) joints between R.C.C and masonry shall be covered with 300 mm wide chicken mesh before plastering for the purpose of avoidance of cracks.

a) **Surface Finish:**

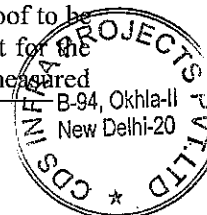
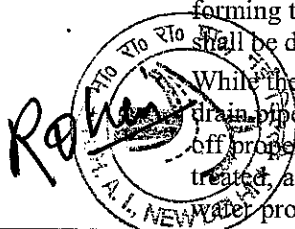
- i) **For accessible roof and terraces:** Surface finish shall be with brick tiles of class designation 100 or 20 mm thick precast PCC/hydraulically pressed clay tiles grouted with cement mortar 1:4 (1 cement : 4 fine sand ) with 2% integral water proofing compound by weight of cement over a 15 mm thick layer of cement mortar 1:4 (1 cement: 4 fine sand) and finished neat, as shown in Fig. 4K.
- ii) **For inaccessible roof:** After applying semi hot blown bitumen over membrane, provide aluminum paint as per manufacturers' instruction.

- b) **Preparation of Surface:** The surface to be treated shall have a minimum slope of 1 to 100. This grading shall be carried out with cement concrete or cement plaster with coarse sand, as desired, to the average thickness required and finished smooth. Such grading shall be paid for separately.

Junctions between the roof and vertical faces of parapet walls, chimneys etc. shall be chased by running triangular fillets 7.5 x 7.5 cm. size, cement concrete. At the drain mouths, the fillets shall be suitably cut back and rounded off for easy application of water proofing treatment and easy flow of water. Cement concrete where shall be 1:2:4 mix (1 Cement: 2 Coarse sand: 4 Graded stone aggregate 20 mm. Nominal size). The provision of fillets shall be deemed to be covered by the item of water proofing and shall not be measured or paid for separately.

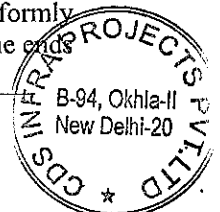
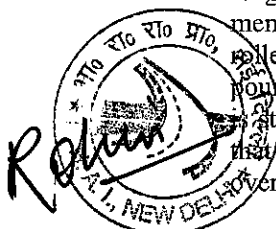
In existing roof where gola and drip course are provided at the junction of roof and vertical face of parapet wall, chimney stacks, etc. These shall be dressed suitably and finished smooth so as to ensure an easy and gradual turning of the flashing. Any dismantlement or forming and finishing smooth the junction for forming the base of the flashing shall not be measured or paid for separately and shall be deemed to form part of the preparation of the surface.

While the grading of roof surface is being done, it shall be ensured that the outlet drain pipe has been fixed and mouth at the entrance have been eased and rounded off properly for easy flow of water. When any pipe passes through the roof to be treated, angular fillet of shape shown in Fig. 4K shall be built around it for the water proofing treatment to be taken over it. These fillets shall not be measured



or paid for separately. For carrying over and tucking in the water proofing felts into the parapet walls, chimneys stacks etc. a horizontal groove 6.5 cm. deep, 7.5 cm. wide section with its lower edge at not less than 15 cm. above the graded roof surface shall be left on the inner face of the same; during construction if possible. When such groove has not been left, the same shall be cut out neatly and the base at rear of the groove shall be finished smooth with cement plaster 1:4 (1 cement: 4 coarse sand). Such cutting of the groove and its finishing smooth shall be part of the water proofing or paid for separately. No deduction shall be made either for not making the groove or when the latter has already been left in the masonry by the construction agency. Tucking in the water proofing felt will be required where the parapet wall exceeds 45 cm. in the height from the graded surface. Where the height is 45 cm. or less, no groove will be required as the water proofing treatment will be carried over the top of the parapet wall to its full thickness. In the case of low dividing walls of height 30 cm. or less, outlets therein shall be cut open for full height and the bottom and sides shall be rendered smooth and corners rounded and such treatment shall not be measured and paid for separately. Where expansion joints are left in the slab the provision of dwarf walls and/or RCC slabs for covering them and finishing the surface smooth shall be the responsibility of the construction agency, which had laid the roof slab and will not be included in the operation of water proofing. The graded surface of the roof and concrete fillets and the faces of walls shall be thoroughly cleaned with wire brushed and all loose scales etc. removed. The surface shall then be dusted off. Any crack in the roof shall be cut to V section, cleaned and filled up flush with cement mortar slurry 1:4 (1 cement : 4 coarse sand) or blown type petroleum bitumen of IS grade 85/25, or approved quality conforming to IS 702. Such cleaning of the surface or treating the cracks shall not be paid for separately.

- c) **Treatment:** The water treatment shall be of five or seven course as specified. In seven course treatment, the first four courses shall be the same as for five course treatment. The fifth course shall be a layer of APP modified polymeric membrane. The sixth course shall be a coat of bonding material and the top most seventh course shall be of specified surface finish.
- d) **Laying:**
- i) First course shall be a coat of bitumen primer @ 0.40 kg per sqm followed by subsequent course as per treatment required.
  - ii) Drain outlets shall be given a four or six course treatment as specified for the roof in the description of the item in the manner specified for the flat roof surface. Water proofing treatment shall be carried into the drain pipe or outlets by at least 10 cm. The water proofing treatment laid on the roof surface shall overlap the upper edge of the water proofing treatment in the drain outlets by at least 10 cm.
  - iii) The APP modified polymeric membrane shall be cut to the required length, brushed clean of dusting material and laid out flat on the roof to eliminate curls and subsequent stretching. The membrane shall normally be laid in length in the direction of the slope and laying shall be commenced at the lowest level and worked up to crest. The membrane shall not be laid in single piece of very long lengths as they are likely to shrink; 6 to 8 m are suitable lengths. The roof surface shall be cleaned and dry before starting the membrane treatment. Each length of membrane shall be laid in position and rolled up for a distance of half its length. The hot bonding material shall be poured on the roof across the full width of the rolled membrane as the latter is steadily rolled out and pressed down. The pouring shall be so regulated that the correct weight of bonding material per unit area is spread uniformly over the surface. Excess bonding material that gets squeezed out at the ends



shall be levelled up as laying proceeds. When the first half of the strip of felt has been bonded to the roof, the other half shall be rolled up and then unrolled on the hot bonding material in the same way. Subsequent strips shall also be laid in the same manner.

Each strip shall overlap the preceding one by at least 7.5 cm. at the longitudinal edges and 10 cm. at the ends. All overlaps shall be firmly bonded with a blow lamp and leveling down unevenness. The fourth layer of bonding material in the five course treatment shall be carried out in a similar manner after the flashing has been completed.

- iv) In a seven course treatment the fifth layers of membrane shall be laid in the manner already described, taking care that laps in the membrane are staggered from those in the earlier layer. In case of inaccessible roof the sixth layer of bonding material shall be carried out after the flashing is done followed by aluminum paint as per manufacturer's instruction (See Fig. 4K).
- v) *High Parapet Walls, Chimney Stacks etc.:* Membrane shall be laid as flashing wherever junctions of vertical and horizontal surfaces occur. Longitudinal laps shall be 10 cm. The lower layer of flashing membrane in a six course treatment shall overlap the roof water proofing by not less than 20 cm. while the upper layer shall overlap the roofing felt by 10 cm. The minimum overlap of the flashing membrane in five course treatment over the roofing membrane shall be 10 cm.

The flashing shall consist of the same five or seven course treatment as for the roof except that the final course shall be replaced by an application of 15 mm thick cement plaster 1:3 on the vertical and sloping faces only, of the flashing as shown in Fig 4K. The overlap along the length of flashing shall stagger with those in the second layer of flashing membrane (in a seven course treatment and with the joints in the roof membrane).

The upper edge of the finishing membrane shall be well tucked into the flashing grooves in the parapet, chimney stacks etc. to a depth of not less than 6.5 cm. Corresponding applications of bonding material shall also be made. The flashing treatment shall be firmly held in place in the grooves with wood edges at intervals and the grooves shall be filled up with cement mortar 1:4 (1 cement: 4 coarse sand) or cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) and surface finished smooth with the rest of the wall. The cement work shall be cured for 7 days. When dry, the exposed plaster joints of grooves shall be painted with bitumen and two coats of bituminous solution shall be applied on the vertical and sloping surface of flashing (see Fig. 4K).

After the top flashing membrane layer has been fixed, the penultimate layer of bonding material shall be applied over the roofing membrane and the horizontal overlaps and vertical and sloping surfaces of the flashing at the specified rate.

- vi) *Low Parapet Walls:* Where parapet walls are of height 45 cm. or less, membrane flashings shall be provided in the same manner as for flashings in the case of high parapet walls except that the upper edge shall be carried upto the full height of the wall and taken right across the top of the parapet and down on the external vertical faces to a minimum distance of 5 cm. (Fig -4L & 4M)
- vii) *Low Dividing Walls:* Where low dividing walls or inverted beams are met with, the same shall be covered with a four or six layer treatment as for the main roof, the latter bearing carried down both sides of the wall and overlapping the roofing treatment as in the case of flashing of high parapet walls.

Drain outlets where formed in the low dividing walls, shall be given water proofing treatment of the same number of courses as specified for the flat roof surface. The bottom and sides shall be so treated that all overlaps are in the direction of flow of drainage.

- viii) **Expansion Joints:** Where the expansion joints are provided in the slabs, the joints and their cover slabs shall be suitably treated with water proofing. A typical sketch of an expansion joint with the RCC slabs on either side of the joint turned vertically up and dwarf walls by not less than 7.5 cm. and are provided with throatings on their underside along their length. The water proofing treatment shall be taken up the sloping junction fillets and the vertical faces of the walls to the underside of the cover slabs. The cover slabs are given the water proofing treatment like the roofs slabs, after the cross joints between adjacent cover slabs are first sealed with 15 cm width of roofing felt struck to them with bitumen. The water proofing treatment shall be carried down the sides of the cover slabs to their full thickness. Care shall be taken to see that overlaps if any in the roofing over the cover slabs stagger with the joints between cover slabs.

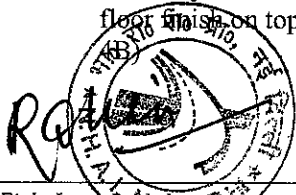
The formation of the expansion joints and provision of the cover slabs shall be the responsibility of the construction agency. The formation of the junction fillets and the water proofing treatment of the joint and cover slabs shall be carried out by the water proofing agency. Nothing agency extra shall be paid for the sealing of the cross joints in the cover slab with 15 cm. width of bitumen strips.

- ix) **Pipes:** Where vertical pipe outlets are met with, 7.5 x 7.5 cm fillets of lime or cement concrete of the type and section shall be provided and flashing of four or six course treatment, same as for the roofing treatment shall be laid.

#### 4. Treatment to Ground/ Basement floor

- a) **The moisture rising above ground level due to capillary action has to be dealt with suitably to obtain the maximum effects of damp-proofing in flooring in buildings like storage accommodation and industrial sheds, and buildings constructed in places where rise in sub soil water table is severe, the following points shall be taken into consideration (Fig 4A)**
- The mortar bed on which the damp proofing treatment is to be laid shall be leveled and made free from projections liable to cause damage to the damp-proofing.
  - When the horizontal damp-proofing treatment is to be continued to vertical face, a cement mortar (1:4) fillet 75 mm in radius shall be provided at the junction between the horizontal and vertical faces, on which the damp-proofing treatment is to be laid, shall be finished smooth.
  - The damp-proofing treatment shall cover the full thickness of the walls excluding rendering and shall not be set back from the wall face for pointing: and

For effective damp-proofing in basement wall of residential building, a course of DPC in cement mortar 1:4 or cement concrete 1:2:4, 40 mm thick with necessary water proofing compound conforming to IS 2645-1975 may be laid below the course of brick on edges. The DPC so laid may also be extended vertically over the inner surface of the brick on edges of the basement wall. The floor finish on top may be taken up to the inner face of the superstructure. (Fig



*Coopale*



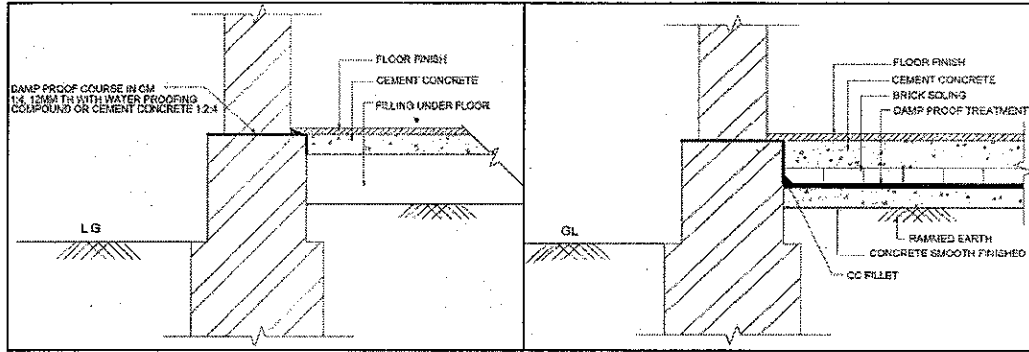
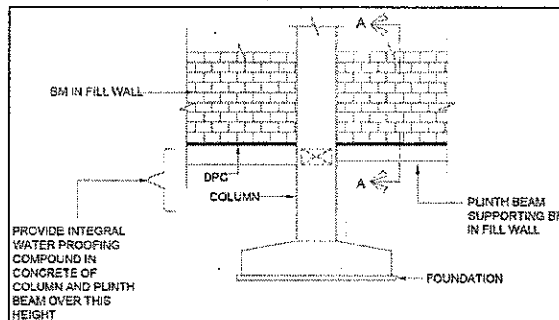


Fig-4A

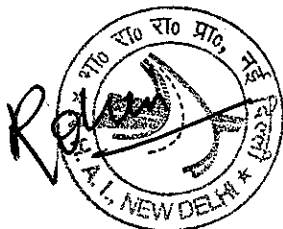
Fig-4B

- b) For new construction in area having high water table, the ground floor shall be provided with following treatment:
  - i) Keeping in mind the high water table, the soil and the weather conditions, bricks of class higher than 100 Kg/cm<sup>2</sup> shall be used in all the walls of new constructions irrespective of the type of wall i.e. load bearing walls or infill walls of RCC framed construction.
  - ii) The damp proofing shall be provided in all the load bearing and RCC framed buildings. In RCC framed buildings, an integral water proofing compound shall be used in the concrete of columns up to the level of plinth beams as well as in the plinth beams. In RCC framed buildings, DPC shall also be provided under the infill walls (and over the plinth beams) as well as under the ground floor slab as per details shown in Fig 3C and 3D. Care shall be taken to ensure that the DPC under the infill walls is contiguous with that under the floor slabs. In load bearing wall type of building also, an integral water proofing compound shall also used in the mortar of brick masonry up the level of plinth, DPC shall be provided as per the details shown in Fig-3D&3E. The DPC can be of any type as per the recommendations of IS:4911-1986 and IS: 3067-1988. Polythene sheet DPC, though not approved by any Indian Code can also be provided with suitable polythene sheet confirming to BS: 6515



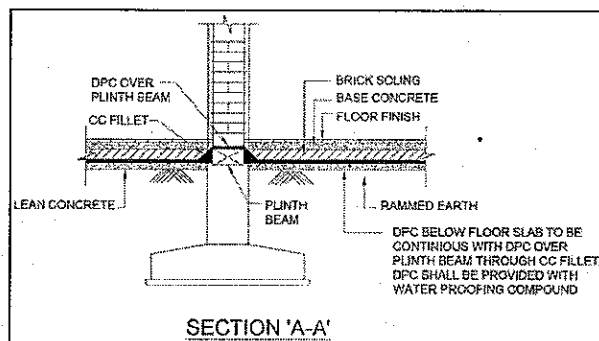
Suggestive detailing of DPC in area having high water table

Fig-4C



*Boopale*

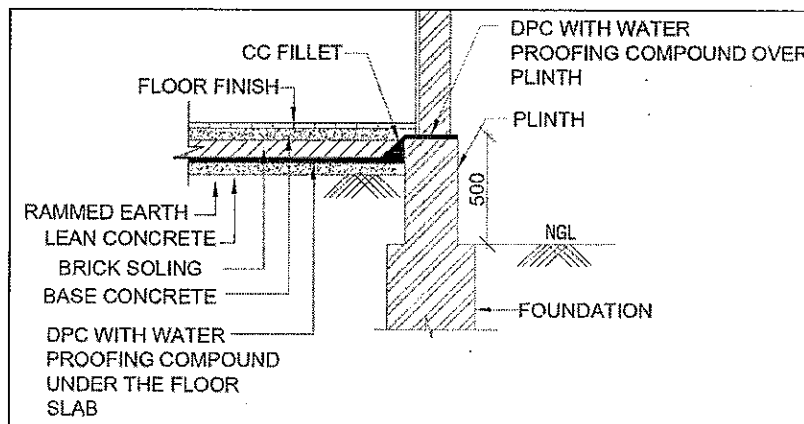




Typical elevation showing provision of DPC over plinth beam

Fig-4D

- iii) Care shall be taken that all rain water is carried well away from the base of walls. It shall also be ensured that the site is well drained and there is no possibility of ponding near walls and clayey soil should not be filled under the floor. Sand /broken bricks etc can be used to avoid capillary action. A minimum level difference of 450 mm shall be maintained between DPC and ground level.



Typical detailing of DPC in a typical RCC framed construction

Fig-4E

#### 5. RCC Precast Slab works

Providing, hoisting and fixing up to floor five level precast reinforced cement concrete cover slab in shelves including setting in cement mortar 1:3 (1 cement : 3 coarse sand), cost of required centering, shuttering, finishing with neat cement punning on exposed surfaces but excluding the cost of reinforcement with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) etc. complete.

#### 6. Polycarbonate Sheet Roofing

##### 16.0mm Multilayer Top Seam Polycarbonate 'U' Panel System

Fabrication, Supply and erection of rectangular hollow section to the required profile of the structure and Installation of Roof cover over MS structure for the specified area with 16mm thk Multilayer Top seam Polycarbonate 'U' Panel (Clear) standing seam system with Polycarbonate Top connector, Connector end caps and steel clamp, Sheet ends to be closed with Aluminium 'U' profile section and to ensure 100% water tight & leak proof counter sunk self drill tapping screws to be used for clamp fastening. MS tube structural shall be done as per design and painted one coat of zinc chromate yellow primer and two coats of enamel paint. (Steel work shall be paid separately).

Rectangular hollow section of suitable size as per design

- Powder coated (or) color anodized

The Polycarbonate panel lengths shall be suitable size as per structure and should weigh - 3.2kg/m<sup>2</sup> of 6 wall tight cell (5X4) structure having high impact strength - 158 (J/m) but light weight capable of transmitting 65% of light (Clear). It shall resist Temperature ranges upto 120°C. The sheet shall not have condensation even at high humidity and good physical properties in extreme weather conditions.

- It has good resistance to many chemicals (with the exception of solvents and alkalis) even for use in aggressive environments.
- It exhibits excellent fire performance and in the event of fire it shall soften and open. Allowing smoke, heat and gases produced by the fire to escape. This venting property means that damage within buildings can be limited.
- And 10 years warranty on Polycarbonate sheets (refer complete warranty standards) and a 3 years weather breakage warranty.

#### Characteristics:

It has a good combination of Physical, thermal & optical properties.

#### Raw Material Properties

##### Physical Properties :

Density	:	1.2 g/cc
Water absorption	:	(24hrs@23°C) 0.35%
Water permeability (1mm thk)	:	<2.28g/m <sup>2</sup>

##### Thermal Properties:

Deflection temperature under load	:	135 - 140°C
Thermal conductivity	:	0.21 W/m°C
Thermal Transmittance @1mm :		5.7 W/m <sup>2</sup> °C
Coefficient of linear expansion :		0.068 mm/m/°C

##### Mechanical Properties:

Tensile strength at yield	:	>60 MPa
Tensile strength at break	:	>70 MPa
Elongation at yield	:	6-8 %
Elongation at Break	:	>100 - 155%
Tensile Modulus of elasticity	:	>2300MPa

##### Solar Transmission Properties:

Light Transmission (LT%)	:	67% (Clear)
Solar Heat gain co-efficient (SHGC)	:	0.53
Shading coefficient (SC)	:	0.71
Solar Transmission (ST%)	:	67%

- Resistance to impact 20mm diameter simulated hailstones impacting at 21m/s will not cause breakage. ( as per simulated hail tests)
- Resistance to specific compounds depends on concentration and temperature, duration of exposure and stress within the sheet. Contact with plastic coated metal sheets, wet wood preservatives, solvents and alkali cleaners should be avoided.

Workability of Polycarbonate sheet should be as per the technical manual from the manufacturer, cutting of sheets should be through power tools and no drill is recommended above the Polycarbonate sheet at any joints / closures.

#### Double Skin Metal Roofing with Rockwool insulation:

Top Sheet



Supplying and Fixing Double Skin Metal Roofing comprising of External sheet - Colour coated KLIPLOCK Hi-Rib profiled sheets, 500 mm cover width, 47 mm crests at 250 mm centers made out of 0.55 mm thickness, Cold Rolled Steel 300 MPa - yield stress with hot dip metallic coating of Aluminum zinc alloy (Galvalume 150 gm / sq. m. total of both sides, having 20 microns Polyester coating on the exposed side. Special sheeting clips fabricated out of Galvanized Steel sheet (22 SWG with minimum 120 gms/sq.m Zinc coating) of width 250 mm shall be fixed to the 'Z' shaped sub-girts ( 50 x 50 x 50 mm. size, made out of 1.6 mm. thick galvanized steel), with 25 mm self-drilling wafer head fasteners. Kliplock Sheets shall then be pressed over the clips as per manufacturer's instructions complete as per standard specification, manufacturer specification, drawings. These sheets shall fixed along with Galvanized iron profile sheets and Rockwool insulation material.

#### Bottom Sheet

Providing and fixing precoated galvanized steel sheet roofing accessories 0.50 mm + 5% total coated thickness (TCT), Zinc coating 120gsm as per IS: 277 in 240mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws or with polymer coated J or L hooks, bolts and nuts and or G.I. seam bolts and nuts, G.I. plain and bitumen washers complete, including necessary Ridges plain, Flashings/ Aprons & Gutter etc., complete

#### Insulation Material

Supply and Fixing the Rockwool Resign Bonded Rolls (RBR) Conforming to IS 8183/93. And having Density Of 150Kg/Cu,M and 50mm Thick, for Roofing insulations etc., as per Manufacturers Specifications and other relevant Specifications etc., complete.

#### 8. Plastering

Providing cement plaster of CM 1:3mix, 6mm thick (ceiling) over concrete surface at all levels and locations, including preparing surfaces, scaffolding, curing etc., complete - 1:3 (1 cement: 3 fine sand)

Providing 18mm thick cement plaster (external) in two layers. Under layer 12mm thick cement plaster 1:5 (1 cement : 5 coarse sand) and a top layer 6mm thick cement plaster 1:3 (1 cement: 3 coarse sand) finished rough with sponge at all levels and locations, including preparing surfaces, scaffolding, curing etc., complete

Providing cement plaster of CM 1:4mix, 12mm thick with water proofing material (for toilet area). Including preparing the surfaces, scaffolding, curing etc. complete

Providing 20mm thick plaster finish in C.M 1:4 (1 cement : 4 fine sand) with water proofing compound mixture of approved quality in the ratio of 1 Kg per bag of cement (50Kg) for plastering over RCC roof slab at all levels including surface preparation, scaffolding, curing, neat finish to line and level etc., complete.

Providing Decorative border in CM 1:2 of size 100mm x 25mm & 75mm x 25mm including necessary, curing scaffolding, labour charges etc., complete.

#### 8. Rectify Group-25 VC Shield tile

Providing and laying rectified Glazed ceramic floor tiles (Rectify Group-25 VC Shield tile) of suitable size (thickness to be specified by the manufacturer) of 1st quality conforming to IS: 15622 of approved make and colours laid on 20mm thick cement mortar 1:4 (1 cement 4 coarse sand) including grouting the joints with white cement, etc., complete.

#### 9. Granite (various finishes)

Providing and laying of Multi colour polished Granite (gang saw cut) stone for lowin and treads of steps and risers using single length upto 2m with 18mm thick granite stone (sample of Granite approved over 20mm (average) thick base of CM 1:4 (1 cement: 4 coarse sand) laid and jointed with grey cement slurry including

engraving 3 nos of grooves on granite stone to the length of steps, rubbing and polishing complete etc., complete.

Providing and fixing 18mm thick Blue Pearl Granite gang saw cut mirror polished (pre-moulded and pre-polished) machine cut for flooring, kitchen platforms, vanity counters, window sills, facias and similar locations, of required size and approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) joints treated with white cement and mixed with matching pigment, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc., complete at all levels. (Gang saw granite of any colour and shade of slab area over 0.5 sqm).

Providing and laying 18mm thick (gang saw machine cut) polished granite slab for faces of required size of approved shade, colour and texture laid over 12mm thick base cement mortar 1:3 (1 cement : 3 coarse sand) and cement slurry of 3.30 kg/m<sup>2</sup> with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, molding and polishing to edge to give high gloss finish etc. complete.

**10. PVC corner Beading**

Providing and fixing of PVC Corner beading at corners of partition wall as per approved colour matching with dadoing wall tiles etc. including all labour and suitable adhesive charges as per standards.

**11. Stone Work In Dry Cladding**

Providing and fixing dry cladding upto 10 metre heights with 30 mm thick gang saw cut Granite stone (machine cut edges) of uniform colour and size upto 1mx1m, fixed to structural steel frame work and/ or with the help of cramps, pins etc. and sealing the joints with approved weather sealant as per Architectural drawing.

**Structural Frame work for Dry Cladding**

Providing and fixing structural steel frame (for dry cladding with 30 mm thick gang saw cut with machine cut edges sand stone) on walls at all heights using M.S. square/ rectangular tube in the required pattern as per architectural drawing, including cost of cutting, bending, welding etc. The frame work shall be fixed to the wall with the help of M.S. brackets/ lugs of angle iron/ flats etc. which shall be welded to the frame and embedded in brick wall with cement concrete block 1:2:4 (1 cement: 2 coarse sand :4 graded stone aggregate 20 mm nominal size) of size 300x230x300 mm, including cost of necessary centring and shuttering and with approved expansion hold fasteners on CC/RCC surface, including drilling necessary holes. Approved cramps/ pins etc. shall be welded to the frame work to support stone cladding, the steel work will be given a priming coat of Zinc primer and painted with two or more coats of epoxy paint. The frame work shall be fixed in true horizontal & vertical lines/planes.

**Adjustable Stainless steel Cramps**

Providing and fixing adjustable stainless steel cramps of approved quality, required shape and size, adjustable with stainless steel nuts, bolts and washer (total weight not less than 260 gms), for dry stone cladding fixed on frame work at suitable location, including making necessary recesses in stone slab, drilling required holes etc. complete.

**12. Unfired Flexi Clay (Cladding)**

Clay tiles shall be MCM Travertine / MCM Sand Stone / MCM Cut Stone / MCM Tiles Facing Brick

**Fully glazed fixed glazing**

Providing and fixing aluminium powder coated of (not less than 50microns) approved colour with outer frame of 54.5 x 38 x 1.8 mtr with 8 mm thick float glass

with necessary accessories and Frosted glass sticker (3M) etc., complete and as per Drawing specification.

**13. FRP Doors for Toilets:**

Providing and fixing Fiber Glass Reinforced plastic (FRP) Door Frames of cross-section 90mm x 45mm having single rebate of 32mm x 15mm to receive shutter of 30mm thickness. The laminate shall be moulded with fire resistant grade unsaturated polyester resin and chopped mat. Doorframe laminate shall be 2mm thick and shall be filled with suitable wooden block in all the three legs. The frame shall be covered with fiberglass from all sides. M.S. stay shall be provided at the bottom to steady the frame.

**14. Galvanized steel door**

Supplying and fixing of factory made galvanized steel (Acoustic) door using Shaktimet door or equivalent approved section with door outer frame of suitable size (formed from 1.2mm thick G.S sheet) and shutter section of 46 mm thick fully (formed from 0.80mm thick G.S sheet), double skin shutter shell with lock seam joints at style edges in-fill with PUF (Polyurethane foam) honeycomb Kraft paper with vision panel of 5mm thick glass and shutter skin shall be finish with hair line finish, excluding cost of accessories such as door closer, hinges, handle, lock and screws etc. (Dorma or equivalent of approved make) including cost of all materials and labour, scaffolding charges etc., complete. (Single / Double leaf door).

Supplying and fixing of pressed steel Door frame from 1.20mm (18Gauge) thick galvanized steel sheet formed to single rebate profile of size 100 x 57mm finished with necessary approved painting, including cost of accessories such as all clamps, anchor fasterness in RCC surfaces if necessary etc., complete including cost of all labour, scaffolding, grouting the frame with (M-25 grade) concrete charges etc., complete door frames may be built into the brick or block walls using corrugated "TEE" anchors not welded to the frames (first fix). Frames may also be fixed on plastered openings with help of anchor Fasteners (second fix). etc. complete.

**Accessories:** Supplying and fixing of Door accessories with necessary fixtures, fittings and screws etc. including all labour charges for fixing and all applicable taxes as per manufactures specification.

**Floor Spring:** (Dorma - cat.no.BTS75V or equivalent of approved make) **Handles:**

- i) Handles (Kich - PHC 2510 or equivalent of approved make)
- ii) Handles (Kich - MH 2221S or equivalent of approved make)

**Locks / Other accessories:**

- i) Lock (Dorma-Narrow stile dead lock 917 or equivalent of approved make)
- ii) Lock(Dorma-Narrow stile dead lock 852 or equivalent of approved make)
- iii) Locks (Dorma - cat.no.US10 or equivalent of approved make)
- iv) Flush bolt-Tower Bolt (Dorma - 3101 lever action or equivalent of approved make)
- v) Hinges (Dorma - cat.no.BB4330 or equivalent of approved make)
- vi) Door stopper (Kich – DSTHMS or equivalent of approved make)
- vii) Door closer (Dorma - TS73v or equivalent of approved make)
- viii) Magic eye (Dorma - TS73v or equivalent of approved make)

**15. Windows**

**Powder coated steel:**

Roll formed steel coil made up of base steel as per IS 513 grade "D" quality, galvanized with zinc coating of 120 grams/sq.mtr. The roll formed section should be powder coated with pure polyester powder up to 50-60 microns thick.

**Hardware:**

Windows should be with assembled high quality hardware made of either with high grade aluminum, CRCA electroplated or glass filled nylon. Gasket should be made up of EPDM.

**Top hung Ventilator:**

Top hung windows should be fabricated from roll formed sections made of galvanized color / powder coated steel with a combination of specially designed components made up of CRCA with zinc phosphate, nylon or high grade aluminum with powder coating. Section to section overlap, the gasket around glass and between frame & shutter are designed to give perfect sealing

**Fixed louvers:**

Fixed louvers Should be fabricated from roll formed sections made of galvanized color / powder coated steel with a combination of specially designed components made up with zinc nylon.

**Adjustable louvers:**

Adjustable louvers are fabricated from roll formed sections made of galvanized color / powder coated steel with a combination of specially designed components made up with zinc nylon.

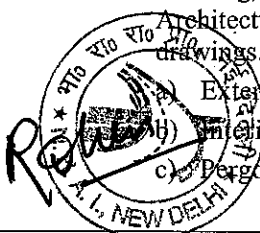
**16. Aluminium composite panel (ACP)**

Designing, fabricating, testing, installing and fixing in position Curtain Wall with Aluminium Composite Panel Cladding, with open grooves for linear as well as curvilinear portions of the building, for all heights and all levels etc. including:

- a) Structural analysis & design and preparation of shop drawings for pressure equalisation or rain screen principle as required, proper drainage of water to make it watertight including checking of all the structural and functional design.
- b) Providing, fabricating and supplying and fixing panels of aluminium composite panel cladding in pan shape in metallic colour of approved shades made out of 4mm thick aluminium composite panel material consisting of 3mm thick FR grade mineral core sandwiched between two Aluminium sheets (each 0.5mm thick). The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF / Lumiflon based fluoro polymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc.
- c) The fastening brackets of Aluminium alloy 6005 T5 / MS with Hot Dip Galvanised with serrations and serrated washers to arrest the wind load movement, fasteners, SS 316 Pins and anchor bolts of approved make in SS 316, Nylon separators to prevent bi-metallic contacts all complete required to perform as per specification and drawing The item includes cost of all material & labour component, the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working curtain wall with aluminium composite panel cladding, cleaning and protection of the curtain wall with aluminium composite panel cladding till the handing over of the building for occupation.

The Concessionaire shall provide curtain wall with aluminium composite panel cladding, having all the performance characteristics all complete, as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings.

- a) Exterior
- b) Interior
- c) Pergolas / Fins / Louvers



*Signature*



**17. Gypsumboard Partition:**

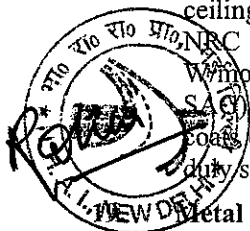
Providing and fixing partition upto ceiling height consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm (both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at the spacing of 610 mm centre to centre with dash fastener of 2.5 mm dia meter 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5 mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.

- 75mm overall thickness partition with 12.5 mm thick double skin tapered edged plain Gypsum board conforming to IS: 2095: part I
- 66mm overall thickness Partition with 8mm thick double skin Calcium Silicate Board made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process with Compressive Strength 225 kg/sq.cm, Bending Strength 100 kg./sq.cm
- 66mm overall thickness partition using 8mm thick double skin non- asbestos multipurpose cement board reinforced with cellulose fibre manufactured through autoclaving process (High pressure steam cured) as per IS : 14862 with suitable fibre cement screws

**18. Mineral Fibre False Ceiling:**

Providing & Fixing of Armstrong or equivalent Mineral Fibre Acoustical Suspended Ceiling System with DUNE PLANKS (MICRO LOOK) EDGE TILES WITH ARMSTRONG SUPRAFINE or equivalent of approved make 15 MM GRID. The tiles should have Humidity Resistance (RH) of 99%, NRC 0.5, Light Reflectance >83%, Thermal Conductivity  $k = 0.0520.057$  w/m K, Colour White, Fire Performance A2-s1.d0 in module size of 600 X 600 X 16 mm with Bio Block coating in the front & back of the tile, suitable for Green Building application, with Recycled content of 63%. The tile shall be laid on grid or equivalent of approved make with 15 mm wide T - section flanges color white having rotary stitching on all T sections. The T Sections have a Galvanizing of 120 grams per M2 & passed through 500 hrs of Salt test.

The above grid is suspended at every 1200mm c/c. in both directions using 2.0mm thick adjustable pre-straightened GI suspension laying Prima Dune Preeier Tegular Edge ceiling tiles or equivalent of approved make of size 600mm x 600mm x 15mm having NRC 0.50, light reflectance of >85% (WT), thermal conductivity  $k=0.052-0.057$  w/mK, Humidity Resistance of 99% (having LIFETIME GUARANTEE against SAG) having Fire Performance CLASS "0" / CLASS 1 (BS 476), surface having 3 coats of white paint - crisp finely granulated with micro perforations, back of the tile duly sanded and finished with a coat of protective paint over the formed grid etc.

**Metal False Ceiling:**



**Interior**

Providing and fixing metal false ceiling tiles (of approved colour / wood finish) of size 600x600x0.50mm with SUPRAFINE XL or equivalent of approved make 15mm Grid System i.e., hot dipped galvanized steel section and powder coated white. The above grid is suspended at every 1200mm in both directions using 2.0mm thick pre straighten GI wire. NRC 0.90, Light reflectance of >88% (WT), thermal conductivity  $k = 0.040$  W/m0K, Humidity Resistance of 99% RH, and having Fire Performance CLASS A1.

INSTALLATION: To comprise main runner spaced at 1200mm centres securely fixed to the structural socket by approved hanger at 1200mm maximum centre. The last hanger at the end of each main runner should not be greater than 450mm from the adjacent wall. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm centre to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees.

The wall angles or channel are to be secured to the walls at 450 mm maximum centres. THE SUSPENSION SYSTEM the accessories consist of M6 Anchor Fasteners with Vertical Hangers made of Galvanised steel of size 26 x 26 x 25 x 1.2mm with a Galvanised Thickness of 80g/ sq.m, A pre Straightened Hanger wire of dia - 2.68 mm of 1.83 m length., (vary to suit site condition) thickness of 80 g/sqm and a tensile strength of 344-413 MPa, along with Adjustable hook clips of 0.8mm thick, galvanised spring steel for 2.68 mm with a minimum pull strength of 110 kg. The adjustable clip also consists of a 3.5 mm aquiline wire to be used with the main runner.

**Exterior****1. Material**

Cold Rolled Steel -Confirming IS: 513 having minimum yield stress of 240 MPa and minimum tensile stress of 300 MPa. Base metal thickness -for ceiling panels: 0.45 mm & for carriers 0.55 mm

**2. Coating:**

Hot Dip Metallic coating -120 gms/m<sup>2</sup>. Zinc coating (galvanising) as per IS:277. Coating mass -120 gms/m<sup>2</sup>. (total of both sides) as determined by triple spot tests.

Organic Coating: Organic coating with Modified Polyester paint on a continuous coil coating line.

Top side: 15 micron Modified Polyester over 5 micron Epoxy primer

Back side: 5 microns Alkyd backer coat.

Total coated thickness:

- a. for ceiling panels 0.50mm
- b. for carriers 0.60mm

Approximate mass of completed ceiling 4.95 kg/ m<sup>2</sup>.

**3. Span**

The recommended span for wind loads shall be as per IS:875. In general, the spans for carriers and suspenders shall be 1200 mm c/c.

**4. Dimensions:**

The overall height of the false ceiling shall be as per the structural drawings and instructions issued by IOC Divisional Engineers for various locations based on the site requirements etc. The false ceiling shall be strictly as per the approved shop drawings and any deviation will be accepted only with the prior approval of IOC. Recommended dimensions:

For Ceiling Panels: 150-F or 200-F Flush panel: 150 mm or 200 mm wide x 17 mm deep with tongue and groove interlocking arrangement. For Carriers: 34.5 mm wide x 48 mm deep. However, this shall be checked for design wind loads and if found necessary, the

depth can be increased to 75 mm. However, no extra shall be paid for. Length for ceiling Panels: Up to 6000 mm Length for Carriers: Up to 5000 mm

#### 5. Fixing Method:

The Ceiling panels shall be clipped onto carriers, which are suspended from steel trusses with the help of G.I. suspension angles of size 25 x 25 x 0.5 mm thick by means of rigid suspension. The suspension system shall be rigid and meant for exteriors. The longitudinal joints of two panels shall be but jointed with a special panel splice behind the joint. The carriers' joint of two carriers shall be jointed by means of carriers splices maintaining a module of 150 mm. the spans shall not exceed as recommended and manufacturer's recommendations for installation shall be followed.

#### 6. Appearance:

The false ceiling should be of white colour as per standard technical specification and should be erected with the bottom face truly at horizontal plane. If the canopy bottom chord members are placed inclined such as upward slope of cantilever portion (if required as per architectural requirement) then the plane of false ceiling shall be parallel to bottom chord of truss and/ or as per architectural requirement. The false ceiling should also be provided to cover up any left over vertical portion on the front facia as directed by the site engineer. In such cases, The vertical surface of the false ceiling shall be flush with the back lit facia. Concessionaires are required to obtain the details of the facia first and it is preferable to carry out the false ceiling work after the front facia work is completed.

#### 7. Painting:

The painting on all the roofing / false ceiling shall be got done in the manufacturing process before brought to site for erection. Any surface damage/ chipping etc. on the outer exposed surfaces of any components suffered during transit, handling, erection or any other cause has to be made good properly by the Concessionaire at his own expenses and matching the shade with adjacent components as instructed.

#### 20. Veneering:

Supplying providing and fixing of green wall nut or equivalent veneering over the required areas using necessary, hardwares and adhesive and shall be finished with approved colour and shade suitable required Melamine (Glossy) polishes etc., as per standard specification, as per manufacturer specification, drawings.

#### 21. Texture Paint (Scratch Finish):

##### External Painting:

Exterior Texture finish (Spectrum Antonio wall finish or similar equivalent)

#### 22. Sanitary Fittings & Fixtures

Scope includes of all the sanitary fittings and fixtures as per site specific drawings, standard drawings and as per standard specifications.

#### Miscellaneous Items II:

##### 1. PRECONSTRUCTION ANTITERMITE TREATMENT:

- 1.1 Preconstruction anti-termite chemical treatment shall be carried out to surface which include bottom and sides of excavation in foundation of walls/columns, the back filled earth in immediate contact with the foundation structure, top surface of filled earth under floors, junction of walls and floors, soil under plinth protection, soil along external perimeter of the buildings and soil surroundings the conduits/pipes of buildings all as specified in clause 3.26.1 to 3.26.11 of MES SSR Part-I.

The work shall be got done as per IS-6313 Part-II 1981.

1.2 Anti-termite treatment shall be got done through an approved specialised agency which is a member of Indian Pest Control Association holding valid licence as per clause 13 of Insecticides Act 1968. Persons employed to do the anti-termite

treatment shall be qualified as per rule 10 of the rules framed under the insecticides Rule 1971.

- 1.3 Anti-termite treatment shall be carried out with any of the following chemicals/brands :-
- (a) Chloropyriphos 20% EC :
- i) Dursban - TC, manufactured by De-Nocil Ltd.
  - ii) Durmet, manufactured by Base India Limited .
  - iii) Termisafe, manufactured by Bayer (India ) Ltd.
  - iv) Rusban , manufactured by Jai Shree Rasayan Udyog Ltd.
- (b) Lindane 20% EC :
- i) Gammax 20, manufactured by M/S India Pesticides Ltd.
  - ii) Kanodane 20 EC, manufactured by M/S Kanoria Chemical & industries Ltd.
- 1.4 Chemicals brought to site in sealed containers in 5 ltr pack only, bearing ISI certificate marks shall only be permitted to be used. Chemicals shall be stored carefully at site. Empty containers shall be removed off the site promptly. If on a particular day the contents of one full container could not be used in the work the container should be got sealed at the end of the day and opened when required.
- 1.5 Should the Independent Engineer at any time during the construction or concession period finds that the buildings have been infested with termites the concessionaire shall, on demand in writing from the Independent Engineer specifying the building complained of, notwithstanding that the same may have been cleared earlier by the Independent Engineer, forthwith undertake to carry out such treatment which may be necessary to render the buildings free from termite infestation at his own expenses, till expiry of the concession period.
- 1.6 The concessionaire shall provide a plaster plate of requisite size in situation as decided by the Independent Engineer on any of the wall of each of the building. The plate shall be 15mm thick in cement mortar (1:4) indicating the, Name of the Concessionaire, the date of completion of work and the probable date of expiry of antitermite treatment by engraving and painting (Black).
- 1.7 Testing of chemical is mandatory from approved laboratory before incorporation in the work. The cost of testing shall be borne by the Concessionaire.

## 2. CONCRETE WORK

### 2.1 GENERAL:

### 2.2 CEMENT:

#### 2.2.1 TYPE OF CEMENT:

Type of cement to be used in this contract shall be ordinary portland cement, grade 43, conforming to IS-8112-1989/ Portland Pozzolana Cement conforming to IS-1489-1991, unless otherwise specifically specified. However, Concessionaire may use OPC in lieu of PPC in all situation in the work

#### 2.2.2 PROCUREMENT:

2.2.2.1 Cement shall only be procured by the Concessionaire directly from any of the main producers of cement with makes specified in Annexure V of schedule D.

2.2.2.2 Use of PPC: While using PPC, the following requirements shall be met with:-

PPC shall meet the strength criteria of 43 grade OPC as laid down in IS 8112

- b) The minimum period before striking formwork given in clause 11.3.1 of IS-456 shall be suitably modified at site and approved by the Independent Engineer.
- c) Mixing of OPC and PPC shall not be allowed in a work.
- d) PPC Cement shall not be used in Overhead Reservoirs and Underground Sump. In these structures only OPC cement shall be used.
- e) While procuring PPC, the following requirements are to be ensured and certificate to that effect from the manufacturer shall be submitted by the Concessionaire for each batch:-
  - (i) The quality of fly ash used is strictly as per IS-1489 (Part-I)-1991.
  - (ii) The fly ash is inter-ground with clinker and not mixed with clinker.
  - (iii) The dry fly ash is transported in closed containers and stored in silos. Only pneumatic pumping has been used.
  - (iv) The fly ash has been received from thermal power plants using high temperature combustion above 1000 Degree Centigrade.
  - (v) The fly ash content in PPC is less than 25% to achieve desired consistency.

2.2.2.3 Cement brought by the Concessionaire at site(s) of work shall be in jute/polythene/paper bags containing 50Kg cement in each bag originally sealed by manufacturer.

2.2.2.4 Concessionaire shall produce purchase vouchers, test certificates and other valid documentary proof to the entire satisfaction of the Independent Engineer for entire quantity of each consignment to prove that cement has been purchased from the main producers as in para 2.2.2.1 above.

### 2.2.3 TESTING OF CEMENT:

2.2.3.1 The Concessionaire shall submit the manufacturer's test certificate in original along with the test sheets giving the result of each physical test as applicable and the chemical composition of the cement or authenticated copy thereof, in accordance with BIS provisions duly signed by the manufacturer or his authorised representative with each consignment.

2.2.3.2 In addition to manufacturer's test certificate, the Independent Engineer shall also take random samples of cement drawn from various lots of each consignment as specified in IS Codes and get them tested from any one of the Govt. approved laboratories at his discretion or from SEMT CME, Regional Research Laboratory or Zonal Laboratory, all as per IS-3535 (Method of Sampling Hydraulic Cement), IS-4031 (Method of Physical Test of Hydraulic Cement) 1985 and IS-4032 (Method of Chemical Analysis of Hydraulic Cement). Irrespective of results, cost of materials for such samples, cost of requisite handling & conveyance etc shall be borne by the Concessionaire. Cement from each consignment shall be allowed to be incorporated in the work only after the Independent Engineer is satisfied with the quality of cement brought by Concessionaire.

2.2.3.3 It shall be ensured that tested and untested cement is segregated and stored separately with distinct identification. Cement of different brands shall be stacked separately by the Concessionaire. The stacking of cement shall not be more than 10 bags high.

2.2.3.4 If the test results on samples of a particular consignment are not within acceptable limits, the matter shall be referred to the Project Director, whose decision regarding acceptability of such cement or removal from the site shall be final and binding. Cement so rejected or any bag of cement in godown showing indication of any setting shall be segregated and removed by Concessionaire from the site within a stipulated time, with due permission of the Independent Engineer for their removal.



**2.2.4 STORAGE/CONSUMPTION OF CEMENT :**

2.2.4.1 Cement in bags shall be stored in proper leak proof/damp proof storage godown, over at least a 20cm high platform, away from walls in such manner as to prevent deterioration due to moisture or intrusion of foreign matter, all as specified in clause 4.3.1 of SSR Part-I.

2.2.4.2 For the purpose of keeping a record of cement procured and consumed in works, the Concessionaire shall maintain a properly bound register in the form approved by the Independent Engineer showing all procurements, quantity used in the work and balance in hand, at the end of each day and such other information as may be required to control the consumption of cement. Pages of the register shall be numbered and initialled by Independent Engineer. This register shall be signed by the Independent Engineer and the manager of the concerned Authority's Project office from time to time as instructed by the Authority.

2.2.4.5 Cement shall be used in order of which it is received. It shall be ensured that only one type/make of cement is used in any structural member.

2.2.4.6 Cement shall not be more than 02 months old and shall be consumed within next 02 months of its packing.

**2.2.5 SCHEDULE OF SUPPLY:**

The Concessionaire shall ensure that procurement action is taken immediately after acceptance of the contract so as to adhere to schedule of activities as per his approved work program submitted to achieve the COD.

2.2.6 The periodicity of striking the form work and curing for works with ordinary Portland cement, shall be as stipulated in clause 11.3 and 13.5 of IS 456 of 2000 and the same shall be suitably modified by the Independent Engineer when PPC is used.

**2.3 AGGREGATES:**

Aggregates for concrete work shall conform to specifications all as specified in clauses 4.4.1 to 4.4.7 of MES SSR Part-I.

**2.3.1 FINE AGGREGATE (SAND):**

Grading for fine aggregate shall be within the limits of grading zone I to III as given in clause 4.4.7.2 of MES SSR Part-I. Crushed stone sand of grading I to IV may be used for concrete and masonry work only.

**2.3.2 COARSE AGGREGATE:**

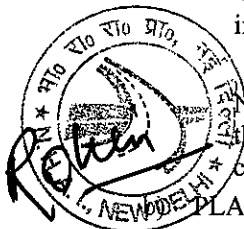
Unless specified otherwise in these particular specifications coarse aggregate for all concrete work in all situations shall be graded crushed stone aggregate of approved quality. The Concessionaire may however use graded stone aggregate/all in aggregate graded of approved quality in lean concrete under foundation and sub base of floor. However, two types of aggregate shall not be mixed.

**2.3.2.1 GRADING OF COARSE AGGREGATE:**

Graded aggregate of nominal sizes given hereunder, shall be used, unless specified otherwise in the specifications hereinafter:-

**a) REINFORCED CEMENT CONCRETE:**

- i) For elements of depth/thickness more than and including 100mm - 20mm
- ii) For elements of depth/thickness less than 100mm - 12.5mm



NOTE: However, in no case the nominal size of aggregate shall be greater than one fourth the minimum thickness of the member and further it should conform to the requirement given in Clause 5.3 of IS 456-2000.

**PLAIN CEMENT CONCRETE:**

- i) Under 30mm thickness: 12.5mm



ii) 30 to 80mm thickness: 20mm

iii) Exceeding 80mm thickness: 40mm

2.4 WATER: Water shall conform to the requirements stipulated in Clause 5.4 of IS 456-2000.

2.4.1 ADMIXTURE: Admixture, if used shall conform to the requirements stipulated in clause 5.5 of IS 456-2000.

2.5 MIX OF CONCRETE FOR WORKS:

Unless otherwise specified elsewhere in these particular specifications, mix of cement concrete in various situations shall be as under :-

SITUATIONS	TYPE OF CONCRETE
a) Lean concrete under foundation of wall/plinths/toe beam/steps & in gaps between plinth beam/column footings.	M-10 (Nominal mix)
b) Foundation concrete under column footings	M-10 (Nominal mix)
c) PCC cills, PCC block for holder bats, holdfasts/lugs for doors, windows and ventilators, plugging for scaffolding holes and plinth protection.	M-15 (Nominal mix)
d) PCC in bed blocks/plates, kerbs padding, benching, splash stones, coping and PCC in any other situation (except sub floor/sub base of floor and flooring) not covered above.	M-15 (Nominal mix)
e) All RCC works	M-25 (Design mix)

(i) SPECIFICATIONS FOR M-25 DESIGN MIX CONCRETE:

Specifications Reinforced Concrete (Below & above FFL)

Type of mix	: Design mix
Grade	: M-25
Type of cement	: OPC 43 Grade/PPC
Max Nominal size of agg	: 20mm
Min cement content	: 360 Kg/Cum
Max water cement ratio	: 0.50
workability	: 25-75mm slump
Exposure Conditions	: Moderate
Max temp of the concrete at the time of placing	: Prevailing ambient temp
Method of placing	: As specified.
Type of Aggregate specified	: Crushed stone aggregate as

Note: (i) PCC/RCC for other purposes shall be provided as specified in the relevant drawings.

(ii) The minimum cement content for M-25 (design mix) shall not be less than 360 Kg per Cubic metre.

Design mix shall be got carried out by the Concessionaire from Govt Engineering College/Govt approved lab. Minimum cement contents in trial mix, meeting the

- strength requirement as per IS-456-2000 shall be approved by the Independent Engineer and work shall be carried out accordingly.
- 2.6.1 In case of any change in source/quality of materials, fresh design mix shall be carried out and approved by the Independent Engineer.
- 2.7 IMPORTANT REQUIREMENTS OF REINFORCED CEMENT CONCRETE/ PLAIN CEMENT CONCRETE:
- 2.7.1 (i) All the materials, workmanship, inspection and testing for the cement concrete of grade M-10 & M-15 (Nominal mix) to be used for PCC work shall be as per the requirements given in section 2 of IS-456-2000.
- ii) Testing of cement concrete cubes shall be carried out all as provided in IS 456: 2000. The confirmatory tests when required by the Independent Engineer shall, however, be carried out in site laboratory, for which necessary facilities for casting of samples, curing and conveyance of samples etc. shall be provided in the site laboratory by the concessionaire. In case, the Concessionaire or his authorised representative does not remain present during the time of testing of cubes, the testing shall nevertheless be done by the Independent Engineer at the site laboratory. The test reports shall be signed by the Independent Engineer and the concessionaire and the same shall be maintained as a record.
- (iii) Nominal mix shall be by volume if permitted by Independent Engineer.
- 2.7.2 All plain Cement concrete shall be mixed in a mechanical mixer with hopper of approved type. The coarse and fine aggregates for mixing of cement concrete shall be put in the hopper through measuring boxes. Under no circumstances measuring with other than proper measuring boxes shall be allowed. However, in case of small quantity (i.e. the quantity of concrete required being less than one batch of mix), the Concessionaire may, after obtaining written permission of the Independent Engineer be allowed hand mixing. Where hand mixing is permitted, it shall be carried out on a water tight platform and care shall be taken to ensure that mixing is continued until the concrete is uniform in colour and consistency.
- 2.7.3 All concrete for RCC work shall be consolidated/compacted by mechanical vibrators of approved type as specified in para 4.11.11 of MES SSR Part-I. Precast/cast-in-situ plain cement concrete shall, however, be rammed and consolidated by tamping and roding.
- 2.7.4 IMPORTANT REQUIREMENTS FOR M-25 (DESIGN MIX):
- 2.7.4.1 Compressive strength of cubes after 28 days shall be 25 N/Sqmm for M-25 (Design Mix). Design mix shall be made as per clause 16 and table 11 of IS 456-2000".
- 2.8 PRELIMINARY TESTS FOR TRIAL MIXES:
- (i) As soon as possible after receiving the order to commence work, the Concessionaire shall make the trial mixes for concrete in presence of the Independent Engineer, meeting the strength requirement as per IS-456-2000 and shall be approved by Independent Engineer.
- (ii) From each trial mix, nine number preliminary test cubes of size 15x15x15cms shall be made and tested in accordance with IS-516. Three of these cubes shall be tested at seven days (i.e on 8th day from the date of casting) and another three at 28th days (i.e 29th day from the date of casting) and the remaining three cubes of the finally approved mix shall be preserved by the Independent Engineer for one year after completion of work for test in case of subsequent check.
- (iii) The test after seven days is intended only to give early indication of possible relations from the required strength. The average strength of these preliminary test cubes after 28 days shall not be less than that specified in

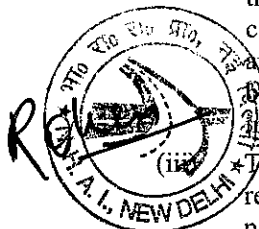
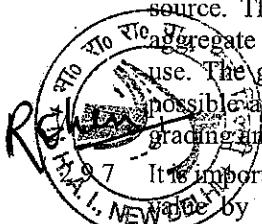


Table 2 of IS-456-2000. If the difference between highest and lowest values of 28 days from any one trial mix is more than 15 percent of the average strength of the three cubes, testing is to be discarded and a further trial mix made. Any cube of mix not found satisfactory will be destroyed.

- (iv) On the results of the above tests, the mixes actually to be used is to be agreed to and approved by the Independent Engineer.
- (v) The approval of the Independent Engineer will not absolve the Concessionaire of his responsibility for obtaining the required minimum strength.
- (vi) All tests in support of mix design shall be maintained as a record for the contract.

## 2.9 Batching and Mixing

- 2.9.1 All concreting shall be done using fully computerized automatic concrete batching plant of minimum capacity 8 to 10 Cum/hour with automatic admixture dispenser which shall be installed by the Concessionaire at site, calibrated and tested. The batching plant shall conform to IS: 4925. It shall have the facilities of data print-outs, presetting the quantity to be weighed with automatic cut-off when the same is achieved.
- 2.9.2 In case of non-availability of batched concrete, ready mix concrete (RMC) may be used. The concrete to site shall be transported by transit mixtures. All the precautions shall be taken during the transportation and handling of concrete to achieve the desired strength, durability, etc. as envisaged in the mix design. Concessionaire has to get approval from Independent Engineer regarding source of ready mix concrete by giving the details of such plans indicating name of owner/company, its location, technical establishment, past experience and text of Memorandum of understanding (proposed to be entered between purchaser and supplier) who, after satisfying himself about quality/capability of the company, shall give approval in writing (subject to drawl of MOU). The MOU shall be drawn with RMC plant owner/company and submitted to the Independent Engineer within a week of such approval. The Concessionaire will not be allowed to purchase ready-mixed concrete without completion of above formalities for use in this project. Notwithstanding the approval granted by the Independent Engineer in aforementioned manner, the Concessionaire shall be fully responsible for quality of concrete including input control, production, transportation and placement etc. The Independent Engineer will reserve the right to deploy his supervisor at plant site to inspect at any stage and reject the material/concrete etc. if he is not satisfied about quality of material/product
- 2.9.3 The design mix concrete will be designed based on principle given in IS-456, 10262 and SP-23 for each class of concrete indicating that the concrete ingredients and proportions will result in concrete mix meeting requirement specified.
- 2.9.4 In case of use of admixture and/ or white cement, the mix shall be designed with these ingredients as well.
- 2.9.5 All measuring equipment shall be maintained in a clean and serviceable condition and their accuracy shall be checked at least once a month
- 2.9.6 Only single sized stone aggregate shall be bought to site of work from the approved source. The grading of the stone aggregate shall be controlled by blending the aggregate of different sizes shall be stock-piled separately, preferably a day before use. The grading of coarse and fine aggregates shall be checked as frequently as possible and as directed by the Independent Engineer to ensure that the specified grading and quality of aggregate is maintained.
- It is important to maintain the water cement ratio constant at its specified or approved by making adjustment of the moisture contents of both fine and coarse





aggregates. The moisture contents in the aggregate shall be determined as frequently as possible in keeping with the weather conditions and as per the provisions of IS: 2386 (Part-III).

## 2.10 TESTS

2.10.1 The followings tests shall be carried out during the execution of work. Tests shall be carried out in accordance with IS-516 and IS-1959. The Concessionaire shall provide all facilities and equipment for casting and curing of test cubes and conveyance of test cubes and other material for testing purpose to the site laboratory.

- a) Workability Test: Workability test shall be as per clause 7 of IS-456-2000
- b) Sampling and Strength of Concrete:
  - i. Sampling: Minimum frequency of sampling of concrete of each grade shall be in accordance with clause 15.2 of IS-456-2000.
  - ii. Testing Specimen: A group of nine test specimens (15cm x 15cm x 15cm) cubes shall be made from each sample.
  - iii. Three cubes shall be tested at 7 days and three at 28 days for crushing strength and the remaining three cubes shall be kept as reserved exclusively for Independent Engineer/Authority use for subsequent testing and preserved for one year from completion of work. The Concessionaire cannot object testing of other cubes for a purpose as a matter of right.
  - iv. For the purpose of subsequent identification of the work test cubes, the concrete to which these pertains shall be cross referred and record of this maintained and signed by the Independent Engineer and the concessionaire or his authorised representative.

## 2.11 Acceptance Criteria

2.11.1 The concrete shall be deemed to comply with the strength requirement when the conditions given in clause 16 of IS-456 are met.

## 2.12 Placing and Compaction of Concrete

2.12.1 Concrete shall be transported without delay and incorporated in works at the position of laying within 20 minutes from the time of discharge from the mixer.

2.12.2 Mixed concrete shall be deposited in final position and solidly packed around reinforcement, carefully poured and consolidated by means of portable vibrators or mechanically operated and of the kind as suitable or a particular situation as directed by the Independent Engineer. Care shall be exercised that no voids or honey comb pockets are formed. The concrete shall not be laid in position for more than 1 meter Height in one concrete operation.

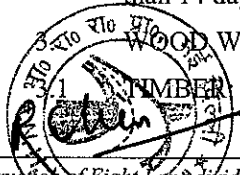
## 2.13 Water Cement Ratio

2.13.1 The water cement ratio for the concrete shall be as per IS-456-2000. To achieve this water cement ratio, the moisture contents in respect of coarse aggregate and fine aggregate shall be tested and kept on record. The frequency of testing of moisture contents in respect of coarse and fine aggregate shall be as specified in BIS codal provisions. The amount of water required shall be adjusted depending upon the result of tests for the moisture contents carried out. For determination of moisture contents in aggregate IS-2386(Part III) may be referred to.

## 2.14 Curing

2.14.1 The concrete shall be protected from premature drying for atleast 8 days after pouring and shall be cured as directed by the Independent Engineer for a period of not less than 14 days.

## WOOD WORK AND JOINERY:



*Resale*



- 3.1.1 Timber for all joinery and wood work shall conform to specifications given in clause 7.3 of the MES SSR Part-I and shall be within the permissible limits of defects in clauses 7.4 and 7.5 of the MES SSR Part-I.
- 3.1.2 Timber shall be well seasoned whether air or kiln dried at the discretion of the Concessionaire (except factory made door shutters which shall be kiln seasoned only). The moisture contents of timber shall not exceed the limits laid down in clause 7.7 of MES Schedule Part-1.
- 3.2 PRESERVATION OF TIMBER:
- 3.2.1 Preserving antitermite treatment shall be carried out to all wood work and joinery fabricated by the Concessionaire at site. Factory made wood based boards are not to be treated at site with any chemical.
- 3.2.2 Chemical used for antitermite treatment to woodwork and joinery shall be copper naphthanate or any other chemical specified in IS-401 applied in any one of the manners specified in the ibid IS.
- 3.3 SPECIES OF TIMBER: The species of timber and prefabricated wood products (i.e. plywood, wood particles board etc.) shall be as specified below:-
- i) Paneled/glazed/wire gauzed shutter - Factory made shutter using  
for doors (Styles, rails, glazing bars only, beading/ moulding fillets) IIInd class hard wood (Hollock Wood)
  - ii) Any wood work not covered above - First class soft wood (Deodar and herein before wood).
- 3.3.1 Panelled shutters shall be provided with beading all-round the panel inserts on one side of door. The size of beading shall be 20mm in width and tapered thickness from 10mm to 5mm
- 3.4 PARTICLE BOARD: Particle board shall be ISI marked exterior grade-1 (medium density). Particle board shall be flat pressed, BWP grade bonded with phenol formaldehyde synthetic resin adhesive conforming to IS-3087 (Type-I Part-I) all as specified in Para 12.13 of MES SSR Part-I. Particle board shall be of uniform thickness and density throughout. Both the faces of particle board shall have sanded smooth finish. Where thickness of particle board has been shown as 20mm, it shall be read as 18/19mm.
- 3.5 PLYWOOD: Plywood where indicated shall be BWR grade bonded with phenol formaldehyde synthetic resin adhesive and marked with IS -303 for general purpose plywood and IS-1328 for decorative face plywood. Facing shall be of teak veneer or commercial veneer as per the relevant drawings/specifications.
- 3.6 The pre-laminated particle board in all situations shall be three layered exterior grade ISI marked (IS :12823 Gde I) with pre-lamination of approved shade on one side and balancing white on other side.
- 3.7 WORKMANSHIP:
- 3.7.1 Joinery shall be wrought all over. Timber exposed to view shall be wrought and timber not exposed to view shall be clean sawn. The workmanship and fixing of joinery shall be as per clause 8.11 to 8.22 of MES SSR Part I.
- 3.7.2 The dimensions of the various components of joinery (other than block board shutters) shown on drawings, wherever at variance, shall supersede the standard dimensions mentioned in clause 8.20 of the MES SSR Part I.
- 3.7.3 Unless otherwise specified, all work both carpenter's and joiner's shall hold full dimensions as specified except that an allowance of 1.00mm shall be allowed for each wrought face. Wooden beads and fillets shall however, hold the full dimensions

as specified. The Concessionaire shall also maintain the overall sizes of the doors and windows etc. as specified.

- 3.7.4 Timber members up to 3.00 metre in length shall be in one piece.
- 3.7.5 Plugging to walls shall be done with wooden plugs as per clause 7.29 of the MES SSR Part-I.
- 3.8 FACTORY MADE PANELLED/GAUGED/GLAZED SHUTTERS:
- 3.8.1 All paneled/glazed/wire gauged shutters of doors shall be factory made, manufactured in accordance with IS-1003, made of well selected kiln seasoned, chemically pressure treated, 2nd class hardwood (as approved by Independent Engineer). Styles, rails and glazing bars shall be as specified in clause 3.3 (i) hereinbefore. Panel inserts shall be 12mm thick particle board commercial on both faces, conforming to specifications mentioned in clause 3.4 hereinbefore. Thickness of shutter shall be 35mm thick. Factory made shutters shall be procured from the manufacturers as listed in Annexure V of Schedule D here-in-after.
- 3.8.2 A Tolerance of (plus/minus) 3mm on width and height only shall be allowed, provided the shutter snugly fits into the frame. The thickness of shutters given in drawing shall be the finished thickness and no tolerance on this shall be permissible.
- 3.8.3 The Independent Engineer should visit the factory when a lot of factory made paneled shutters are ready for despatch to site. The Independent Engineer should ascertain whether the testing facilities are available for seasoning, preservative treatment of timber and shutters are manufactured as per IS-1003 specifications.
- 3.8.4 Testing of shutters is mandatory from Govt approved lab as per IS-1003 Part-I before incorporation in the work. Shutters shall be allowed to be incorporated in the work only after the Independent Engineer is satisfied with the quality of the shutters brought by the Concessionaire.
4. BUILDERS HARDWARE
- 4.1 GENERAL:
- 4.1.1 Items and quantities:- Hardware fittings shall be provided according to the conventional scales for the similar work prevalent in the MES/CPWD works.
- 4.1.2 In case the size of particular fitting is not given in the drawings, it shall be of size as decided by the Independent Engineer.
- 4.1.3 All articles of builders hardware shall bear ISI marking. In case ISI marked articles are not manufactured, those shall conform to the relevant IS specifications given in the MES schedule for the relevant item.
- 4.1.4 Finish of articles shall be as specified in clause 9.2.4 of the MES SSR Part-I.
- 4.1.5 Screws used for fixing the articles of builders hardware shall be as specified in clause 9.2.6 of the MES Schedule(Part-I).
- 4.2 ARTICLES:
- 4.2.1 BUTT HINGES:  
Butt hinges shall be cold rolled, mild steel, medium weight all as specified in clause 9.7.2 of MES SSR Part-I.
- 4.2.2 WIRE CLOTH: Wire cloth to be used for wire gauged shutters shall be galvanised mild steel with average width of aperture 1.18mm and nominal dia of wire 0.457mm all as specified in clause 9.25 and 9.32 of MES SSR Part-I.

4.2.2.1 Stainless steel wire mesh for aluminium windows shall be with average width of aperture 1.40mm and nominal dia of wire 0.36mm.

4.2.3 DRAPERY RODS: Drapery rods shall be of minimum 25mm dia plastic coated and shall be in one length per window/door and provided with one number Funnel and bracket on each end. Rings shall be of appropriate size and shall be provided at 15cm

- 4.2.4 CURTAIN RODS: Curtain rod as specified shall be provided to doors & windows in the locations as indicated on the drawings. Curtain rods shall be of 19 mm bore decorative powder coated aluminium pipe fixed in bracket all as specified by the manufacturer.
5. STEEL AND IRON WORK:  
Note: Concessionaire shall make his own arrangements to procure steel and iron all as specified hereinafter
- 5.1 GENERAL:
- 5.1.1 Items of steel and iron brought to site by the Concessionaire for incorporation in the work shall be free from defects all as specified in clause 10.4.3 and 10.17.6 of SSR Part-I and shall be conforming to IS specifications as given below:-
- (i) Structural steel standard quality - Conforming to IS-2062
  - (ii) Structural steel ordinary - Conforming to IS : 1977 quality
  - (iii) Reinforcement steel - High strength deformed steel bars produced by Thermo-Mechanical Treatment Process (TMT steel bars of grades Fe 500) meeting all requirements of IS : 1786
  - (iv) Galvanised Steel Sheets - Conforming to IS-277 (Plain and corrugated)
  - (v) Fabric Reinforcement for concrete - Conforming to IS-1566
- 5.2 Materials
- 5.2.1 The Galvanised Iron Sheets and Fabric Reinforcement for concrete to be supplied by the Concessionaire shall be ISI marked and shall be procured from Main manufacturers.
- 5.2.2 The Structural steel supplied by the Concessionaire will only be procured from main producers namely SAIL, Rashtriya Ispat Nigam Ltd, TISCO or Secondary producers (as listed in Annexure V of Schedule D) who manufacture structural steel out of ISI marked billets and are having BIS certification of ISI marking on their products.
- 5.2.3 TMT steel supplied by the Concessionaire will be procured only from Main producers of steel namely SAIL, Rashtriya Ispat Nigam Ltd, TISCO.
- 5.2.4 Steel sections for railing, gates, fencing including angle iron posts/horns, guard bars, guard bars, grills, steel chowkhats, holdfasts etc which do not constitute structural members, can be procured from main producers/ secondary producers/ BIS marked manufacturers or their authorized dealers at the option of Concessionaire. The requirement of production of Test certificates and Testing will not be insisted upon for such steel sections.
- 5.3 Procurement :-
- 5.3.1 The IE for every lot of steel shall obtain the particulars of the manufacturer/supplier of steel from the Concessionaire separately.
- 5.3.2 The Independent Engineer shall verify the original documents in support of the purchase of steel and will retain certified true copy of the results in Independent Engineer's office.
- 5.3.3 The reinforcement steel will be procured from the storage depots of the main producers and not from their authorised agents/dealers. Similarly, Structural steel will be procured from the storage depots of the main producers/approved Secondary producers and not from their authorised agents/dealers.
- 5.4 Documentation: The Concessionaire shall submit original purchase vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the work. The Independent Engineer along with the relevant documents before acceptance shall inspect all consignment received at the work site. The original vouchers and the Test Certificate shall be defaced by the Independent Engineer and kept on record in the office of the Independent Engineer.

authenticated and with cross reference to the control number recorded in the Steel Acceptance Register. The Steel Acceptance Register will be signed by Independent Engineer and concessionaire. The entire quantity of all steel items shall be suitably recorded in the Measurement Book as not to be abstracted, before incorporation in the work and shall be signed by the Independent Engineer and the Concessionaire.

5.5 TOLERANCE: Rolling and cutting tolerance of structural steel products shall be as specified in IS-1852 of 1985. Tolerance on size and weight of reinforcement bars shall be as specified in clause 10.17.4 and 10.17.5 of SSR Part - I. Steel with less weight than permissible shall not be used.

5.6 SCHEDULE OF SUPPLY: The Concessionaire shall ensure that procurement action is taken immediately after Financial Closure so as to adhere to schedule of activity.

5.7 STORAGE, ACCOUNTING, PRESERVATION AND MAINTENANCE:

5.7.1 Structural steel/bars of different classification, sections, sizes and lengths shall be stacked separately. Steel shall be marked with distinct painting marks for easy identification. Steel shall be recorded in Measurement Book for record purpose only.

5.7.2 All steel shall be stored on dunnage atleast 15cm above ground level. Steel reinforcement shall be stored properly to prevent deterioration and corrosion. In case of long time storage, suitable protective measures like cement coating, provision of temporary shelter etc to save it from rusting/deterioration etc shall be taken. Any item of steel that has deteriorated or corroded or considered defective by Independent Engineer shall not be used in the work and shall be removed from the site of work.

5.8 Testing of Steel:-

The manufacturer is to carry out inspections and testing of steel in accordance with the relevant BIS provisions. The Concessionaire shall submit the manufacturer's test Certificate in original along with the Test Sheet giving the results of each mechanical test as applicable and the chemical composition of the steel or authenticated copy thereof, duly signed by the manufacturer with each consignment. The Independent Engineer shall also organise independent testing of random samples of steel drawn from various lots from Government approved Lab as per the recommended minimum frequency shown in the relevant BIS codes. Samples from each lot should be tested for quality and elongation. The elongation shall not be less than 18%. Cost of samples and transportation shall be governed as per condition of the contract. The records of such checks would be maintained in the steel test register.

5.8.1 Quality of steel shall be ascertained by following tests :-

(i) THERMO MECHANICALLY TREATED BARS: Tensile test, bend test and rebend test shall be carried out as per Clause 8 of IS-1786-1985. Test specimen shall be taken as per clause 10 of IS-1786-1985. Minimum tensile strength, yield stress and minimum elongation for TMT steel bars of grade FeD-500 shall be as per clause 7 of IS-1786-1985.

(ii) STRUCTURAL STEEL: Tensile test and bend test shall be carried out as per clause 7 & 8 of 'IS-2062'. Minimum yield stress shall be 240 N/Sqmm.

(iii) CHEMICAL TEST: Chemical test shall be carried out to ascertain chemical composition which shall conform to the norms laid down in relevant ISI codes. For TMT bars, Chemical Composition shall be as given in relevant BIS codes.

5.8.1.1 If the test fails and steel has been incorporated in the work, the further execution of work with that steel will be stopped and matter shall be referred to the Authority. The decision of the Authority regarding acceptance of work with the steel which has failed in test as decided by the Authority or redoing the work with steel of proper specifications or any other decision shall be final and binding on the Concessionaire. In case Authority decides to remove the sub-standard steel, the work executed using



sub-standard steel shall also be demolished and site cleared by the Concessionaire without any extra cost to the Government.

#### 5.8.2 METHOD OF MEASUREMENT:

All items of steel brought at site shall be entered in Measurement Book for record purpose "Not to be abstracted" before incorporation in the work and shall be signed by Independent Engineer and the Concessionaire indicating the diameters and length of bars, quantities, voucher number with date.

#### 5.8.3 RECORD OF MEASUREMENTS:

Before casting of concrete, reinforcement incorporated shall be measured by rep of Independent Engineer and Concessionaire jointly. These measurements shall be entered in a register for the purpose of record and shall be signed by Concessionaire's rep and IE. Proper reference of Drawing. No., location, date etc. shall also be given therein.

#### 5.8.4 WEIGHT CONVERSION:

Conversion factor for various sections/sizes of steel shall be as per conversion tables given in SSR. Where conversion table is not available in SSR, IS conversion shall be used.

#### 5.9 STEEL REINFORCEMENT:

5.9.1 TMT bars shall be provided irrespective of whatsoever shown on drawings.

5.9.2 Reinforcement shall be fabricated and placed in position as specified in clause 10.17 to 10.22 of MES Schedule (Part-I) without application of heat.

#### 5.10 WELDING:

Welding wherever required shall be by metal arc process in accordance with IS-816 and IS-823.

#### 5.11 HOLD FASTS/LUGS :

Flat iron hold fasts/lugs shall be provided by welding, except those, to be provided to wooden chowkats which shall be fixed with bolts/nuts. Holes in wooden chowkats shall be plugged with hard wood plugs. The hold fasts/lugs shall be embedded in PCC 1:2:4 blocks of size 230x230x150mm for doors and 100x100x100mm for windows/ventilators respectively.

#### 5.12 ALUMINIUM DOORS :

Aluminium door shall be natural colour anodized of approved design complete with all fixing arrangement including providing and fixing door handles, tower bolts and provision for fixing floor springs/door closer and cylindrical lock including neoprene lining. The member shall be made out of extruded aluminium sections comprising of the following:-

a) Shutter Verticals members 47.62x44.45x3.18mm weighing 1.50Kg/RM

b) Shutter top members 47.62 x 44.45 x 3.18 weighing 1.50Kg/RM

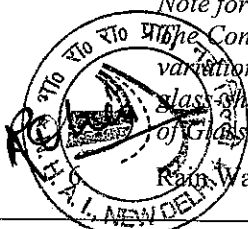
c) Shutter Bottom member 114.30x44.45x3.18mm weighing 2.646 Kg/RM

d) Shutter lock rail 63.50 x 44.45 x 2.40mm weighing 1.679 Kg/RM

e) Frame work for aluminium doors shall be done using member 114.30x44.45x3.18mm weighing not less than 2.646 Kg per Running metre.

*Note for Clause 5.12: The above sections shall be from JINDAL/ INDAL extrusion. The Concessionaire is at liberty to choose section from approved makes with minor variation in sizes and weights as approved by Independent Engineer. The plain glass sheet of thickness 5.5mm for doors and 5mm for windows shall be used. Make of Glass shall be as mentioned in Annexure V of Schedule D.*

Rain Water Pipes and Accessories:



- 6.1 Where ever Rain water pipes shown on drawings, the same shall be of PVC (S.W.R) pipes Type 'A' conforming to IS:13592 and fittings conforming to IS:14735 of makes as specified in Annexure III of Schedule D. The pipes and fittings shall be secured to walls below all joints with mild steel holder bat clamps as specified in clause 11.34.5 of the MES Schedule Part I.
- 6.2 The grating shall be of CI round type weighing not less than 0.5Kg each, provided and fixed at the inlet of rain water pipe.
- 6.3 Splash stones as specified hereinbefore shall be provided below the rain water pipe.
- 6.4 Spouts and pipe outlet shall be of GI tubing medium grade as per IS-1239. Size and length shall be as specified, wherever, the same is not shown on drawing it shall be 50mm bore, projecting 250mm beyond outer face of walls. Spout/ GI Pipe/Conduit wherever passed through beam/RCC, it shall be put in position at the time of casting of beam/RCC.
7. FLOORING:
- 7.1 GENERAL:
- 7.1.1 Ordinary portland cement/portland pozzolana cement for all flooring shall be used.
- 7.1.2 Provisions contained in clauses 13.25, 13.27, 13.32 & 13.38 of MES Schedule (Part-I) are to be adopted for laying floors and pavements.
- 7.1.3 Floors shall be laid to levels or to falls as specified and as directed by the IE.
- 7.1.4 Floor finish shall be extended over dwarf walls, doors and other openings.
- 7.1.5 - Blank -
- 7.1.6 The dividing line between the floors of different types wherever met between rooms, shall be determined on the basis of the finish visible when the doors are closed and the applicable finish shall accordingly be provided.
- 7.1.7 Floor finish over RCC slabs shall be laid all as specified in clause 13.32.5 of MES SSR Part-I.
- 7.1.8 Sub base shall not be laid in panels.
- 7.1.9 Under layer and topping layers of cast-in-situ cement floors shall be laid in panels. In PCC floor length of panel shall not exceed 1.2 metre and length to width ratio not exc. 1.5 times. In case of terrazzo floor, size of panel shall not be more than 900x600mm. Not more than 3 dividing strips shall be meeting at any joint. Dividing strip shall be of plain glass 38mm wide and not less than 4mm thickness. Dividing strips shall be finished smooth with the top surface of floor. However, where different floor levels indicated to be provided, strips shall not be provided and flooring at junction shall be provided in the shape of fillet. The glass dividing strips shall not be provided in floors having thickness of top layer more than 40mm.
- 7.1.10 Important requirement for M-25 (Design Mix) shall be as specified in Clause No. 2.5 of Particular specification hereinbefore.
- 7.1.11 Non skid ceramic tiles shall be vitreous ceramic tiles of Ist quality. The size of tiles shall be 300mm x 300mm x not less than 7 mm thickness. The make of tile shall be as per Annexure V of Schedule 'D'.

7.1.12 MARBLE SLAB :

Marble slab shall not be less than 18mm in thickness. The size of marble stone slab if the same is not mentioned in drawing shall not be less than 90cm in length and 60cm in width. In situations where the minimum size does not adjust in that case the size of stone shall be as decided by Independent Engineer. The marble slab shall be plain white makrana, machine cut and polished. Marble shall be hard, sound, dense

and homogeneous in texture with crystalline and coarse grains all as specified in Clause 6.20.3, 6.20.4.2, 6.20.5 to 6.20.8 of SSR Part-1. Marble slab shall be bedded, jointed & pointed in neat cement slurry over 10mm thick screed layer of cement mortar 1:3.

**7.1.13 VITRIFIED TILES :-**

Vitrified tiles shall be of first quality and shade. These shall be of Make as mentioned in Annexure V of Schedule D. The minimum size of tiles shall be 60cmx60cm x thickness not less than 9.5mm of classic series.

**7.2 TYPE AND COMPOSITION OF FLOORS :**

**7.2.1** The minimum specifications for flooring for all buildings shall be provided as shown on drawings for Schedule of finishes.

**7.2.2 Base/Sub base/Sub floors/floors:-**

Base/sub base/sub floors/floors shall be provided as per Schedule of finishes and as specified below:-

**7.2.2.1 PCC FLOORING (EXCEPT PCC RAMP) :**

40mm thick PCC M-20(Nominal mix) type B1, finished fair using extra cement over 75mm thick PCC M-10 (Nominal mix) sub base over 75mm thick sand filling over rammed earth in ground floor. Top layer shall be laid in panels not exceeding 1.2 sqm panels using 4mm thick and 38mm wide glass dividing strips. In first floor 40mm thick PCC M-20 (Nominal mix) type B1 finished fair using extra cement and using glass dividing strips shall be provided after applying neat cement slurry @ 3Kg of cement per Sqm on RCC slab.

**7.2.2.2 PCC FLOOR FOR RAMP OF SUB STATION BUILDING :**

50mm thick PCC M-20 (Nominal mix) , spike rolling to surface or making impressions of expanded metal, whilst the concrete is green over 100mm thick hard core as specified here-in-before over rammed earth . Sides of ramp shall be plastered 15mm thick in CM 1:4 .

**7.2.2.3 NON SKID TILE FLOORING :**

Non skid tile flooring (size of Non skid tiles 300mm x 300mm x not less than 7 mm thick) shall be laid over 15mm thick screed in cement mortar 1:4, over 30mm thick PCC M-15 (Nominal mix) type B1 over 100mm thick PCC (1:5;10) type E2 over rammed earth for ground floor. In first floor non skid tile flooring shall be laid over 15mm thick screed in cement mortar 1:4, over 30mm thick PCC M-15 (Nominal mix) type B1 shall be provided after applying neat cement slurry @ 3Kg of cement per Square meter of RCC slab.

**7.2.2.4 KOTA STONE FLOORING :**

Mirror Polished kota stone not less than 16mm thickness shall be laid on 20mm thick screed in Cement Mortar 1:4 over 30mm thick PCC M-15 (Nominal mix) over 100mm thick M-10 (Nominal mix) over 75mm thick sand filling over rammed earth in floors where indicated in sch of finishes. The size of kota stone shall not be less than 55cm in length and 55cm in width. The situation where the minimum size of kota stone does not adjust in that case size of kota stone will be decided by Independent Engineer whose decision in this regard shall be final and binding. The type and laying of kota stone shall be as specified clause No 13.47, 13.47.1 to 13.47.4 of SSR Part-I. In first floors Mirror Polished kota stone not less than 16mm thickness shall be laid on 20mm thick screed in Cement Mortar 1:4 after applying neat cement slurry i.e. 3 Kg per sqm of RCC slab.

**VITRIFIED TILES FLOORING :**

Vitrified tiles flooring of size 600x600mm of thickness not less than 9.5mm shall be laid over 15mm thick screed in cement mortar 1:4 over 30mm thick PCC M-15 (Nominal mix) over 75mm thick PCC M-10 (Nominal mix) over rammed earth. Vitrified tiles shall be fixed with adhesives as per manufacturer instructions. Colour



and design will be approved by Independent Engineer before commencement of the work. In first floor Vitrified tiles flooring shall be fixed with adhesives as per manufacturer instructions over 15mm thick screed in cement mortar 1:4, over 20mm thick PCC M-15 (Nominal mix) shall be provided after applying neat cement slurry @ 3Kg of cement per Square meter of RCC slab. Laying of vitrified tiles shall be as specified in clause 13.41 of SSR Part-I

#### 7.2.2.6 INTER LOCKING PAVERS (PORCH & RAMPS OF TRANSIT ACCN):

Precast concrete Interlocking paving blocks 60mm thick shall be of pattern (hexagon, rectangular etc) and of colour as approved by Independent Engineer. These Precast concrete Interlocking paving blocks shall be laid on 20mm thick cement mortar in (1:4) over 75mm thick PCC (1:5:10) type E-2 using 40mm graded stone aggregate over rammed earth. Interlocking paving blocks shall be procured from the manufacturers as mentioned in Annexure V of Schedule D.

#### 7.2.3 STEPS AND LANDING OF STAIR CASE

##### 7.2.3.1 STEPS AND LANDING OF STAIR CASE (Green marble finish):

Treads of steps & landing of stair case shall be provided with 16 to 18 mm thick Udaipur green/Baroda green marble stone machine cut set over 20 mm thick CM (1:4) and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing/grinding and polishing to achieve mirror polished surface. Riser shall be finished with 16 to 18 mm thick Udaipur green/Baroda green marble stone on 10 mm thick CM (1:3) and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing/grinding and polishing to achieve mirror polished surface over RCC steps and landings. For steps, green marble stone shall not be more than two pieces the in full length and shall be of equal width of Risers and Treads. Green marble stone skirting shall also be provided on the adjoining wall. In treads & landing of stair case, front edge of marble slab shall be bull nosed.

#### 7.2.4 STEPS

##### 7.2.4.2 STEPS (Kota Stone finish):

Wherever Kota stone finish shall be used, RCC/brick steps shall be provided with Kota stone. 16 to 18mm thick machine cut Kota stone slab set over 20 mm thick CM (1:4) on treads and 16 mm thick Kota stone on 15 mm thick CM (1:3) on risers shall be provided and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing/grinding and polishing to achieve mirror polished surface. For steps, Kota stone slab shall not be more than two pieces the in full length and shall be of equal width of Risers and Treads. However the sides of the steps shall be finished with 5mm thick plaster in CM (1:3) finished even and smooth without using extra cement.

#### 8. PLASTERING AND POINTING :

##### 8.1 GENERAL :

8.1.1 Plaster and skirting/dado shall be returned in jambs, soffits of lintels and windows etc.

8.1.2 Where plaster on concrete surface is shown to match the adjacent wall surface, the mix of plaster shall be same as for the wall surfaces.

8.1.3 All plastered surfaces shall be towelled to even and smooth surfaces without using extra cement.

All external finishes shall be carried out upto 15cm below ground level except where plinth protection etc is provided.

Thickness of cement plaster shall be finished thickness exclusive of dubbing. Dubbing may, however, be done in one operation with plaster.



- 8.1.6 All corners, angles, junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Corners around joints openings and junction of walls shall be rounded to minimum radius of 5mm.
- 8.2. MATERIALS:
- 8.2.1 CEMENT - Refer clause 2.2 herein before.
- 8.2.2 SAND - It shall be as per clause 14.5.2 of SSR Part-1.
- 8.3 GROOVES AT THE JUNCTION OF MASONRY AND RCC
- 8.3.1 No grooves shall be provided at the junction of brick wall and RCC work on the internal surfaces of buildings. A strip of chicken wire mesh 15 cm wide having aperture approximately 12.5 mm in least dimension with a weight not less than 0.40 Kg per Sqm shall be fixed over the junction of RCC and brick work on the internal surfaces of buildings before plastering. The chicken wire mesh shall be fixed on the wall surface with the help of nails of suitable size. The chicken wire mesh shall be fixed in a manner that it covers 7.5cm of brick work and 7.5 cm of RCC work. However, in case of lintel band, chicken wire mesh shall be fixed covering whole width of lintel band and projecting 7.5 cm each on either side of brick work. After fixing of chicken wire mesh, 10mm thick plaster in CM (1:6), finished fair and even shall be applied as mentioned in Clause 11.4.1 here-in-after. However no such provision shall be required where columns,/beams/slabs are projecting from external faces of wall.
- 8.3.1 10mm wide and 10mm deep continuous groove shall be provided in plaster throughout, at the junction of brick wall and RCC works on the **external surfaces** of buildings and edges shall be properly made up. However, no groove shall be provided at the junction of lintel band and brick masonry.
- 8.4. CEMENT PLASTERING :
- 8.4.1 Internal surfaces shall be plastered in cement mortar 1:6 over dubbing coat when required all as specified in clause 14.17 and 14.18 (where applicable) of MES Schedule (Part -1). The thickness of internal plaster exclusive of dubbing shall be 10mm. However, plaster on ceiling/soffit of slab shall be with cement and sand mortar (1:3), minimum 5mm thick finished even and smooth after removal of form work.
- 8.4.2 All external surfaces, except where otherwise indicated/specified, shall be plastered in cement mortar 1:4 ; 15mm thick in one coat mixed with water proofing admixture ( conform to IS 2645-Specifications for integral cement water proofing admixture) as approved as per manufacturer's instructions. For the purpose of the deviation the water proofing admixture shall be considered @ 0.4% by weight of cement.
- 8.4.3 ROUGH CAST PLASTER:
- Rough cast plaster shall be provided as per clause 14.22 of SSR Part-I. Under coat for rough cast plaster shall be in Cement Mortar 1:3; 10mm thick.
- 8.5 Where pointing is indicated, it shall be keyed pointing in cement mortar 1:3 as per clause 14.29 of MES SSR Part-I.
- 8.6 SKIRTING/DADO :
- 8.6.1 CEMENT SKIRTING:
- Where cement floor is indicated, cement skirting shall be provided unless otherwise indicated or specified. Skirting shall be finished even and smooth with steel trowel using extra cement. Height of skirting, unless otherwise mentioned, shall be 10 cm. The thickness of skirting shall be 5mm in cement mortar 1:3 over plastered surfaces (10mm thick in cement mortar 1:6 ) as specified here-in-before.

## 8.6.2. GLAZED TILES DADO :

Where glazed tiles dado is indicated in drawings/Schedule of finishes, the same shall be with Glazed tiles of size 300mmx200mm and not less than 6mm thick all as specified in clause 13.14 of MES SSR Part-I and shall be provided as specified in clause 13.40 of MES SSR Part-I. Glazed tiles shall be laid over 10mm thick screed in cement mortar 1:3. The tiles shall be glossy and shade shall be as approved by GE. Make of tiles shall be as mentioned in Annexure V of Schedule D. Height of dado, where not shown on drawings, shall be 1.20 metre .

## 8.6.3 KOTA STONE SKIRTING:

Where Kota stone skirting is indicated in drawings/Schedule of finishes, the same shall be with 16 to 18mm thick Kota stone laid over 10mm thick screed bed in cement mortar (1:3) and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing/grinding and polishing all as specified in MES SSR Part-I. The colour and shade of Kota stone in skirting shall be same as for floors as decided by Independent Engineer. Height of skirting shall be 100mm.

## 8.6.4 VITRIFIED CERAMIC TILE SKIRTING

Where vitrified tiles skirting is indicated in drawings/Schedule of finishes, the same shall be with Vetrified porcelain tile of shade, colour and texture as per flooring, shall be laid over 10mm thick screed in cement mortar (1:3). The tile will be laid with suitable adhesive as per manufacturers recommendations. After fixing the tile, the joints will be filled up with polymer bases tile grout of colour matching with tile as per manufacturers recommendations. The height of skirting unless and otherwise indicated shall be 150 mm.

## 9. WHITE/COLOUR WASH/DISTEMPER/CEMENT BASE PAINT:

9.1 WHITE/COLOUR WASH: White (lime) wash or colour wash shall be provided as indicated in drawings, all as specified in clause 15.2 & 15.12 of MES SSR Part-I. For white washing on ceiling adequate quantity of zinc oxide shall be added to lime wash for achieving egg white shade. Skirting and dado are not to be white/colour washed. Where number of coats are not indicated in Schedule of finishes, it shall be as under:-

- a) White wash: Three coats of white wash over prepared surfaces.
- b) Colour wash: Two coats of colour wash over one coat of white wash over prepared surfaces.

## 9.2. OIL BOUND DISTEMPER:

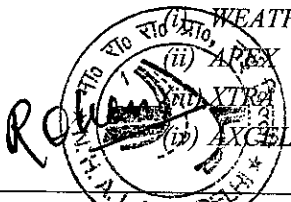
9.2.1 Oil bound distemper (Oil emulsion distemper), where indicated on drawings/schedule of finishes, shall be applied in two coats over a coat of primer after preparation of surfaces. Plastered surfaces shall be prepared smooth by using white cement putty of make JK white putty/ Birla white/Tata pigment. Makes/brand of Distemper shall be as specified in Annexure III of Schedule D.

## 9.3 WEATHER PROOF PAINT/COATING

Weather proof paint/coat on external plastered surfaces, where indicated in Schedule of finishes/drawing shall be applied in two coats over a coat of primer after preparation of surfaces. The weather proof coat and primer shall be applied as per manufacturer's instructions. The brand of weather proof coat shall be of following manufacturer's :-

WEATHER COAT SMOOTH - Berger Paints

- Asian Paints
- Shalimar Paint
- Nerolac Paint



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## 9.4 CEMENT BASE PAINT:

Cement base paint shall be provided in two coats as indicated in drawings, all specified in clause 15.7 and 15.15 of MES SSR Part-1. Shade shall be approved by Independent Engineer. Cement base paint shall conform to IS-5410-1992 as approved by Independent Engineer. Makes/brand of cement base paint shall be as specified in Annexure V of Schedule D.

## 10. GLAZING

10.1. All glazing shall be with sheet glass of ordinary quality and shall conform to IS - 2835. Glass shall be free from all defects viz bubbles, waviness etc. and shall be of uniform thickness.

10.1.1. Glazing to steel windows/vents as shown on the relevant drawings/schedule of finishes shall be with 3mm thick sheet glass upto 0.5 sqm and 4mm thick beyond 0.5 sqm in each pane unless otherwise mentioned. Glass used shall be plain sheet glass except in baths /WC/Toilets/Lav as applicable where it shall be pinhead glass. Makes/brand of sheet glass shall be as specified in Annexure V of Schedule D.

10.1.2. The glazing to steel frames, shall be fixed with special spring glazing clips with putty and glazing to wooden joinery shall be fixed with wooden beading with putty all as specified in clauses 16.5 to 16.10.2 of MES SSR Part-I.

## 11. PAINTING

11.1 All synthetic enamel paints and emulsion paints shall be of 1<sup>st</sup> quality manufactured by the standard firms as per Annexure V of Schedule D.

11.1.2 The Concessionaire shall inform the Independent Engineer, within three weeks of the financial closure, the brand/ names of the manufacturers of paint proposed to be used in the work and submit samples thereof to Independent Engineer before their use in work and obtain prior approval of Independent Engineer.

11.1.3 The Concessionaire shall, when required by the Independent Engineer, produce certificate from the manufacturer or their authorised agents to establish that the brand of paints purchased by the Concessionaire from them satisfy the requirements of the relevant IS.

11.1.4 Paints for priming coat, under coat and finishing coat shall be of the same brand.

11.1.5 Tint of paint, if not mentioned in drawings/schedule of finishes, will be as approved by the Independent Engineer.

## 11.2 WORKMANSHIP :

All wood work required to be painted shall be smoothened size and knotted and then applied with priming coat, stopping and filling (filler coat) shall be done after priming coat and surface rubbed down to a level and smooth surface and thereafter under coat and finishing coat shall be applied all as specified in clause 17.6 of MES SSR Part-I. Steel and iron work shall be painted in the manner as specified in clause 17.8 of MES SSR Part-I.

11.2.2 The surfaces of all wooden and steel or iron, where indicated in schedule of finishes to be painted, shall be given two coats (under coat and finishing coat) of synthetic enamel paint over a coat of pink primer/red oxide zinc chrome primer respectively.

11.2.3 The surfaces indicated in schedule of finishes to be aluminum painted shall be given two coats of aluminum paint conforming to IS-2339 over a coat of appropriate primer.

11.2.4 No treatment shall be given to reinforcement and galvanised fittings such as, GI tubing for hand rails, aluminum doors and windows etc.

11.2.5 All other steel surfaces, exposed to view but not covered in schedule of finishes or their finishing is not specifically indicated in any other drawings or specifications.

elsewhere shall be given two coats of synthetic enamel paint over a coat of red oxide Zinc chrome primer of tint as directed by the Independent Engineer.

11.2.6 Bottom of door shutter shall be given one coat of primer only.

11.2.7 TARRING :

The back of wooden/steel chowkats in contract with stone/brick work/plaster etc. shall be given two coats of tar. Hold fast shall be given two coats of tar and sanded it.

11.3 FRENCH POLISH : French polish, shall be all as specified in clause 17.7.4 of MES SSR Part-I. Unless otherwise specified in drawing, wooden surfaces of built-in furniture shall be French polished.

11.4 CEMENT SLURRY : Portions of MS bolts, lugs, anchor bolts etc. embedded in concrete or masonry shall be treated with neat cement slurry.

11.5 ALUMINUM PAINT : Aluminum paint, shall be provided in two coats (under coat and finishing only) over a coat of primer.

11.6 Irrespective of what is specified in drawings GI wire gauge fixed in doors/windows shall be painted with one coat of blue synthetic enamel paint.

11.7 HERITAGE TEXTURE FINISH: Granular Heritage finish shall be provided in the locations shown in drawings if any and as per manufacturers instructions. Make/manufacturer, Colour, shade, pattern of Heritage texture shall be as approved by the IE.

12. SUNDRY ITEMS, BUILT IN FURNITURE AND MISCELLANEOUS ITEMS :

12.1 PVC WATER STORAGE TANKS :

PVC water storage tanks wherever used shall be as per IS-12701 and shall be of make as mentioned in Annexure V of Schedule D. Rotational moulded, three layered polyethylene water storage tanks shall be of the required capacity.

12.1.2 ACCESSORIES OF TANK :-

Following accessories shall be provided with each water tank :-

- 20mm bore wash out GI tubing (medium grade) 10cm long with GI plug.
- 20mm bore GI over flow pipe medium grade fitted with brass anti mosquito rose coupling at end extended upto 150mm above the finished roof level.
- Ball PVC valve with polythene float and fly nut ISI Marked of Make – Prayag, suitable for bore size of inlet pipe.
- Inlet and outlets of GI pipe 10cm long each of bore to suit the riser/down take pipe.

12.2 NUMBERING OF BUILDINGS/BLOCKS:

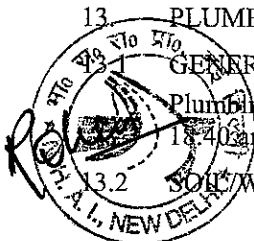
Numbering of all blocks (at both end walls) shall be done by the Concessionaire by engraving and painting black the requisite letters/figures on a cement plaster 1:3 plate format of size and shape as shown on drgs.

13. PLUMBING WORK:

GENERAL :

Plumbing work shall be carried out as specified in clause 18.13 to 18.22, 18.27A, 18.40 and 18.62 to 18.67 of MES SSR Part-I.

13.2 SOIL/WASTE/VENT PIPES/FITTINGS/ACCESSORIES :



Soil waste and vent pipes shall be PVC (SWR) pipes conforming to IS-13592:1992 with or without ears and with spigot and socket ends. All the pipes and fittings shall be as specified in clause 18.27A to 18.27A.4 of MES SSR Part-1.

13.3 LAYING/ FIXING TO WALL, JOINTING & TESTING :

PVC (SWR) pipes and fittings shall be laid/ fixed to wall, jointed and tested as per clause 18.67.7A to 18.67.7A.1.3 of MES SSR Part-1.

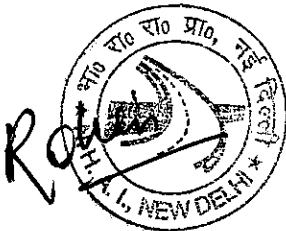
NOTES: Where Nahani/floor traps of 22.5cm depth can not be accommodated in sunken floor, a 300mm x 300mm portion of the RCC slab shall be sunk to the extent it accommodates the Nahani trap without any additional cost.

13.4 SHORTER LENGTH :

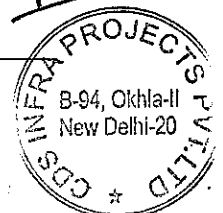
Except for WC connections, the Concessionaire may use pipe pieces without sockets in shorter lengths (less than one pipe length), where approved by the Independent Engineer and connect these to pipe fittings with double sockets/collars including additional joints as specified above

13.5 TRENCHES FOR PIPE LINES :

Excavation for trenches shall be done as per the width given in clause 3.2.3 of MES SSR Part-II and as specified hereinbefore and depth as required at site. The trenches shall be back filled after testing of pipes with excavated earth in layers not exceeding 250mm and surplus spoil disposed off to a distance not exceeding 50 metres.



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**Annex - IV (Schedule-D)**  
**CODES AND STANDARDS**

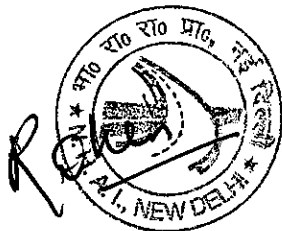
1. **General: National Building Code of India - 2005**
2. **Code for Structural design and details:**

<b>CODE OF PRACTICE FOR LOADS AND COMBINATIONS</b>	
IS 875 Part I	Dead Loads - Unit weights of building Materials and stored materials.
IS 875 Part II	Imposed loads.
IS 875 Part III	Wind Loads.
IS 875 Part V	Special Loads and Combinations.
<b>CODES OF DESIGN AND FABRICATION FOR PRE - ENGINEERED BUILDING</b>	
IS 800 : 2007	General construction in steel
IS 808 : 1989	Dimensions for hot Rolled steel sections.
IS 801 : 1975	Code of Practice for use of Cold Formed light gauge steel structural members in general building
IS 811	Code of Practice for use of Cold Formed light gauge structural steel sections
AISC : 2000	Design Code
IBC : 2002	Building Code
AISI : 2001	Purlin Code
ANS : 2006	Welding Code
SP - 38 (S&T): 1987	Handbook of typified designs for structures with steel Roof trusses
IS 816 : 1969	Code of Practice for use of metal arc welding for general construction in mild steel
IS 456 : 2000	Plain and Reinforced Concrete Code of Practice.
IS 1893: 2002	Criteria for Earthquake resistant design of structures
IS 6403: 1981	Code of Practice for determination of bearing capacity of shallow foundations
IS 1786: 2008	Specification for high strength deformed steel bars and wires for concrete reinforcement
IS 13920: 1983	Code of practice for ductile detailing of reinforced concrete Structures subjected to seismic forces.

SP - 16 (Design Aids for Reinforced Concrete) 1988	Design aids for reinforced concrete to IS 456.
SP-34:1987	Hand book on concrete reinforcement and detailing

3. All relevant BIS Code of India for Civil, Electrical, Water Supply, Sanitary, HVAC and Solar Panels.
4. Energy Conservation Code - 2007.
5. Roads / Driveway / Parking: IRC 37-1984/ MORTH specifications.
6. Indian Electricity Rules / State Electricity Rules.
7. ASHRAE Standards.
8. All local bylaws.
9. Hand Book of Water Supply and Drainage, BIS, SP-35.
10. CPWD - Specifications published by Director General (Works) CPWD, New Delhi including subsequent amendments, upto date correction slips, revisions.
  - a. CPWD Specifications 2009 (Volume I & II)
  - b. CPWD General Specifications for Electrical Works Part IV Sub Station - 2013
  - c. CPWD General Specifications for Electrical Works Part IV Sub Station - 2013.
  - d. CPWD General Specifications for Electrical Works Part VII D.G. Sets - 2013.
  - e. General Specifications for Heating, Ventilation & Air-Conditioning(HVAC) - 2004
11. Specifications published by Director General (Works), MES, E-in-C branch, Kashmere House New Delhi, including subsequent amendments, upto date correction slips, revisions
  - a. MES SSR Part I 2009,
  - b. Tl's issued by E-in-C branch for specified purpose from time to time


**Note:** Any reference to codes and standards shall be deemed to include all subsequent revisions, upto date corrections slips, updates, amendments etc.






**Annex - V (Schedule-D)**  
**APPROVED MAKES**

**MAKES OF PRODUCTS TO BE INCORPORATED IN WORKS****Makes/Brand of B/R items**

S No.	Name of Item	Makes/Brands/Manufactures	Remarks
1.	Chemical for anti termite treatment : Chlorpyriphos / Lindane 20% EC / Gammax -20	(a) M/S Osolihn, Banglore (b) Lindane – 20 EC (i) M/S Kamona Chemicals Ind. Ltd., (ii) M/S India Pesticides Ltd. Lucknow. (c) Chlorpyriphos Emulsifiable Concentrate (Conforming to IS- 8944 (2005). (i) M/S D Nosil Mumbai. (ii) M/S Pest Control Services, Delhi (iii) M/S Pest Control Corporation, Delhi  (iv) M/S Pest Control, Delhi. (v) M/S Pest Control & Fumigation Enterprises Delhi. (vi) M/S Pest Control Services of India, New Delhi. (vii) M/S Dr Swarop's Pest Control.	
2	CP fittings (including Fancy Bib Taps, Stop Valves and Pillar taps, Surgical Basin mixer, Shower Rose etc.)	(a) Gem (b) Jaguar (c) Soma (d) Dripless (e) Parko (f) MARC	
3.	Sanitary ware	(a) Neycer kermag (Standard) (b) HR Johnson (1 <sup>st</sup> quality) (c) Hindware(1st quality) (d) Parryware(Super fine), (e) Cera (First Quality)	All sanitary ware will be of 1 <sup>st</sup> quality & ISI marked.
4.	Stainless Steel Sink 	(a) Diamond (b) Nirali (c) Neal Kanth (d) Kobra (e) Parryware (f) AMCO	
5.	PVC Flushing Cistern IS : 774-1984	(a) M/S Johnson Podder (b) Commandor – Water Bird (c) Parryware-Slimline	Dual lever type for WC

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vaandara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Hary...



S No.	Name of Item	Makes/Brands/Manufactures	Remarks
		(d) Hindustan Sanitaryware – Hindware.	
6.	Synthetic enamel Paint	(a) Asian Paint(Apolite) (b) Shalimar Paints(Superlac Hi Gloss) (c) Godlass Nerolac paints(Nerolac full gloss) (e) Jenson & Nicholson Paints Ltd (Brolac) (f) Berger Paints (Luxol Hi Gloss).	
7.	Cement Based Paint	(a) Super Snowcem. (b) Duracem. (c) Super Snow cem of snow white Industries Corp., Chennai. (d) Super Powercem of Power Paint India Ltd, Noida. (e) Aqualac Paints. (f) ECOCEM (TATA product).	
8.	Oil Bound distemper/Acrylic washable distemper	(a) Goodlass Nerolac(super Acrylic). (b) Shalimar Paints(No 1 Premium) Acrylic distemper. (c) Jenson & Nicholson (Jensoline Acrylic Distemper). (d) Asian Paints(Tractor Acrylic distemper). (e) Berger Paints (Bison Super). (f) ICI India (Maxilite Acrylic Distemper).	
9.	Plastic emulsion Paint	(a) Goodlass Nerolac (All Escapes). (b) Shalimar Paints(Hussain collection). (c) Jenson & Nicholson (Special effect). (d) Asian Paints(Royal). (e) Berger Paints (Luxol Silk Splendor). (f) ICI India (Dulux Velvet touch).	
10.	Exterior Emulsion Paint	(a) ECOPLUS (Exterior Emulsion Paint) Tata Product. (b) Goodlass Nerolac. (c) Shalimar Paints, Jenson & Nicholson. (d) Asian Paints (e) Berger Paints. (f) ICI India.	
11.	Mosaic /cement Flooring Tiles marked	(a) Redsun Tiles 375 Industrial Area-2, Panchkula (b) GICO Tiles , 124 Industrial Area Phase-1, Chandigarh (c) NITCO, Mumbai (d) Gwalior Granite, Shabad Pratap Ashram Road, Gwalior	<p style="text-align: right;"><i>Ropale</i></p> 

S No.	Name of Item	Makes/Brands/Manufactures	Remarks
.		(e) B G Shirke Construction Technology Ltd 72-76 Mundhawa Pune 411036.	
12.	PVC Tiles/Flooring (IS- 3461)	(a) Armstrong (b) Krishna Vinyl flooring (c) Polyfin.	
13.	Ceramic Tiles	(a) Kajaria (b) Spartec (c) Johnson (d) Somani (e) Orient Ceramics (f) Bell (g) NITCO	
14.	Vitrified tiles (Normal /Anti skid)	(a) Murudeshwar Ceramic Ltd (Navin Diamondtile) (b) Johnson Marbonite (c) Bell Granato (d) Euro Tiles (e) MARBITO (f) NITCO (g) Kajaria (h) Somani	
	Unfired Flexi Clay Tiles (Classing)	MCM travertine/ MCM sand stone/ MCM cut stone/ Facing Brick	
	Tiles Grouting	Bal Endura, Myk, Bostik, Fosroc	
	Epoxy, Antistatic Dissipative & Anti-microbial flooring, Anti-microbial wall coating	Pedilite, Fosroc, Ardex – endura, Bostik	
	Locks/ Floorspring/ Door closer	Dorma, Ozone, Hafele	
	Glazing Sealant	GE sealant, Wacker, Silpruf	
	Resin based Adhesive	Fevicol, Vemicol, Acrabond, Dendrite	
	Tile Adhesive	Bal Endura, Myk Lati crete, CICO, Fosroc, Dendrite	
16.	Steel Windows Ventilators (As per IS-1038 of 1983) & Pressed steel door/ window frames/ cupboard shutters/ Steel lockers	Any make, ISI marked available on web site <a href="http://www.bis.org.in">www.bis.org.in</a>	

S No.	Name of Item	Makes/Brands/Manufactures	Remarks
17.	Factory made wooden Paneled/ glazed/Wire Gauge Shutters	(a) M/S Drone Timber Technologists(P) Ltd, New Delhi (b) M/S Pioneer Timber Products, Chandigarh (c) M/S Chandigarh Timber Product, Chandigarh (d) M/S Everest trading Corporation, Pathankot (Damtal) (e) M/S Sarab Enterprises, Damtal(HP) Katual (J&K) (f) .....BLANK..... (g) M/S K.C. Joinery Mills, Jammu. (h) M/S Jain Wood Industries, Murtal Sonapat.	
18.	Aluminum Section for Door/ Window	(a) Hindalco (b) Indal (c) Jindal	
	Aluminium Composite Panel – General/ Colour	Alomax, Euro Bond, Alshine, Alucobond, Alpholic, Euramax, Jindal	
20.	Flush doors (IS Marked)	(a) M/S Swastik Brand (b) M/S Mysore Wood Products. (c) Century Plywood (d) KITPLY Industries Ltd Shahabad Road Rampur-2449011 (e) Pioneer Timber, Chandigarh (f) Kutty Flush Door Pvt Ltd.	
	Galvalume Steel Sheet and Galvanised iron profile sheet	Inter arch, metco, Lloyd deck/Kirby	
	Poly carbonate Sheet	GE, Zestha, TUFLITE, Sabc	
21.	Laminated Sheets	(a) Sungloss (b) Formica (c) Sunmica (d) Backlyte Hylum (e) Novateak Super Kitlam.	
22.	Prelaminated particle board three layer Exterior Grade (ISI marked)	(a) Archidlam from Mysorechipboard (b) Greenlam, from Greenply (c) Novateak (d) Duro Board, Duroteck, Duromarine (e) Novapan (f) Bhutan Board	

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N), on EPC Mode under Bharatmala Pariyojana in the State of Haryana

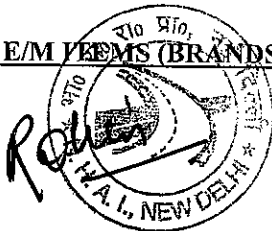
S No.	Name of Item	Makes/Brands/Manufactures	Remarks
23.	Plywood for general purposes BWP grade (ISI Marked)	(a) Kitply (b) Mysore chip board (c) Century Plywood (d) Doroboard from Sharada Plywood	
24.	Integral water proofing compound (Powder/ liquid) ISI marked (IS 2645 : 1975)	(a) Impermo (b) Pidilite (c) Roff Chemicals (d) SIKA (e) M/S Snowcem India Pvt Ltd. (f) Plastocrete 'N' (g) IWL India Ltd. (h) Hydro Tech Ltd (j) DWI Derma Bir water proofing India Ltd (k) Fosrock (l) Chowksey Chemicals	
25.	Construction Chemical	(a) Chokesy chemicals (b) Fairmate (c) Pidilite (d) CIBA (e) Raft construction chemicals (f) Denson (g) Fosroc Chemicals (I) Ltd. (h) SAMROCK (j) MC Banchime Boruloay (k) CICO (l) Sunanda Specialities Pvt. Ltd. (m) Hari Om Polymers Pvt. Ltd.	
26.	Plain/Pinhead/Frosted glass/Structural glazing glass	(a) Hindustan Pilkington Glass Works (b) Saint Gobin (c) Modi Float (d) Triveni Float (e) INDO ASAHI	
27.	Looking Mirror	(a) Saint Gobin (b) Modi Float (c) Triveni Float Glass (d) Jolly (e) Hindustan Pilkington Glass Works (f) Swastik (g) BAWA	
28.	SGSW Pipe	(a) Perfect Jabalpur (b) Stone ware pipe Ltd. Chennai	

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

S No.	Name of Item	Makes/Brands/Manufactures	Remarks
		(c) Mysore Stone ware (d) TFC, Bhasker	
29.	Putty Oil	(a) Gold Mohar (b) M/S Shalimar Hardware (c) Burger (d) J&N	
30.	PVC (Polythene) Rotational moulded) Insulated water Storage Tanks (ISI) Marked IS- 12701)	(a) Sintex (b) Polywell (c) JS Polyplast (d) Rotex (e) Polycon	
31.	False Ceiling	(a) Anchor Celing Tiles (b) Gypboard (c) Eternit Everest (d) Armstrong (e) Hilux Calcium Silicate Boards (RAMCO)	
	Metal False Ceiling	Aura, Hunter Douglas, Armstrong	
	PTMT Fittings	Prayag or equivalent	
	Toughened Glass Handrail	Ozone, Dline, Saint Gobain	
	Wooden Flooring	Armstrong, Aura (ASIPL), Pergo	
32.	CI (Centrifugally cast) pipes (ISI Marked)	(a) NICO Jayaswals Neco Ltd. Nagpur (b) Cial, Corporate Ispat Alloys Ltd (c) Ashutosh Iron Foundary	
33.	PVC rainwater/ Sewerage pipe (ISI Marked)	(a) Finolex (b) Supreme (c) Kisan (d) Prince	
34.	Bitumen/ bitumen Primer (ISI Marked)	(a) IOC (b) BPCL	
35.	Water proofing treatment to roof/sunken floor	(a) Hyperplas by IWL India Ltd, Chennai (b) Multiplas by STP Texsa Limited Gurgaon (c) Bengal Acquaflux-Bengal Bitumen Sarita Vihar New Delhi (d) Superior Poly Plus 310 by STP Ltd	
36.	Cement Putty	(a) Birla Cement (b) JK White (c) Tata Pigment	

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana.

S No.	Name of Item	Makes/Brands/Manufactures	Remarks
37.	CI Sand cast Pipes (ISI Marked IS: 1729)	(a) Adhunik (b) BIC (c) ALC (d) Bajaj HIC (e) MIC	
38.	Cement (OPC & PPC)	(a) M/S ACC (b) M/S Birla Corn Ltd (Cement division), (c) M/S Jay Pee Rewa Cement (d) M/S Ambuja Cement Ltd. (e) M/S Shree Cement (f) M/S Century Cement (g) Ultra Tech Cement (h) Orient Cement (j) M/S Madras Cement Ltd. (k) M/S Saurashtra Cement Ltd. (l) M/S Lafarge Cement (m) M/S Andhra Cement Ltd. (n) M/S Dalmia Cement Ltd. (o) M/S The India Cement Ltd (p) M/S Binani Cement Ltd (Binani Brand) (q) M/S Mangalam Cement (c) M/S Grasim Cement (s) M/S JK Lakshmi Cement	
39.	PVC Doors , Windows, Panels/partitions	(a) Polycon, Polycon House B-65-66, Bais godam Jaipur. (b) Accure Polytech (P) Ltd. (c) Rajshree 10/1 South Tukoganj, Kanchanbagh Main Road. Indoor 452001 (d) Sintex	
40.	Structural Steel	<b>Main Producer</b> - SAIL / TISCO /RINL /JINDAL.	
41.	NFTC Frame and shutters	M/S AM composites private ltd, Rama Krishna nasker lane, Kolkata Or Any other equivalent make as approved by Accepting Officer.	

**LIST OF E/M ITEMS (BRANDS/MAKES)**

*Corpak*



S No	Items	BIS Code	Approved Makes	Remarks
1.	HT VCB (11 KV Specified design and capacities)	Cat-A	(a) Crompton Greaves (b) Kirloskar (c) ABB (d) AREVA T&D	
2.	HT VCB (33 KV Specified design and capacities)	Cat-A	(a) Siemens (b) ABB (c) AREVA T&D	
3.	Transformer (11 KV /33KV reqd Capacities) copper wound.	Cat-A	(a) Blank (b) Siemens (c) AREVA T&D (d) ABB	IS-2705 IS-3156
4 (a)	Transformer below 500KVA	Cat- B	(a) Bharat Bijlee (b) Voltamp (c) Universal transformer (d) Crompton Greaves (e) JK transformer (f) Electric Field	
4 (b)	Transformer 500KVA & above (11 KV / 0.433 KV & 33 KV/0.433 KV)	Cat-A	(a) Crompton Greaves (b) AREVA T&D (c) Siemens (d) ABB (e) BHEL	IS-2705 IS-3156
5.	Air break switch gang operated (11 KV & 33 KV)		(a) PACTIL (b) Jaipuria Brothers (c) BHEL (d) Atlas	
6.	XLPE Cable HT Cable	Cat-A	(a) Polycab (b) Cable Corporation of India (c) Havells (d) Rallison	IS-7098
7.	CT & PT(11 KV Range)	Cat-A	(a) Crompton Greaves (b) AE (c) Control & System	
8.	CT & PT (33 KV Range)	Cat-A	(a) AREVA T&D (b) AE (c) ABB (d) Siemens	

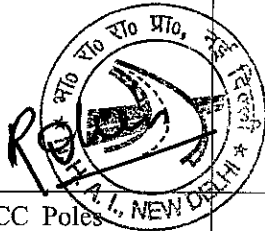
Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana




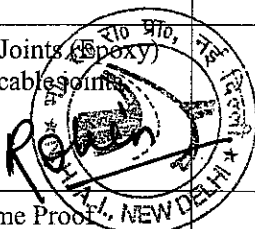
S No	Items	BIS Code	Approved Makes	Remarks
9.	Battery Charger		(a) Standard (b) Esicle (c) AMCO (d) As per OEM with main equipment	
10	ACB	Cat-A	(a) L&T (b) ABB (c) ALSTHOM (d) Siemens	IS-13118
11.	LT Cables	Cat- B	(a) Universal cables (b) NICCO (c) Havells (d) Polycab (e) Anchor (f) Plaza (g) Capital	ISI Marked
12.	Cable joint and termination		(a) Birla 3M (b) Densons (c) Raychem (d) M-SEAL	
13.	FRLS Wires for internal wiring with aluminum conductor	Cat-A	(a) Finolex (b) Havells (c) L&T (d) Plaza (e) Bonton	
14.	FRLS wires for internal wiring with (Copper conductor)	Cat-A	(a) Havells (b) Paragon (c) Bonton (d) Plaza	IS -694
15.	Switch fuse, fuse switches change over switches, Main switches	Cat-A	(a) GE (b) Siemens (c) L&T (d) ABB (e) Legrand (f) Schneider (g) Control & Switchgears	
16.	Exhaust Fan/Air Circulation		(a) Crompton (b) Khaitan (c) Bajaj (d) Usha (e) Orient (f) Almonard	

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

S No	Items	BIS Code	Approved Makes	Remarks
17.	MCB/MCB Plug Socket/ ELCB/RCCB & MCB DB's	Cat-A	(a) ABB (b) Siemens (c) Legrand (d) L&T	
18.	MCCB	Cat-A	(a) ABB (b) Siemens (c) Legrand (d) Schneider MG Protec (e) L&T Sine	
19.	Piano Type Switch & Switch Socket	Cat-A	(a) Indo Asian (b) Legrand (c) Anchor	ISI Marked
20.	Modular Switches	Cat-A	(a) MK (b) Ave- Anchor (c) Legrand (d) North West	
21.	Induction Motors		(a) Siemens (b) Crompton (c) Kirloskar (d) BHEL (e) Jyoti (f) Mather- Platt	
22.	Steel Tubular Poles		(a) National tubing Co Kanpur (b) Bombay Tube & Store, Bombay (c) M/s Basantar Foundry & Fabrication, Samba (d) M/s Jai Bharat Poles Mfg & Engg Co. Bombay (e) M/s Bharat Conduits & Steel Workes, Kanpur (f) M/s Sohan Lal New Delhi (g) M/s Bajaj Electricals (h) Advance tubes, Jammu (j) M/s India Co Ltd Jamshedpur (k) Mohinder Industries Ludhiana (l) Surjeet Steel Industries (m) Vikram Industries Mohali (n) Are GEE Industries Jammu	
23.	PCC Poles		(a) Kashmir Cement Samba (b) KB Industries	As specified



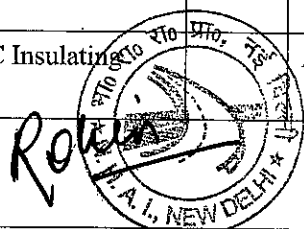
S No	Items	BIS Code	Approved Makes	Remarks
			(c) Cement Fabrics, 389, Ind Area Ph-I Panchkula (d) Punjab Prestressed Concrete Ltd. (e) Precto Industries, Chandigarh (f) Precast Cement Product Samba	
24.	Single Phasing Preventor /Starters/ Contactors/Thermal Over load relay		(a) L&T (b) Siemens (c) ABB (d) Legrand (e) Controls and Switchgears (f) Minilec (g) Schneider (h) Havells (j) Crompton	
25.	KWH Meter Electronic type tamper proof digital optical port for communication with cover		(a) L&T (b) Havells (c) HPL (d) Jaipur	
26	Ammeter / voltmeter / Frequency Meter digital only		(a) AE (b) L&T (c) Schneider Electric (d) HPL somomac (e) As per OEM with main equipment (f) Legrand	
27	Fluorescent tube light/CFL fittings	Cat – A	(a) Philips (b) Bajaj (c) Wipro (d) Hellonix	
28	Security light fittings	Cat – A	(a) Philips (b) Crompton Greaves (c) Wipro (d) GE	
29	LT Joints (Epoxy) for cables joints		(a) Birla 3M (b) Densons (c) Siemens (d) Pierelli	
30	Flame Proof Fittings		(a) Bajaj (b) GEC (c) Flexipro	Certificate from recognized Govt agency.



S No	Items	BIS Code	Approved Makes	Remarks
			(d) Sudhir Switch gears (e) Baliga	
31	Voltage Regulators /Voltage Stabilizer	Cat – A	(a) AE Bombay (b) Brentford (c) Andrew – yule	IS – 8448
32	Indicating Lamp (LED Type)		(a) L&T (b) Siemens (c) Schneider Electric (d) Controls and Switchgears	
33	Selector Switches		(a) Kay Cee (b) L&T (c) Seimens (d) GE	
34	Insulators		(a) Jaipuriya (b) Hitkari (c) Jayshree (d) Rashtriya Electrial (e) Southern Insulators	
35	ACSR/AI Conductor		(a) Alind (b) Bharat Conductor (c) NICCO	AI should be sourced from Nationally reputed firm
36	Capacitor Banks / PF Capacitor		(a) Alsthom (b) Siemens (Epcos) (c) Hager (d) ABB (e) Crompton greaves	
37	Relay		(a) Schneider Electric (b) siemens (c) ABB (d) Alstron (e) L&T (f) Bhartia cuttler hammer	IS – 3231
38	Lightening Arrestor		(a) Alsthom (b) BHEL (c) OBLUM (d) Jaipuria	
39	Fans	Cat – A	(a) Usha (b) Khaitan (c) Bajaj (d) Polar	

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana!

S No	Items	BIS Code	Approved Makes	Remarks
40.	Submersible Cable		(a) Polycab (b) Finolex (c) Indoasian	
41	Electric Luminaire T-5	Cat – A	(a) Philips (b) GE (c) Crompton Greaves (d) Wipro	
42	LT Circuit Breaker		(a) L&T (b) Siemens (c) Schnieder (d) ABB (e) Control & Switchgear	
43	HT circuit Breaker	Cat – A	(a) Kirioskar Electric (b) Alsthom Ltd (c) BHEL (d) ABB	
44	LT Panel Boards / FPB	IS-86223	CPRI Approved factory made.	Design as per CA with IP 54 degree of protection & 65 KA short circuit test certificate from manufacturer.
45	Compact Substation		(a) ABB (b) Schnieder (c) L&T (d) Areva T&D (e) Crompton	
46	Servo Voltage stabilizer three phase		(a) AE (b) Vintec (c) Brent Ford (d) Andrew-yule	
47	PVC Conduit Pipe		Any makes ISI Marked	
48	MS Conduite Pipe		Any makes ISI Marked	
49	PVC Insulating tape		Any make ISI Marked	



*Boyd*



S No	Items	BIS Code	Approved Makes	Remarks
50	Geysers		(a) Racold (b) Bajaj (c) Ditz (d) Peeco (e) Sphare hot (f) venus	
51	Aviation obstruction light		(a) GEC (b) Philips (c) Bajaj	
52.	Indicating Lamp (LED type)		(a) L&T (b) Siemens (c) Schneider (d) Electric (e) Controls & Switchgears	
53.	Ceiling Rose		(a) Legrand (b) Crabtree (c) Cona of Anchor (d) Coral of Havels	IS 371
54.	Metal halide lights		(a) Philips (b) Crompton (c) Bajaj (d) Havells (e) Schneider (f) GE Lighting (g) Wipro	
55.	Lugs/thimbles studs		(a) Dowells (b) Axis (c) Indiana	BS-91
56.	Street light timer		(a) L&T (b) Legrand (c) Indo Asian (d) ABB (e) Siemens	
57.	Lightening arrestor		(a) Oblum (b) Elpro (c) Alstom (d) Lemcos	IS-3070 (Part-II)
58.	Package unit for substation		(a) ABB (b) Bhel (c) Schneider	

**WATER SUPPLY ITEMS**

S. No.	Item	Makes/Brand/Manufacturers	Remarks
1	Gate Valve	PARKO BIR , JAARC, L&T KIRLOSKAR	
2	Centrifugal Pump Including Mono Block Pump	KIRLOSKAR, BEACON, JYOTI, CROMPTON GREAVES, KSB, BE ,MATHER & PLATT	IS-9079
3	Submersible Pumps	KSB, KIRLOSKAR, JYOTI, ALAMA, BEACON	IS-8034
4	Vertical Turbine Pumps	KIRLOSKAR, JYOTI, KSB	
7	Sluice Valve (PN 1.0.IS-780-1964) (PN 1.6 IS-290-6-1969)	KIRLOSKAR, L&T	
8	Foot Valve (IS-4308 OF 1979)	KIRLOSKAR, L&T	
9	Air Release Valve	KIRLOSKAR, L&T	
10	Reflux Valve (IS-5312 OF 1969)	KIRLOSKAR, BEACON, LEADER, BIR	
11	CI Pipes (Centrifugally Cast/Vertically Cast) including Fittings	ELECTRO STEEL, KESORAM, KALINGA, TISCO, KEJRIWAL	IS-9523& 8329
12	DI Pipes	ELECTROSTEEL, LANCO, JINDAL & JAI BALA JI INDUSRIES LTD, KOLKATA	IS-9523& 8329
13	Composite Pipe/ Multi Layer Pipe	KITEC (PE-AL-PE), SFMC PPR PIPE, PPR PIPE (PRINCE)	
14	GI Pipes & MS Pipes	TATA, SWASTIK, JINDAL, PRAKASH SURYA, NIDHI, NOTE:- FOR INTERNAL WATER SUPPLY GI PIPE WITH ANTI- CORROSIVE PAINT SHALL BE USED	IS-1239 & 3589
16	Motor Starter	L &T, HAVELLS, C&S	IS-13947 (PART IV)
17	HDPE Pipe	HASTI, RELIANCE, RISHI, PRINCE	IS-4984
18	ERW Pipe	JINDAL, BST, TATA,TRUPATI	
19	Non Return Valve	KIRLOSKAR, L&T	IS-5372 (PART-II)
20	Water Level Indicator	AKASH, PHOTRON, PUMPUTER	
21	CI Fittings for Pressure Pipes	NECO, CIAL, JAYASWAL NECO LTD, NAGPUR, KEJRIWAL, KOLKATA, RAJ IRON	(IS-1538 PART I TO XXIII)

Construction of Eight Lane Divided Expressway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 47+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Hary

S. No.	Item	Makes/Brand/Manufacturers	Remarks
22	CI Fittings for Pressure Pipes	ANY ISI MARKED MAKE	(IS-1592)
23	Ball Valve	GENERAL MACHINE TOOLS & ENGINEERING WORKS, DRIPLESS FAUCETS, DELHI	(IS-1703)
24	Self Closing TAP	ELITE, ANCHOR, JAARC	(IS-1711)
25	Piller Taps	GEM, JAARC, PLUNBER, ELITE, ANCHOR, ESS-ESS, PARKO, JAQUAR, MARC, DRIPLESS	(IS-1795)
26	High Density Polyethylene Pipes	FINOLEX, SUPREME, KISAN, PRINCE, TIRUPATI	(IS-4984)
27	Cast Iron Specials for Asbestos Cement Pressure Pipes	ANY ISI MARKED MAKE	(IS-5531)
28	Fabricated High Density Polyethylene Fittings	ANY ISI MARKED MAKE	(IS-8360 PART I TO III)
31	Rotation Moulded Polyethylene (PVC) Water Storage Tanks	SINTEX INDUSTRIES LTD, GUJRAT, POLYCON, DI-PLAST, ROTEX, JS POLYPLAST, GANGA	(IS-12701)
32	GI Pipes	TATA, JINDAL, ZENITH, BST, SWASTIC, PRAKASH	
33	CI BIB Taps & Stop Valves	JAGUAR, PLUNBER, PARKO, JAARC, ESS-ESS, GEM, DRIPLESS, ELITE	
	CI manhole covers and CI grating	IVC, KIRLOSKAR, ZOLOTO	
	Solar water Heater	TATA BP SOLAR, HONEYWELL, BOSCH, V-GAURD	
	Water filter cum purifier	AQUAGAURD, KENT, PUREIT, ELECTROLUX, LIVPURE	

**AIR CONDITIONING**

S No	Items	Make/Manufacturers	Remarks
1.	Motor Protection circuit breaker (MPCB)	L&T, ABB, SIEMENS	
2.	Compressor	KIRLOSKAR, ACCEL TECHUMSH, VOLTAS, CARRIER	
3.	Electric motor	NFEF, SIEMENS, ALSTOM, KIRLOSKAR, BHARAT BIJLE	
4.	Motor starter	L&T, NFEF, SIEMENS, HAVELS, C&S	
5.	Cooling coil/AHU	VOLTAS, BLUE STAR, ACCEL	

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



S No	Items	Make/Manufacturers	Remarks
6.	Condenser	VOLTAS, BLUE STAR, ACCEL	
7.	Air filter	TENACITY, ATHLETE, PUROLATOR, AIR TECH	
8.	Cooling tower	PAHARPUR, MAHIR	
9.	Expansion valve	DANFOSS, SPORLON, ALCO, INDFOSS	
10.	Thermostat	RANCO, DANFOSS, HONEYWELL, INDFOSS	
11.	Humidistat	PENN, RANCO, HONEYWELL, INDFOSS, DANFOSS	
12.	HP/LP cut out	PENN, RANCO, DANFOSS, INDFOSS	
13.	Gauges	H GURU, FIEBIG	
14.	Thermometers	RENUTROL, H GURU, SCIENTIFIC, AIRCOOL	
15.	Hot water generator	THERMEX, RAPID, CONTROL, ZENITH, SANT	
16.	Strip heaters	RACOLD, DASS PASS, MEI, CROWN, HOTWEL,	
17.	Shut off valve	RENUTROL, DANFOSS, MEI, SANT	
18.	Chiller	VOLTAS, BLUE STAR, ACCLE,	
19.	Tools	JHALANI, TAPARIA	
20.	Split type A/C	BLUE STAR, DAIKAN, LG, FEEDER LLOYD CORP LTD, HATACHI	IS-3191 (Pt-II)
21.	Package type	BLUE STAR, BATLIBOI, VOLTAS, FEEDERS LLOYD CORP LTD, CARRIER	
22.	Chilling package unit	VOLTAS, BLUE STAR, KIRLOSKAR, BATLIBOL, ACCEL, CARRIER	
23.	Pump mono block	KIRLOSKAR, CROMPTON, KSB BEACON, JYOTI	
24.	Butterfly valve	AUDCO, KIRLOSKAR	
25.	GI sheet (Class, 8120 gm/cm <sup>2</sup> )	BHUSHAN, SAIL, TATA, JINDAL	

**MISCELLANEOUS ITEMS**

1.	Advance Lightening Protection Unit	ERICO, PHEONIX, TERCIL, PRAGATI, ELECTROCOM	
2.	Refrigerators	GODREJ, WHIRLPOOL, VOLTAS, LG, SAMSUNG	
3.	Water Coolers	VOLTAS, BLUE STAR	
4.	Aviation Obstruction Light	GEC, PHILIPS, BAJAJ, WIPRO	

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

5.	Water Softening Plant	SCALE GUARD,AQUAMA, MAGNITISER	
6.	Rubber Mat (Electrical Insulating Mat) HT/LT	SUNTEX ENTERPRISES, DUNLOP	

**FIRE ALARM & FIRE FIGHTING**

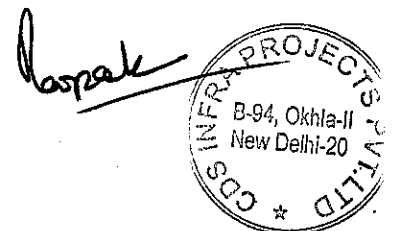
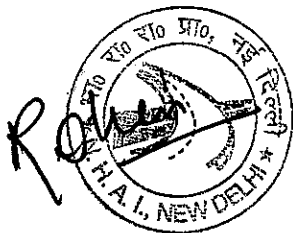
S No.	Items	Make/Manufacturers	Remarks
1.	Valves	LEADER(HEAVY DUTY)/SANT	
2.	Synthetic House	COSMOS,GETECH,BRIG	IS- 636-1988
3.	M/s Pipe	JINDAL/HISSAR/TATA	
4.	Branch And Couples	MINIMAX/WINCO/GETECH	
5.	Rubber Hose	GE TECH, COSMOS,NITIE	
6.	House Reel Drum	COSMOSGETCH/NITIE	
7.	House Box	GE TECH,COSMOS, NITIE	
8.	Hydrant Valve	MINIMAX/WINCO/GETECH, NITIE, COSMOS	
9.	Pressure Switch	INDFOSS/SWITZER	
10.	Pressure Gauze	H GURU/GLYCERINE FILLED/FIEBIG	
11.	Pumping Unit	KIRLOSKAR/MATHER & PLATT/BEACON/COSMOS	
12.	Panel	FIREL/HAVELLS,COSMOS	
13.	Priming Tank	GE TECH NITIE/COSMOS	
14.	NRV	LEADER,KIRLOSKAR/H/SARKAR/ KALPANA/VENUS,ZOLOTO,NETA	
15.	Wrapping And Coating	IWL/APPROVED AS PER ISI	
16.	Bolts	UNBREAKO/LPS(HIGH TENSION AND GALVANIZED)/ISI MARKED	
17.	Gaskets	APPROVED AS PER ISI	
18.	Fire Extinguisher	GETECH/MINAMAX/CEASEFIRE/COS MOS, REAL VALVE	
19.	Fire Bucket	GETECH/MINAMAXNITIE/ COSMOS	
20.	Sprinkler	GETCH/GLOBE	
21.	Nozzle	GETECH/GLOBE/COSMOS	
22.	Foam Proportionator	CHEMGUARD USA/EQUIVALENT LISTED	
23.	Foam Monitor	CHEMGUARD USA/EQUIVALENT LISTED	

Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi – Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana,



S No.	Items	Make/Manufacturers	Remarks
24.	Alcohol Resistant AFFF Solution 3%	CHEMGUARD USA/EQUIVALENT UL LISTED	
25.	Diaphragm Operated Pressure Balancing Wave	CHEMGUARD USA/EQUIVALENT UL LISTED	
26.	Foam Pumps	EDWARD USA/UL LISTED	
27.	Deluge Valve	GE TECH/HD (EQUIVALENT)	
28.	Flow Switch	NOTIFIER/SYSTEM SENSOR	
29.	Sprinkler Annunciation Panel	COSMOS/ GE TECH SAFEZONE	
30.	Priming Tank	LOCAL MAKE/FABRICATED	
31.	Foot Valve	KIRLOSKAR/UPADHYAYA/SARKAR	
32.	Air Cushion Vessel	COSMOS, NITIE, GE TECH	
33.	Air Release Valve	NETA/LEADER/GG	
34.	Drain Valve	NETA/LEADER/ZOLOTO	
35.	Battery	EXIDE/AMCO/AMARAJA	
36.	PC	IBM/HCL/HP / Lenova	
37.	Smoke/Optical Heater Detector	VALCN, NITIN, VIJAY, HOCKING & ELWARE, WIZ MART, APOLLO C/O NITTIN FIRE PROTECTION, INDUSTRIES LTD	
38.	Manual Call Point Fire	MINIMIN, MITIN, VIJAY, MILTRON NEW FIRE, CESELE PHOTONICS	
39.	Control Panel	STAIAGE INDUSTRIES, MILTON LTD, VIJAY FIRE PROTECTION, PHOTONIC PVT LTD, MILTAN INDUSTRIES	
40.	Fire Hydrant Landing Valves/ Fire Brigade Connection	MINIMAX/SAFETY/NEW AGE/VIJAY/ SAFEGUARD	IS-5290-1983
41.	Installation Valve	SPRAY SAFE/HT	
42.	Fire House Pipes (First Aid Hose Reel)	JAYSREE/MINIMAX/NEW AGE/SAFEX	
43.	Branch Pipe Nozzle And Couplings	MINIMAX/NEW AGE/SAFEX	IS-903-1984
44.	Pumps	KIRLOSKAR/BEACON/MATHER & PLATT/WASP/KSB/JYOTI/BE/VOLTA CROMPTON GREAVES	

S No.	Items	Make/Manufacturers	Remarks
45.	Motors	KIRLOSKAR/ALSTOM/SIEMENS/ JYOTI/ CROMPTON/NGEF.	
46.	HFC 227 EA/HCFC Blend B Modular	COSMOS, NITIE, GE TECH	
47.	HFC 227 EA/HCFC Blend B Extinguisher	COSMOS, NITIE, GE TECH	
48.	AEROSOL	DYNAM CO, NITIE, DYNAMITA NOBLE	



## 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-fulfillment 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

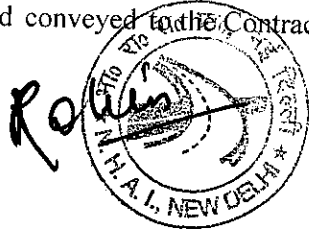
The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectification of the Defects and deficiencies specified in Annex - I of this Schedule-E within the time limit set forth therein.

#### 3. Other Defects and deficiencies

In respect of any Defect or deficiency not specified in Annex - I of this Schedule-E, the Authority's 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's 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's 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**

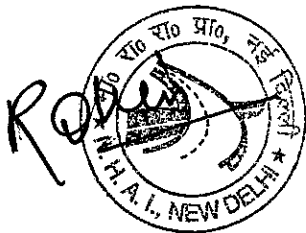
The Contractor shall, through its engineer, undertake a daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Authority's Engineer may specify. Such record shall be kept in safe custody of the Contractor and shall be open to inspection by the Authority and the Authority's 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's 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's 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's 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.



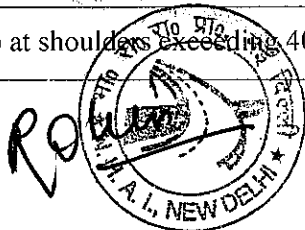
## Annex – I

(Schedule-E)

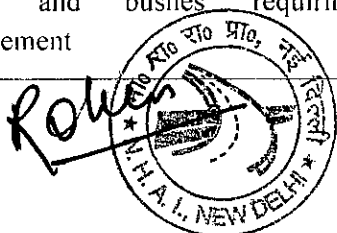
### Repair/rectification of Defects and deficiencies

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.

Nature of Defect or deficiency		Time limit for repair/ rectification
<b>ROADS</b>		
<b>(a) Carriageway and paved shoulders</b>		
(i)	Breach or blockade	Temporary restoration of traffic within 24 hours; permanent restoration within 15 (fifteen) days
(ii)	Roughness value exceeding 2,200 mm in a stretch of 1 km (as measured by a calibrated bump integrator)	120 (one hundred and twenty) days
(iii)	Pot holes	24 (twenty four) hours
(iv)	Any cracks in road surface	15 (fifteen) days
(v)	Any depressions, rutting exceeding 10 mm in road surface	30 (thirty) days
(vi)	Bleeding/skidding	7 (seven) days
(vii)	Any other defect/distress on the road	15 (fifteen) days
(viii)	Damage to pavement edges	15 (fifteen) days
(ix)	Removal of debris, dead animals	6 (six) hours
<b>(b) Granular earth shoulders, side slopes, drains and culverts</b>		
(i)	ww. 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



Nature of Defect or deficiency		Time limit for repair/ rectification
(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)
<b>(c) Road side furniture including road sign and pavement marking</b>		
(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
<b>(d) Road lighting</b>		
(i)	Any major failure of the system	24 (twenty four) hours
(ii)	Faults and minor failures	8 (eight) hours
<b>(e) Trees and plantation</b>		
(i)	Obstruction in a minimum head- room of 5 m above carriageway or obstruction in visibility of road signs	24 (twenty four)hours
(ii)	aaa. 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





Nature of Defect or deficiency		Time limit for repair/ rectification
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
<b>(f) Rest area</b>		
(i)	Cleaning of toilets	Every 4 (four) hours
(ii)	Defects in electrical, water and sanitary installations	24 (twenty four) hours
<b>(g) Toll Plaza</b>		
<b>(h) Other Project Facilities and Approach roads</b>		
(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
<b>Bridges</b>		
<b>(a) Superstructure</b>		
(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's Engineer
<b>(b) Foundations</b>		
(i)	Scouring and/or cavitation	15 (fifteen) days
<b>(c) Piers, abutments, return walls and wing walls</b>		
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days



*Signature*



Nature of Defect or deficiency		Time limit for repair/ rectification
<b>(d) Bearings (metallic) of bridges</b>		
(i)	Deformation, damages, tilting or shifting of bearings	15 (fifteen) days Greasing of metallic bearings once in a year
<b>(e) Joints</b>		
(i)	Malfunctioning of joints	15 (fifteen) days
<b>(f) Other items</b>		
(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
<b>(g) Hill Roads</b>		
(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: Where necessary, the Authority may modify the time limit for repair/rectification, or add to the nature of Defect or deficiency before issuing the bidding document, with the approval of the competent authority.



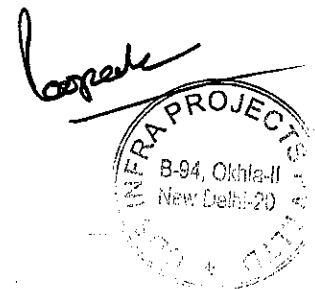
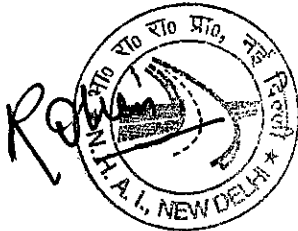
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## Schedule - F

(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:
    - (a) Permission of the State Government for extraction of boulders from quarry;
    - (b) Permission of Village Panchayats and Pollution Control Board for installation of crushers;
    - (c) Licence for use of explosives;
    - (d) Permission of the State Government for drawing water from river/reservoir;
    - (e) Licence from inspector of factories or other competent Authority for setting up batching plant;
    - (f) Clearance of Pollution Control Board for setting up batching plant;
    - (g) Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;
    - (h) Permission of Village Panchayats and State Government for borrow earth; and
    - (i) 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.



**Schedule - G**

(See Clauses 7.1 and 19.2)

**Annex-I**

(See Clause 7.1)

**Form of Bank Guarantee**

**Performance Security/Additional Performance Security**

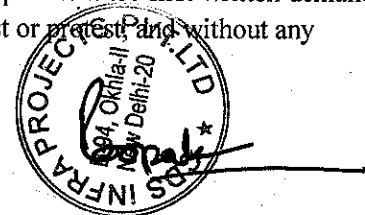
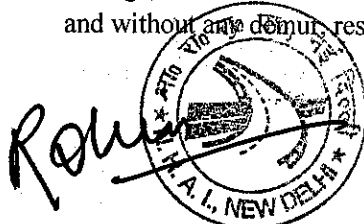
The Chairman,  
National Highways Authority of India  
New Delhi

WHEREAS:

- (A) [name and address of contractor] (hereinafter called the "Contractor") and National Highways Authority of India G-5 & 6, Sector-10, Dwarka, New Delhi-110075, (hereinafter called the "Authority") have entered into an agreement (hereinafter called the "Agreement") for the Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on Engineering, Procurement and Construction (the "EPC") basis, subject to and in accordance with the provisions of the Agreement
- (B) The Agreement requires the Contractor to furnish a 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 (as defined in the Agreement) in a sum of 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") by way of Performance Security.

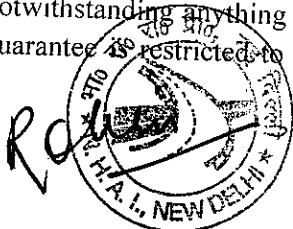
NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

- 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



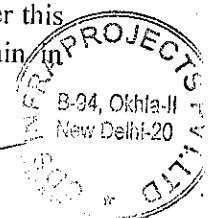
Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode

- 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 General Manager in the National Highways Authority of India, 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



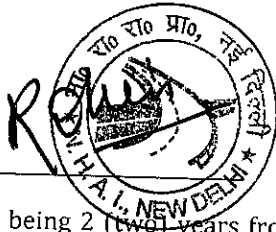
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force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect on \*\*\*\*<sup>s</sup>. 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 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.
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 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 NHAI. Details of which is given as below:



*lapak*

<sup>s</sup> Insert date being 2 (two) years from the date of issuance of this Guarantee (in accordance with Clause 7.2 of the Agreement).



S. No.	Particulars	Details
1.	Name of Beneficiary	National Highways Authority of India
2.	Name of Bank	Canara Bank
3.	Account No.	8598201005819
4.	IFSC Code	CNRB0008598

Signed and sealed this ..... day of ....., 20..... at  
 ..... SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:  
 (Signature)

(Name)

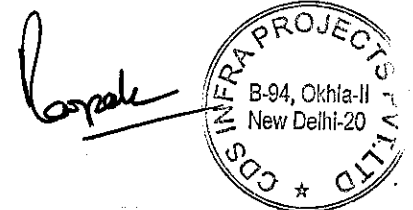
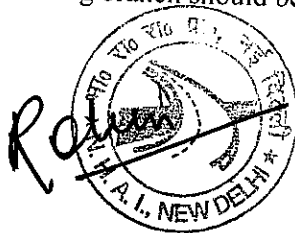
(Designation)

(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 – II**

(Schedule - G)

(See Clause 19.2)

**Form for Guarantee for Advance Payment**

The Chairman,  
National Highways Authority of India  
New Delhi

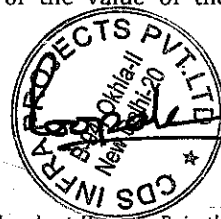
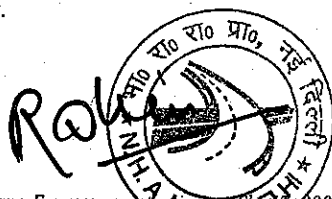
WHEREAS:

- (A) [name and address of contractor] (hereinafter called the "Contractor") has executed an agreement (hereinafter called the "Agreement") with the **National Highways Authority of India) G-5 & 6, Sector-10, Dwarka New Delhi-110075** (hereinafter called the "Authority") for the Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana 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 @Bank Rate + 3% 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")<sup>5</sup>.
- (C) We, ..... through our branch at ..... (the "Bank") have agreed to furnish this bank guarantee (hereinafter called the "Guarantee") for the 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

<sup>5</sup> The Guarantee Amount should be equivalent to 110% of the value of the applicable instalment.

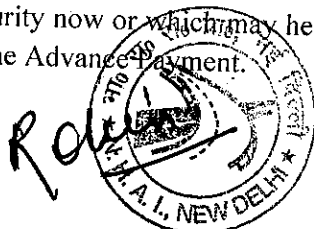




accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority 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 General Manager in the National Highways Authority of India, 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 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.



*Handwritten signature*



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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 \*\*\*\*.<sup>5</sup> 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 amounts 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 NHAI. Details of which is given as below:



*Signature*

<sup>5</sup> 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).



S. No.	Particulars	Details
1.	Name of Beneficiary	National Highways Authority of India
2.	Name of Bank	Canara Bank
3.	Account No.	8598201005819
4.	IFSC Code	CNRB0008598

Signed and sealed this ..... day of ....., 20..... at  
 ..... SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:  
 (Signature)

(Name)

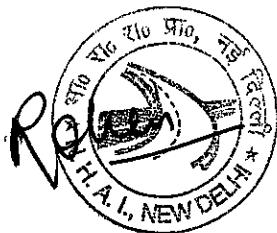
(Designation)

(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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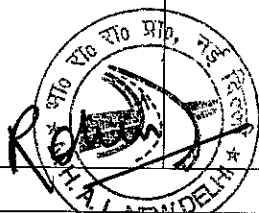
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**SCHEDULE-H**  
See Clauses 10.1.4 and 19.3)

**CONTRACT PRICE WEIGHTAGES**

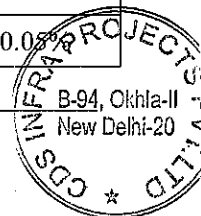
- 1.1 The Contract Price for this Agreement is Rs (780,88,00,000/-)
- 1.2 Proportions of the Contract Price for different stages of Construction of the Project Highway shall be as specified below:

Item	Weightage in % of CP	Stage for Payment	Percentage weightage
1	2	3	4
Road Works including Culverts, widening and repair of culverts	71.50%	<b>A- Widening and strengthening of existing road</b>	
		(1) Earthwork up to top of the sub-grade	0.00%
		(2) Sub-base Course	0.00%
		(3) Non-bituminous Base course	0.00%
		(4) Bituminous Base course	0.00%
		(5) Wearing Coat	0.00%
		(6) Widening and repair of culverts	0.00%
		<b>B.1- Reconstruction/New 8-Lane Realignment / Bypass (Flexible Pavement)</b>	
		(1) Earthwork up to top of the sub-grade + Site Clearance	31.27%
		(2) Earthwork in Shoulders	0.83%
		(3) Sub-base Course (CTSB)	8.91%
		(4) Non-bituminous Base course (WMM)	5.31%
		(5) Bituminous Base course	37.34%
		(6) Wearing Coat	9.10%
		<b>B.2- Reconstruction/New 8-Lane Realignment / Bypass (Rigid Pavement)</b>	
		(1) Earthwork up to top of the sub-grade	0.00%
		(2) Sub-base Course	0.00%
		(3) Dry Lean Concrete (DLC) Course	0.00%
		(4) Pavement Quality Control (PQC) Course	0.00%
		<b>C.1- Reconstruction/ New Service Road/ Slip Road (Flexible Pavement)</b>	
		(1) Earthwork up to top of the sub-grade	0.03%
(2) Earthwork in Shoulders	0.05%		
(3) Sub-base Course (GSB)	0.05%		

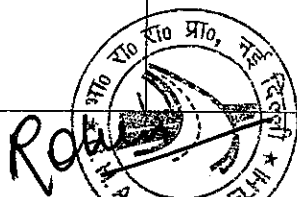


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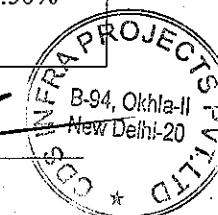
Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



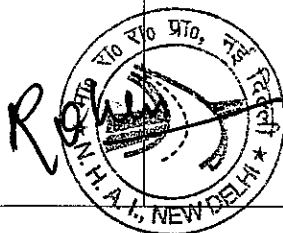
Item	Weightage in % of CP	Stage for Payment	Percentage weightage
1	2	3	4
		(4) Non-bituminous Base course (WMM)	0.08%
		(5) Bituminous Base course	0.08%
		(6) Wearing Coat	0.06%
		<b>C.2- Reconstruction/New Service road (Rigid Pavement)</b>	
		(1) Earthwork up to top of the sub-grade	0.00%
		(2) Sub-base Course	0.00%
		(3) Dry Lean Concrete (DLC) Course	0.00%
		(4) Pavement Quality Control (PQC) Course	0.00%
		<b>D- Reconstruction &amp; New Culverts on on existing road, realignments, bypasses</b>	
		Culverts (length <6m)	4.49%
		Additional Culverts	2.40%
Minor bridge/Underpasses/Overpasses	10.50%	<b>A.1- Widening and repairs of Minor Bridges (length&gt;6m &amp; &lt;60m)</b>	
		Minor Bridges	0.00%
		<b>A.2- New Minor bridges (length &gt;6 m and &lt; 60 m)</b>	
		(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	9.82%
		(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap including wing/ return wall upto top	5.83%
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect	3.33%
		(4) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use	0.33%
		(5) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects	0.00%
(6) Other Ancillary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion in all respect.	0.50%		



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Item	Weightage in % of CP	Stage for Payment	Percentage weightage
1	2	3	4
		<b>B.1- Widening and repairs of underpasses/overpasses</b>	
		Underpasses/ Overpasses	0.00%
		<b>B.2- New Underpasses/Overpasses</b>	
		(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	9.33%
		(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap including wing/ return wall upto top.	47.57%
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect.	19.71%
		(4) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	1.07%
	1.07%	(5) Other Ancillary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion in all respect. Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass-rigid pavement including drainage facility complete in all respects as specified	2.51%
		<b>A.1- Widening and repairs of Major Bridges</b>	
		(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	0.00%
		(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap upto top.	0.00%
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect	0.00%
		(4) Wearing Coat including expansion joints	<del>0.00%</del>
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%
<b>Major bridge(length&gt;60m) works and ROB/RUB/elevated sections/flyovers including viaducts,if any</b>	1.07%	(6) Wing walls/return walls	0.00%
		(7) Guide bunds, River Training works etc.	0.00%

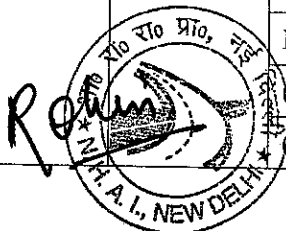


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Construction of Eight Lane divided carriageway starting at Ch. 47+000 near Khanpur Ghati to Haryana-Rajasthan Border (Ch. 47+000 to 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana



Item	Weightage in % of CP	Stage for Payment	Percentage weightage
1	2	3	4
		(8) Approaches (including Retaining walls, stone pitching and protection works)	0.00%
		<b>A.2- New Major Bridges</b>	
		(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	0.00%
		(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap upto top.	0.00%
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect.	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Guide bunds, River Training works etc.	0.00%
		(8) Approaches (including Retaining walls, stone pitching and protection works)	0.00%
		<b>B.1- Widening and repairs of</b> (a) ROB (b) RUB	
		(1) Foundations	0.00%
		(2) Sub-Structure	0.00%
		(3) Super-Structure (Including bearings)	0.00%
		(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	0.00%
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%
		(6) Wing walls/Return walls	0.00%
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
		<b>B.2- New ROB/RUB</b>	
		(1) Foundations	0.00%
		(2) Sub-Structure	0.00%



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Item	Weightage in % of CP	Stage for Payment	Percentage weightage
1	2	3	4
		(3) Super-Structure (Including bearings)	0.00%
		(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	0.00%
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%
		(6) Wing walls/Return walls	0.00%
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
		<b>C.1- Widening and repair of Elevated Section/Flyovers/Grade Separators</b>	
		(1) Foundations	0.00%
		(2) Sub-Structure	0.00%
		(3) Super-Structure (Including bearings)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%
		(6) Wing walls/Return walls	0.00%
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
		<b>C.2- New Elevated Section/Flyovers/Grade Separators</b>	
		(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	28.10%
		(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap upto top.	13.77%
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect	50.76%
		(4) Wearing Coat including expansion joints	2.08%
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.90%
		(6) Wing walls/Return walls	1.56%
		(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	2.83%



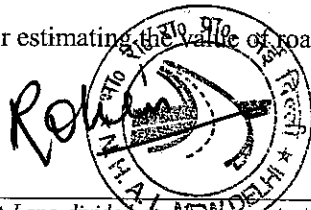


Item	Weightage in % of CP	Stage for Payment	Percentage weightage
1	2	3	4
Other Works	16.93%	(i) Toll Plaza	4.73%
		(ii) Road side drains	
		Lined Drain	8.92%
		Unlined Drain	0.31%
		(iii) Road signs, safety Devices, Road Furnitures etc.	3.03%
		(iv) Road markings & Studs	2.09%
		(v) Crash Barrier	17.11%
		(vi) Project facilities	
		a) Bus Bays	0.00%
		b) Wayside Amenities excluding Slip Roads & but including all internal roads (Service areas including Truck Lay-Byes)	5.18%
		c) Others	1.33%
		(vii) Rain Water Harvesting	0.95%
		(viii) Retaining Wall	0.00%
		(ix) RE Wall	0.00%
		(x) Street Lighting	7.12%
		(xi) Utility Ducts	1.73%
		(xii) ATMS	2.35%
(xiii) Road side Plantation including Horticulture in Wayside Amenities	10.48%		
(xiv) Protection Works other than approaches to the bridges, elevated sections/ flyover/ grade separators and ROBs/ RUBs	1.18%		
(xv) Safety & Traffic Management during const.	1.78%		
(xvi) Boundary wall	26.84%		
(xvii) Other miscellaneous works including Connecting road & Junction under Grade separator	4.87%		

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:



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Table 1.3.1

Stage of Payment	Percentage weightage	Payment Procedure
<b>A- Widening &amp; Strengthening of road</b>		
(1) Earthwork up to top of the sub-grade	0.00%	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.
(2) Sub-base Course	0.00%	
(3) Non-bituminous Base course	0.00%	
(4) Bituminous Base course	0.00%	
(5) Wearing Coat	0.00%	
(6) Widening and repair of culverts	0.00%	Cost of ten completed culverts shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least five culverts.
<b>B.1- Reconstruction/New 8-Lane Realignment / Bypass (Flexible Pavement)</b>		
(1) Earthwork up to top of the sub-grade + Site Clearance	31.27%	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 5(five) km length, whichever is less.
(2) Earthwork in Shoulders	0.83%	
(3) Sub-base Course (CTSB)	8.91%	
(4) Non-bituminous Base course (WMM)	5.31%	
(5) Bituminous Base course	37.34%	
(6) Wearing Coat	9.10%	
<b>B.2- Reconstruction/New 8-Lane Realignment / Bypass (Rigid Pavement)</b>		
(1) Earthwork up to top of the sub-grade	0.00%	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 5(five) km length, whichever is less.
(2) Sub-base Course	0.00%	
(3) Dry Lean Concrete (DLC) Course	0.00%	
(4) Pavement Quality Concrete (PQC) Course	0.00%	
<b>C.1- Reconstruction/ New Service Road/ Slip Road (Flexible Pavement)</b>		
(1) Earthwork up to top of the sub-grade	0.03%	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 5(five) km length, whichever is less.
(2) Earthwork in Shoulders	0.05%	
(3) Sub-base Course (GSB)	0.05%	
(4) Non-bituminous Base course (WMM)	0.08%	
(5) Bituminous Base course	0.08%	

Stage of Payment	Percentage weightage	Payment Procedure
(6) Wearing Coat	0.06%	
<b>C.2- Reconstruction/New Service road (Rigid Pavement)</b>		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 5(five) km length, whichever is less.
(1) Earthwork up to top of the sub-grade	0.00%	
(2) Sub-base Course	0.00%	
(3) Dry Lean Concrete (DLC) Course	0.00%	
(4) Pavement Quality Concrete (PQC) Course	0.00%	
<b>D- Reconstruction &amp; New Culverts on on existing road, realignments, bypasses</b>		Cost of each culverts shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least five culverts
Culverts (length <6m).	4.49%	
Additional Culverts	2.40%	

@ 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:

$$\text{Cost per km} = P \times \text{weightage for road work} \times \text{weightage for bituminous work} \times (1/L)$$

Where P = Contract Price

L = Total length in km

Similarly, the rates per km for other stages shall be worked out accordingly.

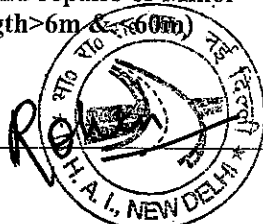
**Note:** The length affected due to law and order problems or litigation during execution due to which the Contractor is unable to execute the work, may be deducted from the total project length for payment purposes. The total length calculated here is only for payment purposes and will not affect and referred in other clauses of the Contract 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

Stage of Payment	Weightage	Payment Procedure
1	2	3
<b>A.1- Widening and repairs of Minor Bridges (length &gt;6m &amp; &lt;= 100m)</b>	0.0%	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of widening & repair works of a minor bridge

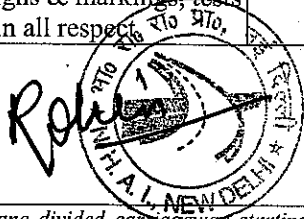


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Stage of Payment	Weightage	Payment Procedure
1	2	3
<p><b>A.2- New Minor Bridges (length&gt;6m &amp; &lt;60m)</b></p> <p>(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.</p>	9.82%	<p><b>Foundation:</b> Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of each bridge subject to completion of atleast two foundations of each bridge.</p> <p>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.</p>
<p>(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap including wing/ return upto top</p>	5.83%	<p><b>Sub-structure:</b> Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of each bridge subject to completion of at least two sub structures upto abutment/pier cap level of each bridge.</p>
<p>(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect</p>	3.33%	<p><b>Super-structure:</b> Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure of atleast one span in all respects as specified in the column of "Stage of Payment" in this sub-clause.</p>
<p>(4) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use</p>	0.33%	<p><b>Approaches:</b> Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub-clause.</p>
<p>(5) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects</p>	0.00%	<p><b>Guide Bunds and River Training Works:</b> Payment shall be made on pro-rata basis on completion of a stage i.e. completion of Guide Bunds and River training Works in all respects as specified</p>
<p>(6) Other Ancillary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs &amp; markings, tests on completion in all respects</p>	0.50%	<p><b>Other Ancillary Works:</b> Payment shall be made on pro-rata basis on completion of a stage in all respects as specified</p>

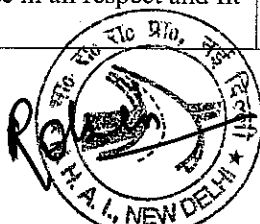


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Stage of Payment	Weightage	Payment Procedure
1	2	3
<b>B.1- Widening and repairs of underpasses/ overpasses</b>	0.00%	Cost of each underpass/overpass shall be determined on pro rata basis with respect to the total linear length of the underpasses/overpasses. Payment shall be made on the completion of widening & repair works of a underpass/overpass.
<b>B.2- New Underpasses/Overpasses</b>		
(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	9.33%	<b>Foundation:</b> Cost of each Underpass/Overpass shall be determined on pro-rata basis with respect to the total linear length (m) of the Underpasses/Overpasses. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of each Underpasses/ Overpasses subject to completion of atleast two foundations of each underpass/overpass. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap including wing/ return upto top	47.57%	<b>Sub-structure:</b> Cost of each Underpass/Overpass shall be determined on pro-rata basis with respect to the total linear length (m) of the Underpasses/ Overpasses. Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of each Underpasses/ Overpasses subject to completion of at least two sub structures upto abutment/pier cap level of each Underpasses/Overpasses.
(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect	19.71%	<b>Super-structure:</b> Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure of atleast one span in all respects as specified in the column of "Stage of Payment" in this sub-clause
(4) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use	1.07%	<b>Approaches:</b> Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches in all respect as specified



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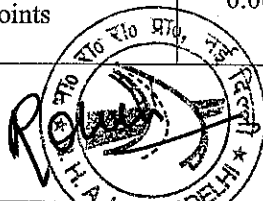
Stage of Payment	Weightage	Payment Procedure
1	2	3
(5) Other Ancillary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion in all respect.	2.51%	<b>Other Ancillary Works:</b> Payment shall be made on pro-rata basis on completion of a stage in all respects as specified

### 1.3.3 Major Bridge works, ROB/RUB and Structures

Procedure for estimating the value of Major Bridge works, ROB/RUB and Structures Work shall be as stated in table 1.3.3:

Table 1.3.3

Stage of Payment	Weightage	Payment Procedure
<b>A.1- Widening and repairs of Major Bridges</b>		
(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	0.00%	<b>Foundation:</b> Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge subject to completion of atleast two foundations of the major bridge.  In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap upto top.	0.00%	<b>Sub-structure:</b> Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of major bridge subject to completion of at least two sub structures of abutment/ piers upto abutment/pier cap level of major bridge.
(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect	0.00%	<b>Super-structure:</b> Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified
(4) Wearing Coat including expansion joints	0.00%	<b>Wearing Coat:</b> Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.

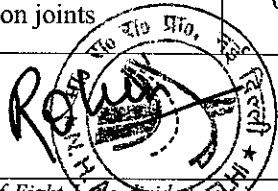


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Stage of Payment	Weightage	Payment Procedure
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	<b>Miscellaneous:</b> Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	0.00%	<b>Wing walls/return walls:</b> Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Guide bunds, River Training works etc.	0.00%	<b>Guide Bunds, River Training works:</b> Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	<b>Approaches:</b> Payments shall be made on completion of both approaches including stone pitching and protection works etc complete in all respect as specified.
<b>A.2- New Major Bridges</b>		
(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	0.00%	<b>Foundation:</b> Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge subject to completion of atleast two foundations of the major bridge.  In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap upto top	0.00%	<b>Sub-structure:</b> Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of major bridge subject to completion of at least two sub structures of abutment/ piers upto abutment/pier cap level of major bridge.
(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect	0.00%	<b>Super-structure:</b> Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified
(4) Wearing Coat including expansion joints	0.00%	<b>Wearing Coat:</b> Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.



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Stage of Payment	Weightage	Payment Procedure
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	<b>Miscellaneous:</b> Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	0.00%	<b>Wing walls/return walls:</b> Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Guide bunds, River Training works etc.	0.00%	<b>Guide Bunds, River Training works:</b> Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	<b>Approaches:</b> Payments shall be made on completion of both approaches including stone pitching and protection works etc complete in all respect as specified.
<b>B.1- Widening and repairs of</b> (a) ROB (b) RUB  (1) Foundation	0.00%	<b>Foundation:</b> Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB subject to completion of atleast two foundations of the ROB/RUB.  In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	0.00%	<b>Sub-structure:</b> Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of ROB/RUB subject to completion of at least two sub structures of abutment/ piers upto abutment/ pier cap level of ROB/RUB.
(3) Super-structure (including bearing)	0.00%	<b>Super-structure:</b> Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified.
(4) Wearing Coat including expansion joints in case of ROB. In case of RUB-rigid pavement under RUB including drainage facility as specified	0.00%	<b>Wearing Coat:</b> Payment shall be made on completion (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and



Stage of Payment	Weightage	Payment Procedure
		(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 barrier, road markings etc.	0.00%	<b>Miscellaneous:</b> Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	0.00%	<b>Wing walls/return walls:</b> Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Approaches (including Retaining walls/ Reinforced Earth wall, stone pitching and protection works)	0.00%	<b>Approaches:</b> Payments shall be made on completion of both approaches including stone pitching and protection works etc complete in all respect as specified.
<b>B.2- New ROB/ RUB</b>		
(1) Foundation	0.00%	<b>Foundation:</b> Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not than 25% of the scope of foundation of the ROB/RUB subject to completion of atleast two foundations of the ROB/RUB.  In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	0.00%	<b>Sub-structure:</b> Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of ROB/RUB subject to completion of at least two sub structures of abutment/ piers upto abutment/ pier cap level of ROB/RUB.
(3) Super-structure (including bearing)	0.00%	<b>Super-structure:</b> Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified.
(4) Wearing Coat including expansion joints in case of ROB. In case of RUB-rigid pavement under RUB including drainage facility as specified	0.00%	<b>Wearing Coat:</b> Payment shall be made on completion (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.

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Stage of Payment	Weightage	Payment Procedure
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	<b>Miscellaneous:</b> Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	0.00%	<b>Wing walls/return walls:</b> Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Approaches (including Retaining walls/ Reinforced Earth wall, stone pitching and protection works)	0.00%	<b>Approaches:</b> Payments shall be made on completion of both approaches including stone pitching and protection works etc complete in all respect as specified.
<b>C.1- Widening and repairs of Elevated Section/ Flyovers/ Grade Separators</b>		
(1) Foundation	0.00%	<b>Foundation:</b> Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure subject to completion of atleast two foundations of the structure.  In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	0.00%	<b>Sub-structure:</b> Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of structure subject to completion of at least two sub structures of abutment/ piers upto abutment/pier cap level of structure.
(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect	0.00%	<b>Super-structure:</b> Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified.
(4) Wearing Coat including expansion joints	0.00%	<b>Wearing Coat:</b> Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	<b>Miscellaneous:</b> Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	0.00%	<b>Wing walls/return walls:</b> Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.

Stage of Payment	Weightage	Payment Procedure
		on completion of all wing walls/return walls complete in all respects as specified.
(7) Approaches (including Retaining walls/ Reinforced Earth wall, stone pitching and protection works)	0.00%	<b>Approaches:</b> Payments shall be made on completion of both approaches including stone pitching and protection works etc complete in all respect as specified.
<b>C.2- New Elevated Section/ Flyovers/ Grade Separators</b>		
(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	28.10%	<b>Foundation:</b> Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure subject to completion of atleast two foundations of the structure.  In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap upto top.	13.77%	<b>Sub-structure:</b> Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of structure subject to completion of at least two sub structures of abutment/ piers upto abutment/pier cap level of the structure.
(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect	50.76%	<b>Super-structure:</b> Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified.
(4) Wearing Coat including expansion joints	2.08%	<b>Wearing Coat:</b> Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.90%	<b>Miscellaneous:</b> Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	1.56%	<b>Wing walls/return walls:</b> Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Approaches (including Retaining walls/ Reinforced Earth wall,		<b>Approaches:</b> Payments shall be made on completion of both approaches including stone pitching and protection works etc complete in all respect as

Stage of Payment	Weightage	Payment Procedure
stone pitching and protection works)		specified.

### 1.3.4 Other Works.

Procedure for estimating the value of other works done shall be as stated in table 1.3.4:

**Table 1.3.4**

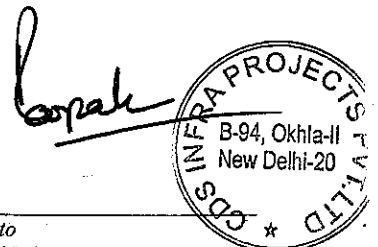
Stage of Payment	Weightage	Payment Procedure
(i) Toll Plaza	4.73%	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro rata basis with respect to the total of all toll plaza.
(ii) Road side drains		Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
Lined Drain	8.92%	
Unlined Drain	0.31%	
(iii) Road signs, safety Devices, Road Furnitures etc.	3.03%	
(iv) Road markings & Studs	2.09%	
(v) Crash Barrier	17.11%	
(vi) Project facilities		Payment shall be made on pro rata basis for completed facilities.
a) Bus Bays	0.00%	
b) Wayside Amenities excluding Slip Roads & but including all internal roads (Service areas including Truck Lay-Byes)	5.18%	
c) Others	1.33%	
(vii) Rain Water Harvesting	0.95%	
(viii) Retaining Wall	0.00%	Unit of measurement is linear length. 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.
(ix) RE Wall	0.00%	
(x) Street Lighting	7.12%	
(xi) Utility Ducts	1.73%	
(xii) ATMS	2.35%	
(xiii) Road side Plantation including Horticulture in Wayside Amenities	10.48%	
(xiv) Protection Works other than approaches to the bridges, elevated sections/ flyover/ grade separators and ROBS/ RUBs	1.18%	

Stage of Payment	Weightage	Payment Procedure
(xv) Safety & Traffic Management during const.	1.78%	Payment shall be made on prorata basis every six months.
(xvi) Boundary wall	26.84%	Unit of measurement is linear length. 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.
(xvii) Other miscellaneous works including Connecting road & Junction under Grade separator.	4.87%	Payment shall be made on pro rata basis for completed facilities.

**2. Procedure for payment for Maintenance**

2.1 The cost for maintenance shall be as stated in Clause 14.1.1.

2.2. Payment for Maintenance shall be made in quarterly installments in accordance with the provisions of Clause 19.7.



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**SCHEDULE - I**  
(See Clause 10.2.4)

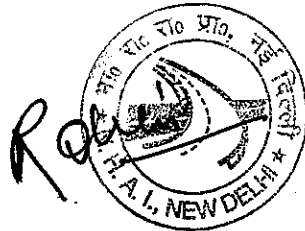
**DRAWINGS**

**1 Drawings**

In compliance of the obligations set forth in Clause 10.2 of this Agreement, the Contractor shall furnish to the Authority's Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-I.

**2 Additional Drawings**

If the Authority's 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's Engineer, as if such drawings formed part of Annex-I of this Schedule-I.



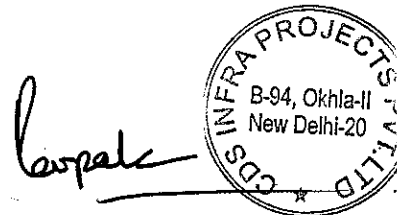
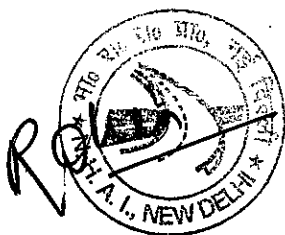
**Annex – I**

*(Schedule-I)*

**List of Drawings**

A minimum list of drawings of the various components/elements of the Project Highway and Project Facilities required to be submitted by the contractor is given below;

- a) Drawing of horizontal alignment, vertical profile and cross sections
- b) Drawings of cross drainage works
- c) Drawings of Grade Separated Structures
- d) Drawings of interchanges, major intersections
- e) Drawing of Toll Plaza layout, toll collection systems and roadway near toll plaza
- f) Drawing of control centre
- g) Wayside Amenities/Service area/Parking area
- h) Drawing of a truck parking lay bye with furniture and drainage system
- i) Drawings of road furniture items including traffic signage, marking, safety barriers, etc.
- j) Drawings of traffic diversions plans and traffic control measures
- k) Drawings of road drainage measures
- l) Drawings of typical details slope protection measures
- m) Drawings of landscaping and horticulture
- n) Drawings of street lighting
- o) General arrangement showing area of base camp and administrative block
- p) Any other drawings relevant to the project as desired by Authority Engineer.



## 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 255<sup>th</sup> (Two Hundred fifty fifth) day from the Appointed Date (the "Project Milestone- I").

(ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced 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

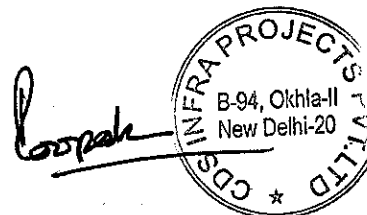
(i) Project Milestone-II shall occur on the date falling on the 440<sup>th</sup> (Four Hundred Fortieth) day from the Appointed Date (the "Project Milestone- II").

(ii) Prior to the occurrence of Project Milestone-II, 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 35% (thirty five per cent) of the Contract Price and should have started construction of all bridges

#### 4. Project Milestone-III

(i) Project Milestone-III shall occur on the date falling on the 620<sup>th</sup> (Six Hundred Twentieth) 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 per cent) of the Contract Price and should have started construction of all project facilities.



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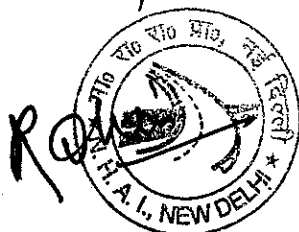


5. **Scheduled Completion Date**

- (i) The Scheduled Completion Date shall occur on the 730<sup>th</sup> (Seven Hundred thirtieth) 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))

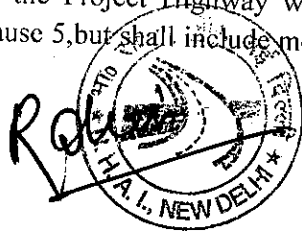
### Tests on Completion

#### 1. Schedule for Tests

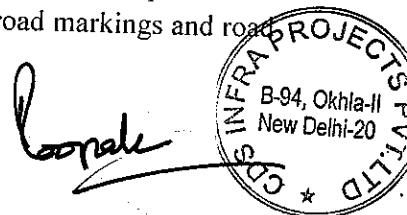
- (i) The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority's Engineer and the Authority of its intent to subject the Project Highway to Tests, and no later than 10 (ten) days prior to the actual date of Tests, furnish to the Authority's Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.
- (ii) The Contractor shall notify the Authority's 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's 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's 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's 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 (to be decided with Authority's Engineer at the time of physical tests as per relevant IRC code Manual).
- (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's Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.
- (iv) Other tests: The Authority's 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



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signs; and measuring the illumination level (lux) of lighting using requisite testing equipment.

- (v) Environmental audit: The Authority's 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's 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's Engineer or such other agency or person as it may specify in consultation with the Authority.

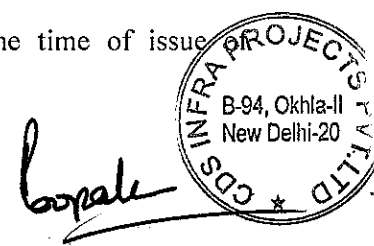
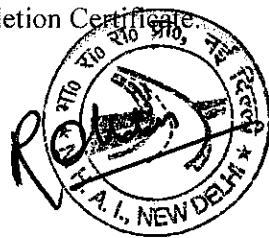
**4. Completion Certificate**

Upon successful completion of Tests, the Authority's 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 Completion Certificate.



**Schedule - L**

(See Clause 12.2)

**Completion 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 Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana (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.....

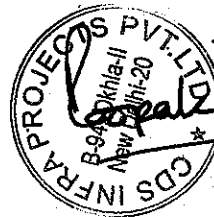
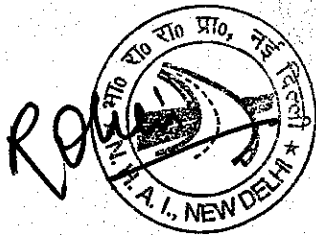
SIGNED, SEALED AND DELIVERED

For and on behalf of the Authority's Engineer by:

(Signature)

(Name)

(Designation) (Address)



## Schedule - M

(See Clauses 14.6, 15.2 and 19.7)

### Payment Reduction for Non-Compliance

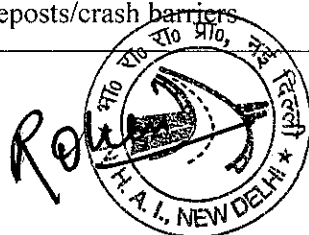
#### 1. Payment reduction for non-compliance with the Maintenance Requirements

- (i) Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E.
- (ii) 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.
- (iii) The Authority's 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

- (i) The following percentages shall govern the payment reduction:

S. No.	Item/Defect/Deficiency	Percentage
<b>(a) Carriageway/Pavement</b>		
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
<b>(b) Road, Embankment, Cuttings, Shoulders</b>		
(i)	Edge drop, inadequate cross fall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, raincuts, disturbed pitching, vegetation growth, pruning of trees	5%
<b>(c) Bridges and Culverts</b>		
(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)	<b>Roadside Drains</b>	
(i)	Cleaning and repair of drains	5%
(e)	<b>Road Furniture</b>	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5 <sup>th</sup> km stones	5%
(f)	<b>Miscellaneous Items</b>	
(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)	<b>Defects in Other Project Facilities</b>	5%

- (ii) The amount to be deducted from monthly lump-sum payment for non-compliance of particular item shall be calculated as under:

$$R = \frac{P}{100} \times (M1 \text{ or } M2) \times \frac{L1}{L}$$

Where,

P= Percentage of particular item/Defect/deficiency for deduction

M1= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

M2= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

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's Engineer

#### 1. Selection of Authority's Engineer

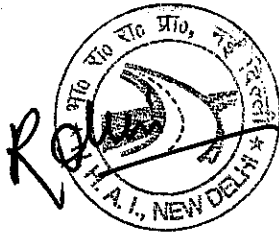
- (i) The provisions of the Model Request for Proposal for Selection of Technical Consultants, issued by the Ministry of Finance in May 2009, or any substitute thereof shall apply for selection of an experienced firm to discharge the functions and duties of an Authority's Engineer.
- (ii) In the event 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's Engineer (the "TOR") shall substantially conform with Annex 1 to this Schedule N.

#### 3. Appointment of Government entity as Authority's Engineer

Notwithstanding anything to the contrary contained in this Schedule, the Authority may in its discretion appoint a government-owned entity as the Authority's 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's Engineer.



*Signature*



Annex - I

(Schedule - N)

**Terms of Reference for Authority's Engineer**

**1. Scope**

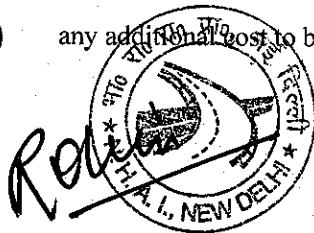
- (i) These Terms of Reference (the "TOR") for the Authority's Engineer are being specified pursuant to the EPC Agreement dated ..... (the "Agreement"), which has been entered into between the **National Highways Authority of India, G-5&6, Dwarka Sector-10, New Delhi-110075** (the "Authority") and .....(the "Contractor") for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana 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.
- (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's 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's 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;

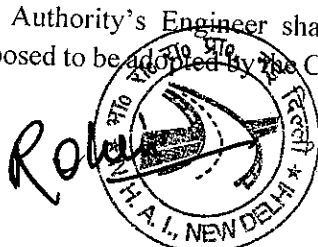




- (c) the Termination Payment; or
  - (d) issuance of Completion Certificate or
  - (e) any other matter which is not specified in (a), (b), (c) or (d) above and which creates a financial liability on either Party.
- (iii) The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.
  - (iv) The Authority's 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's 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's 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's 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's 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 be extended 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's 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's 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.
- (iv) The Authority's 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



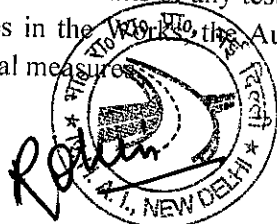
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to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

- (v) The Authority's 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's 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's 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's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.
- (viii) The Authority's 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's Engineer may require.
- (ix) For determining that the Works conform to Specifications and Standards, the Authority's 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's 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's 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's Engineer shall require the Contractor to carry out remedial measures.



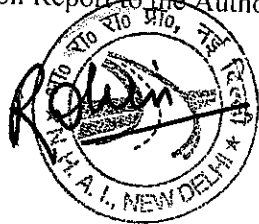
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- (xiii) The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work 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's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's 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's Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.
- (xv) The Authority's 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's 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's 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's Engineer to inspect such works, the Authority's 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's 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's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

## 5. Maintenance Period

- (i) The Authority's 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's 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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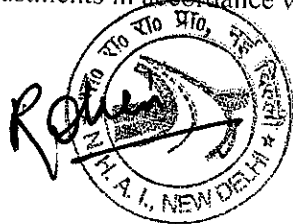
- (iii) The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the 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's 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's 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's 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's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.
- (ii) The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.
- (iii) The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

**7. Payments**

- (i) The Authority's Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provisions of Clause 10.2 (iv) (d).
- (ii) Authority's 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 Contractor, after adjustments in accordance with the provisions of Clause 19.10.



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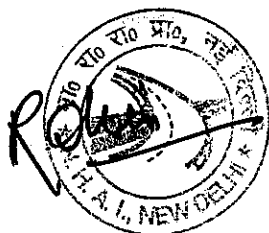
- (iii) The Authority's Engineer shall, within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, verify the Contractor's monthly statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.
- (iv) The Authority's 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's 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's Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority's Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.
- (ii) The Authority's 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's 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's 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's 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

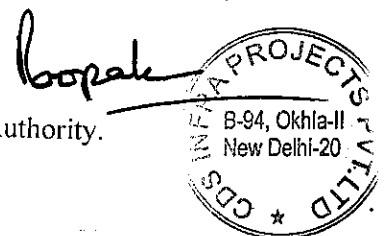
#### 2. Monthly Maintenance Payment Statement

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

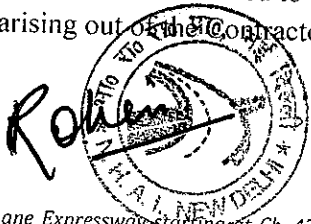
The Contractor shall effect and maintain insurance cover of not less than 15% of the Contract Price for the Works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and which arises from a cause 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. 2.00 Crore (Rupees Two Crore only)

(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:



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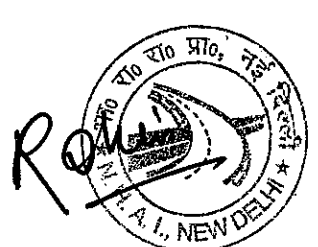


- (a) the Authority's right to have the construction works executed on, over, under, in or through any land, and to occupy this land for the Works; and
- (b) damage which is an unavoidable result of the Contractor's obligations to execute the Works.

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)

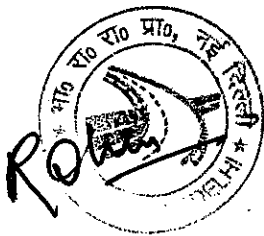
### Tests on Completion of Maintenance Period

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's 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.*



**Schedule-R**

(See Clause 14.10)

**Taking Over Certificate**

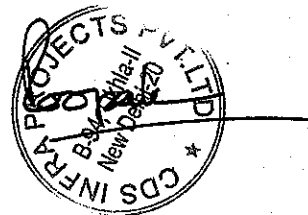
I, ..... (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated ..... (the "Agreement"), for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana (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

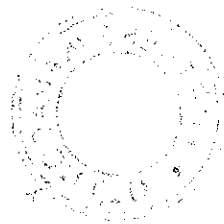
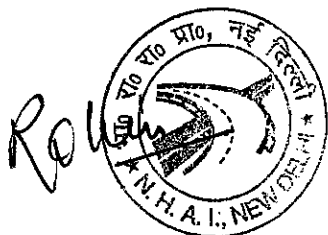
(Signature)

(Name and designation of Authority's Representative)

(Address)



# ANNEXURES

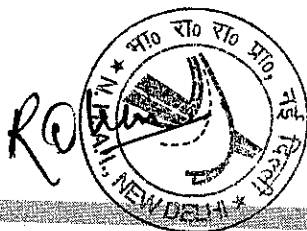


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# NOTICE INVITING TENDER



*Capal*



**NATIONAL HIGHWAYS AUTHORITY OF INDIA,  
G-5 & 6, SECTOR-10, DWARKA, NEW DELHI-110075**

**Notice Inviting Bid**

NHAI/BM/ Delhi-Vadodara/2018/Pkg3

Dated -23.08.2018

**RFP for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode**

The Ministry of Road Transport & Highways through National Highways Authority of India is engaged in the development of National Highways and as part of this endeavour, it has been decided to undertake Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana through an Engineering, Procurement and Construction (EPC) Contract.

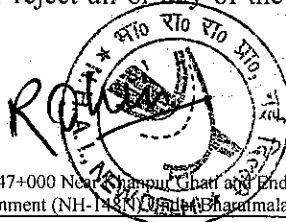
National Highways Authority of India represented by its Chairman now invites bids from eligible contractors for the following project:

State	NH No.	ICB No.	Name of work	Estimated cost	Completion period	Maintenance period
Haryana	148-N	NHAI/BM/ Delhi-Vadodara/2018/Pkg3	Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode	Rs. 798.55 Crore	2 Years	10 Years

The complete BID document can be viewed / downloaded from official portal of NHAI <http://www.nhai.gov.in> or e-procurement portal of NHAI <http://etenders.gov.in> from 23.08.2018 to 27.12.2018 (upto 1100 Hrs. IST). Bidder must submit its Financial bid at <http://etenders.gov.in> and also on BIMS portal ([www.bims.gov.in](http://www.bims.gov.in)) and Technical Bid at <https://bims.gov.in> on or before 27.12.2018 (upto 1100 hours IST). Bids received online shall be opened on 28.12.2018 (at 1130hours IST).

Bid through any other mode shall not be entertained. However, Bid Security, document fee, Power of Attorney Joint Bidding Agreement etc. shall be submitted physically by the Bidder on or before 28.12.2018 (at 1100 hours IST), Please note that the Authority reserves the right to accept or reject all or any of the BIDs without assigning any reason whatsoever.

Officer In-charge  
Mr. Rohin Kumar Gupta



*Coopale*

Construction of Eight Lane Expressway Starting at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi – Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode

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General Manager (T)-Bharatmala Division  
National Highways Authority of India,  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075  
Phone:+91-11-25074100/200 (Extn.: 1111)  
E-mail: [rohingupta@nhai.org](mailto:rohingupta@nhai.org)

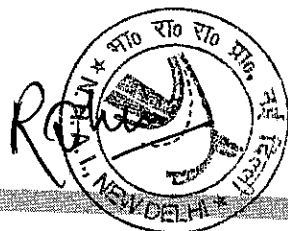


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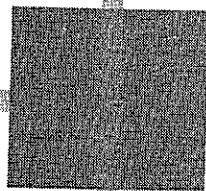


Construction of Eight Lane Expressway Starting At Km 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi – Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode

# E-TENDERING PROCEDURE



*Roopal*



**PROCEDURE UNDER E-TENDERING****INSTRUCTIONS TO BIDDER FOR e-TENDERING**

(Note: RFP stands modified to the extent required as per these instructions)

**Name of Work:** Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana

**Definitions:**

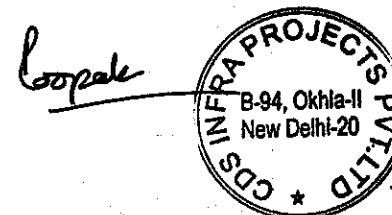
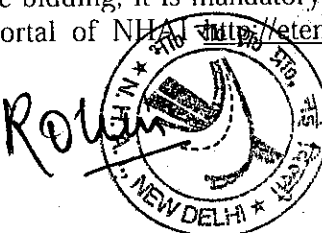
- a. **National Informatics Centre (NIC):** A service provider to develop and customize the software and facilitate the process of e-tendering on application service provider model.
- b. <http://etenders.gov.in>: An e-tendering portal of National Highways Authority of India (“NHAI”) introduced for the process of e-tendering which can be accessed on <http://etenders.gov.in>.
- c. Words in capital and not defined in this document shall have the same meaning as in the Request for Proposal (“RFP”).
- d. Bidder Information Management System (BIMS): A software developed by the Ministry wherein technical proposal/bids shall be submitted by the bidders on <https://bims.gov.in> and the financial proposal/bids on <https://etenders.gov.in>

**1. Accessing/ Purchasing of BID documents**

It is mandatory for all the Bidders to have class-III Digital Signature Certificate (DSC) (in the name of Authorized Signatory / Firm or Organisation / Owner of the Firm or organisation) from any of the licensed Certifying Agency (Bidders can see the list of licensed CAs from the link [www.cca.gov.in](http://www.cca.gov.in)) to participate in e-tendering of NHAI.

It should be in corporate capacity (that is in Bidder capacity ). Please ensure the submission of document certifying the class III DSC.

- (i) The Authorized Signatory holding Power of Attorney (POA) or the person executing/delegating such POA shall only be the Digital Signatory. In other cases, the Bid shall be considered non-responsive.
- (ii) To participate in the bidding, it is mandatory for the bidders to get registered their firm with e-tendering portal of NHAI <http://etenders.gov.in> to have user ID & password





which has to be obtained free of cost.

**Following may kindly be noted:**

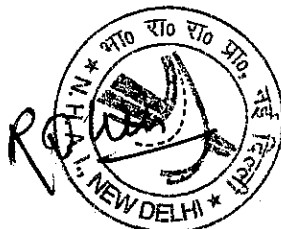
- (a) Registration should be valid at least up to the date of submission of BID.
  - (b) BIDs can be submitted only during the validity of their registration with the <http://etenders.gov.in>.
  - (c) The amendments / clarifications to the BID document, if any, will be hosted on the NHAI website (<http://nhai.org>) / NHAI e-tendering portal <http://etenders.gov.in>.
  - (d) If the firm is already registered with e-tendering portal of NHAI, Government of India and validity of registration is not expired the firm is not required a fresh registration.
- (iii) The complete BID document can be viewed / downloaded from e-tender portal of NHAI <http://www.nhai.org> or <http://etenders.gov.in> from 24.08.2018 to 10.10.2018 (upto 1100 Hrs. IST).
- (iv) To participate in bidding, bidders have to pay a sum of Rs. 80,000/- (Rs. eighty thousand only) as a cost of the RFP process (non-refundable) in favour of **“National Highways Authority of India” Payable at New Delhi** in the form of Demand Draft.

**2. Preparation & Submission of BIDs:**

- (i) The Bidder may be submitted his Bid online following the instruction appearing on the screen. A buyer manual containing the detailed guidelines for e-procurement is also available on e-procurement portal of NHAI. Similarly, the Bidder manual containing the detailed guidelines for registering, updating data and applying for Bids is available on the BIMS portal.
- (ii) The documents listed at clause 2.11.1 shall be prepared and scanned in different files (in PDF or RAR format such that file size is not more than 30 MB) and uploaded during the online submission of BID.
- (iii) Bid must be submitted online only through e-procurement portal of NHAI (<http://etenders.gov.in>) using the digital signature of authorized representative of the Bidder must apply on the BIMS portal [www.bims.gov.in](http://www.bims.gov.in) on or before 10.10.2018 (upto 1100 hours IST).

A. Only Electronic Form (to be uploaded on the <https://etenders.gov.in> and <https://bims.gov.in>) (Refer to Clause 2.11.1 of the RFP)

**I. Technical Bid**



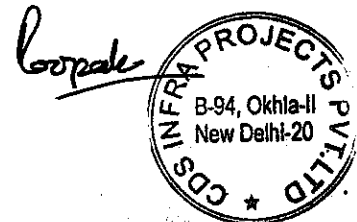
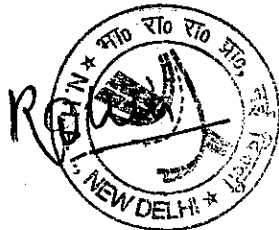
- (a) Appendix-IA (Letter comprising the Technical Bid) including Annexure I, IV, V and VI and supporting certificates / documents.
- (b) Power of Attorney for signing the BID as per the format at Appendix-III;
- (c) if applicable, Power of Attorney for Lead Member of Joint Venture as per the format at Appendix-IV;
- (d) if applicable, Joint Bidding Agreement for Joint Venture as per the format at Appendix-V;
- (e) Deleted;
- (f) BID Security of **Rs. 7.99 Crore (Rupees Seven Crore and Ninety Nine Lakh only)** in the form of Bank Guarantee in the format at Appendix-II from a Scheduled Bank;
- (g) Demand Draft towards payment of cost of Bid document of **Rs. 80,000/- (Rupees Eighty Thousand only)** in favour of "National Highways Authority of India" payable at New Delhi towards cost of Bid document.;
- (h) Deleted;
- (i) Bidder shall comply with the provisions of Office Memorandum No. RW/NH-37010/4/2010/PIC-EAP(Printing) dated 22.02.2016 and its subsequent amendments if any, issued by MoRT&H (Appendix-VI) regarding Integrity Pact (IP) and the Integrity Pact (IP) duly signed by Authorised signatory shall be submitted by the Bidder with the RFP Bid & shall be part of the Contract Agreement;
- (j) An undertaking from the person having PoA referred to in Sub. Clause-(b) above that they agree and abide by the Bid documents uploaded by NHA and amendments uploaded, if any; and
- (k) Copy of Memorandum and Article of Association, if the Applicant is a body corporate, and if a Partnership then a copy of its partnership deed.
- (l) Copies of Applicant's duly audited balance sheets and profit and loss statements for preceding 5 years.

#### **Financial Bid**

- (m) Appendix-IB (Letter comprising the Financial Bid) shall be submitted online through e-procurement portal [<http://etenders.gov.in>] on or before 1100 hrs 10.10.2018.2018

#### **B. Original (in Envelope) and Electronic form (to be uploaded on the <http://etenders.gov.in>) (Refer to Clause 2.11.2 of the RFP)**

- (a) Original Power of Attorney for signing the BID as per format at Appendix-III;
- (b) if applicable, Original Power of Attorney for Lead Member of Joint Venture as per the format at Appendix-IV;
- (c) if applicable, Original Joint Bidding Agreement for Joint Venture as per the format at Appendix-V;
- (d) BID Security of **Rs. 7.99 Crore (Rupees Seven Crore and Ninety Nine Lakh only)** in the form of Original Bank Guarantee in the format at Appendix-II from a Scheduled Bank;



- (e) Demand Draft towards payment of cost of Bid document of **Rs. 80,000/- (Rupees Eighty Thousand only)** in favour of "National Highways Authority of India" payable at New Delhi towards cost of Bid document.;
- (f) Deleted;
- (g) Bidder shall comply with the provisions of Office Memorandum No. RW/NH-37010/4/2010/PIC-EAP(Printing) dated 22.02.2016 and its subsequent amendments if any issued by MoRT&H (Appendix-VI) regarding Integrity Pact (IP) and the Integrity Pact (IP) duly signed by Authorised signatory shall be submitted by the Bidder with the RFP Bid & shall be part of the Contract Agreement; and
- (h) An undertaking from the person having PoA referred to in Sub. Clause-(a) above that they agree and abide by the Bid documents uploaded by NHA and amendments uploaded, if any.
- (i) Statement of Legal Capacity as per format at Annexure V to Appendix 1A
- (iii) The Bidder shall submit the original documents specified above in point no. 2 (ii) (B) together with their respective enclosures and seal it in an envelope and mark the envelope as "Bids". The said envelope shall clearly bear the name of the Project and name and address of the Bidder. In addition, the Bid Due Date should be indicated on the right and corner of the envelope. The original documents should be submitted before 1100 hours Indian Standard Time on **11.10.2018**, at the below mentioned address in the manner and form as detailed in the RFP. A receipt thereof should be obtained from the below mentioned person.

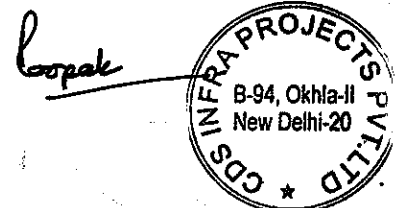
ATTN. OF : Mr. Rohin Kumar Gupta  
 DESIGNATION : General Manager (Tech)  
 ADDRESS : National Highways Authority of India,  
 G-5&6, Sector-10, Dwarka, New Delhi-110075  
 PHONE NO. : +91-11-25074100/200 (Extn. 1111)  
 E-MAILADDRESS : [rohingupta@nhai.org](mailto:rohingupta@nhai.org)

The Bidder shall upload scanned copies of the documents as specified in point nos. 2(ii)(A)&(B) above on the <http://etenders.gov.in> before 10.10.2018 (1100 hours Indian Standard Time) on the Bid Due Date. In the event of any discrepancy between the original and the copy (in electronic form), the original shall prevail.

- (iv) It may be noted that scan copies can be prepared in different file format i.e. PDF or RAR only. The Bidders can upload a single file of size of 30MB only but can upload multiple files.

### 3. AMENDMENT OF RFP:

Any Addendum to the RFP shall be uploaded only on the <http://etenders.gov.in> and BIMS portal [www.bims.gov.in](http://www.bims.gov.in) (Refer Clause 2.9.2 of the RFP)



**4. MODIFICATION/SUBSTITUTION/WITHDRAWAL OF BIDS (Refer Clause 2.14.3 of the RFP):**

- (i) The Bidder may modify, substitute or withdraw its e- BID after submission prior to the BID Due Date. No BID can be modified, substituted or withdrawn by the Bidder on or after the BID Due Date & Time.
- (ii) For modification of e-BID, Bidder has to detach its old BID from e-procurement portal and upload / resubmit digitally signed modified BID. For withdrawal of BID, bidder has to click on withdrawal icon at e-procurement portal and can withdraw its e-BID. Before withdrawal of a BID, it may specifically be noted that after withdrawal of a BID for any reason, Bidder cannot re-submit e-BID again. For modification the application mode (sole/JV), bidder has to switch the mode according to the guidelines provided in the aforementioned bidder manual available on BIMS portal. For withdrawal of bid, the bidder can click on delete participation as mentioned in the guidelines in the bidder manual.

**5. OPENING AND EVALUATION OF BIDS (Refer to Clause 3.1 of the RFP):**

- (iii) The Authority shall open the BIDS received physically & online at 1130 hours IST on 11.10.2018 at the place specified in Clause 2.11.4(i); and in the presence of the Bidders who choose to attend. Technical BID of only those bidders shall be online opened whose documents listed at clause 2.11.2 of the RFP have been received physically and the details have been uploaded on BIMS alongwith Application to the tender on BIMS. The Authority shall prepare minutes of the BID opening, including information disclosed to those present at the time of BID opening.

**DISCLAIMER**

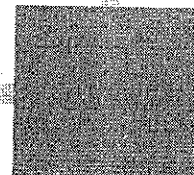
The Bidder must read all the instructions in the RFP and submit the same accordingly.

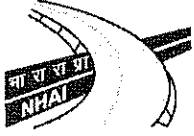


# CORRIGENDUM



*Boyd*





भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
**National Highways Authority of India**  
(Ministry of Road Transport and Highways)  
जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200  
फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/BM/Delhi-Vadodara/2018/Pkg3

01.10.2018

To

All Bidders

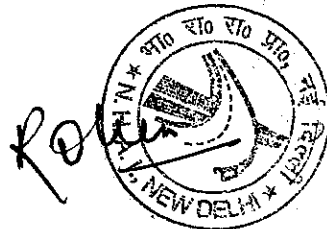
Sub: Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana- *Extension of Bid due date - Reg.*

Bid due date for the subject project has been extended from 10.10.2018 to 12.11.2018 (up to 11:00 hrs) with following schedule:-

- |   |                         |
|---|-------------------------|
| (i). Deadline for downloading of bid            | - 12.11.2018 (1100 hrs) |
| (ii). Deadline for online submission of bids    | - 12.11.2018 (1100 hrs) |
| (iii). Deadline for physical submission of bids | - 13.11.2018 (1100 hrs) |
| (iv). Opening of bids                           | - 13.11.2018 (1130 hrs) |

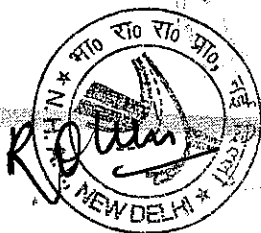
All other terms and conditions will remain same.

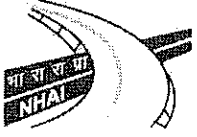
*Rohin*  
01/10/18  
(Rohin Kumar Gupta)  
General Manager (T)  
Bharatmala



*Boopale*

# CORRIGENDUM





भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
**National Highways Authority of India**  
(Ministry of Road Transport and Highways)  
जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200  
फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/BM/ Delhi-Vadodara/2018/Pkg3

01.10.2018

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To

All Bidders

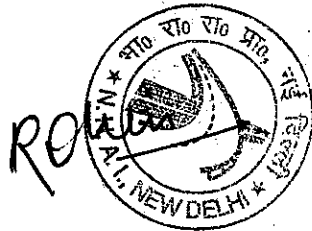
Sub: Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghafi and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana- Extension of Bid due date - Reg.

Bid due date for the subject project has been extended from 12.11.2018 to 05.12.2018 (up to 11:00 hrs) with following schedule:-

- |   |                         |
|---|-------------------------|
| (i). Deadline for downloading of bid            | - 05.12.2018 (1100 hrs) |
| (ii). Deadline for online submission of bids    | - 05.12.2018 (1100 hrs) |
| (iii). Deadline for physical submission of bids | - 06.12.2018 (1100 hrs) |
| (iv). Opening of bids                           | - 06.12.2018 (1130 hrs) |

All other terms and conditions will remain same.

Rohin  
23/10/18  
(Rohin Kumar Gupta)  
General Manager (T)  
Bharatmala



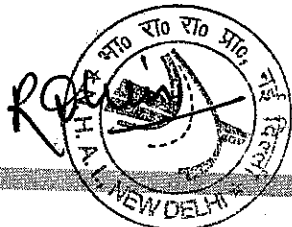
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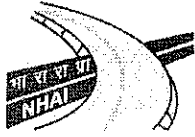


# CORRIGENDUM-1



*Coopale*





भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
**National Highways Authority of India**

(Ministry of Road Transport and Highways)

जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075

G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200

फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/BM/Delhi/Vadodara/2018/Pkg 3

Dated: 05.11.2018

Corrigendum-I

To

All applicants

**Sub: Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana - Reg.**

The Technical Schedules as uploaded for the subject project have been amended and the amendment for the same is enclosed at Annex-A.

2. The reply of pre-bid queries for the subject project has been enclosed at Annex-B.
3. All other terms and conditions will remain same.

*Rohin*  
5/11/18  
(Rohin Kumar Gupta)  
General Manager (T)  
Bharatmala



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**Amendments in Technical Schedules**

**Schedule A**

**Clause 1.4: stands amended and shall be read as under:**

The alignment plans of the Project Highway are specified in Annex-III. The proposed levels (FRL) as indicated in the alignment plan shall be treated as an approximate assessment. The contractor shall design the Road Profile of the project highway based on site/design requirement mentioned in Schedule D.

**Annex-III (Schedule-A): stands amended and shall be read as under:**

**Alignment Plans:**

1. The alignment of the Project Highway is enclosed in alignment plan. Finished road level indicated in the alignment plan shall be treated as an approximate assessment. The contractor shall design the Road profile of the project highway based on site/design requirement mentioned in Schedule D.
2. Traffic Signage plan of the Project Highway showing numbers & location of traffic signs is enclosed. The contractor shall, however, improve/upgrade upon the traffic signage plan as indicated in Annexure-III based on site/design requirement as per IRC: SP: 99-2013 & IRC: 67-2012.

**Schedule B**

**Clause 1: stands amended and shall be read as under:**

Development of the Project Highway shall include design and construction of the Project Highway as described in this Schedule-B and in Schedule-C. The alignment plans of the Project Highway are specified in Annex-III of Schedule A. The proposed profile of the project highway as indicated in the Annex-III of Schedule A shall be treated as an approximate assessment. Based on site/design requirement, the Contractor shall design the alignment plans and profiles of the project highway based on site/design requirement mentioned in Schedule D with approval from the Authority's Engineer within the available Right of Way.

**Annexure-I of Schedule B**

**Para 2 under Description of the Project: stands amended and shall be read as under:**

The Project Highway shall follow the horizontal alignment shown in the plan specified in Annex III of Schedule-A, unless otherwise specified by the Authority. Notwithstanding anything to the contrary contained in this Agreement or IRC:SP:99-2013, the proposed



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profile of the project highway as indicated in the Annexure-III of Schedule-A shall be treated as an approximate assessment. Based on site/design requirement, the Contractor shall design the alignment plans and profiles of the project highway based on site/design requirement mentioned in Schedule D with approval from the Authority's Engineer within the available Right of Way. The same shall not constitute a change of scope, save and except any variations arising out of a change of scope expressly undertaken in accordance with the provision of Article 13.

**Clause 4: stands amended and shall be read as under:**

Construction of new road embankment/cuttings shall conform to the Specifications and Standards given in section 4 of the IRC:SP:99-2013 and the specified cross sectional details. Notwithstanding anything to the contrary contained in this Agreement or IRC:SP:99-2013, the proposed profile of the project highway as indicated in the Annex-III of Schedule shall be treated as an approximate assessment. Based on site/design requirement, the Contractor shall design the alignment plans and profiles of the project highway based on site/design requirement mentioned in Schedule D with approval from the Authority's Engineer within the available Right of Way.

**Clause 5.3.2 Design Traffic: stands amended and shall be read as under:**

Notwithstanding anything to the contrary contained in this Agreement or the IRC:SP:99-2013, the Contractor shall design the pavement of main carriageway as long life perpetual flexible pavement while the pavement for connecting/service/slip road shall be designed for design traffic of 10 MSA.

In order to meet the intended functional requirement of respective pavement layers as well as compaction of heavy bituminous layers on main carriageway, the minimum thickness of respective pavement layers for main carriageway and connecting/ service/slip road shall, however, in no case be less than as given below:

**Main carriageway**

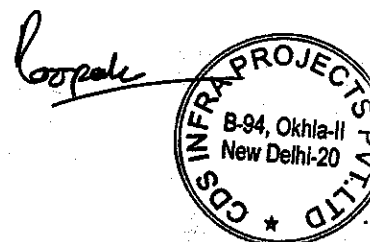
Pavement Composition	Pavement Type	Minimum Crust Thickness (mm)
Stone Matrix Asphalt (SMA) as wearing course	Perpetual	50
Bituminous base course		250
Non-bituminous base course		150
Sub-base course		200

**Connecting/Service/Slip road**

Pavement Composition	Pavement Type	Minimum Crust Thickness (mm)
Bituminous Concrete (BC) as wearing course	Flexible	40
Bituminous base course		50
Non-bituminous base course		250
Sub-base course		200



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**Clause 9. Roadside furniture: Shall be read as under:**

- 9.1 Roadside furniture like km/Hectometer Stones, Railings, Traffic Impact Attenuators, Delineators shall be provided in accordance with the provisions of Section 10 & Section 12 of IRC:SP:992013 and Traffic Signage plan as indicated in Annexure-III of Schedule-A & deemed to be part of this Schedule-B.

S. No.	Project Facility	Location	Design Requirements
1	Traffic Signs and Pavement Markings	Entire length of project road	As per Schedule D
2	Kilometer and 200m stones	Entire length of project road	As per Schedule D
3	Road side Delineators	Horizontal curves of project road	As per Schedule D

- 9.2 RCC boundary wall shall be provided along the entire length on either side (including transverse requirements at structure locations) as per typical layout drawing enclosed with the bid documents.
- 9.3 Traffic Signs (excluding overhead signs at Toll Plaza): Traffic sign boards as per details given below shall be provided in the project highway as per road signage plan indicated in Annexure-III of Schedule-A and deemed to be part of this Schedule-B

Sl. No.	Type of Sign
1	One Way Object Hazard Marker (OHM)
2	Two Way Object Hazard Marker (OHM)
3	Height restriction (Regulatory Sign)
4	Speed Limit Signs (Regulatory Sign)
5	Merging Traffic Ahead (Cautionary Sign)
6	Compulsory Keep Left Sign (Regulatory Sign)
7	Compulsory Ahead Sign (Regulatory Sign)
8	U-Turn Prohibited Sign (Regulatory Sign)
9	Give way sign (Regulatory Sign)
10	Chevron Marker (At Curves)
11	Triple Chevron Marker (At roundabout)
12	Reassurance Sign (Direction & Place Identification Sign)
13	Roundabout Sign (Cautionary Sign)
14	Left/ Right Hand Curve (Cautionary Sign)
15	Expressway Route Marker Sign
16	Entry/ Exit Expressway Sign (Information Sign)
17	End of Expressway Sign
18	Map type Advance Direction Sign
19	Flag type Advance Direction Sign
20	Advance Directional Sign (Overhead Cantilever/ Gantry)
21	Rest Area Information Sign (Overhead Cantilever/ Gantry)
22	Slogan Gantry



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**Note:** The numbers and location of Traffic Signages shown in Traffic Signage plan as indicated in Annexure-III of Schedule-A are tentative and minimum specified. The actual numbers and location of Traffic Signages shall be determined by the Contractor in accordance with the IRC:SP:99-2013 requirements with approval from the Authority's Engineer. Any increase in the number and type of road sign boards specified in this Clause of Schedule-B 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.

### Schedule C

#### Clause 2.2.8: Boundary wall: stands amended and shall be read as under:

##### **Boundary wall**

As the Highway is completely access controlled facility, boundary wall is its integral part to help enforcing of the acquired access rights.

Access control extends to the limits of the legal access control on the ramps i.e., along the ramps to the beginning of the taper on the local road.

RCC boundary wall shall be provided along the entire length on either side (including transverse requirements at structure locations) in accordance with Schedule B and Schedule D.

#### Clause 2.4.3 (g): stands amended and shall be read as under:

**Fuelling Station:** The contractor shall provide, construct and maintain the basic infrastructure for the wayside amenities as per the typical layout and requirements specified in Schedule C and Schedule D.

Subsequent establishment and operation of the fuel stations shall be responsibility of the Authority.

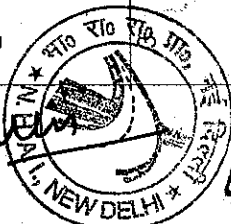


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**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
1	Schedule A of (Annex II)	Dates for providing right of way	The proposed width to be acquired at the toll plaza in Plan and Profile as per Annex – III of schedule A is more than that indicated in Annex – II – Schedule A. It may be clarified whether the land for Toll plaza including the other buildings and structures to be accommodated at the toll plaza location shall be provided on Appointed date.	90% of RoW including additional land for development of interchanges, wayside amenities and other project facilities will be provided on appointed date and remaining 10% will be handed over within the time period specified in the draft Contract Agreement.
2	Schedule A of (Annex IV)	Environment clearances	In the Annex-IV it is mentioned as Environment clearances under process. Please let us know the status or expected period of obtaining the environmental clearance	TOR for environmental clearance has been approved by MOEF and preparation of EIA report is under progress. Environmental clearance is expected by Dec., 2018
	Schedule B Clause 6	Road Side Drainage	Drainage system including surface and subsurface drains for the Project Highway shall be provided as per section 9 of the IRC:SP:99-2013. Unlined Drains (except at ROB location) shall be provided in the entire project length which gets terminated at all cross road locations. Please clarify if any change in the configuration of the drain type as per the IRC:SP:42 - 2014, during the construction stage be treated as COS.	Drainage system including surface and sub-surface drains for the project highway shall be provided as per IRC SP 99-2013 (Manual) and site requirements. Any change in configuration of drain type as per site/manual requirements shall not constitute a change of scope, save and except any variations arising out of a change of scope expressly undertaken in accordance with the provision of Article 13.
4	Schedule B 7.7	List of Major Bridges and Structures, Flyovers	Fly over mentioned is NIL, but in the 2.7 Clause of Schedule B (flyover) only one is shown please clarify	As per Cl. 2.7.1 of Schedule B
5	Schedule B 7.7	List of Major Bridges and Structures, Interchanges	Interchange mentioned is 1 Nos, but in the 2.7 Clause of Schedule B (interchange) only one is shown please clarify	As per Cl. 2.7.1 of Schedule B

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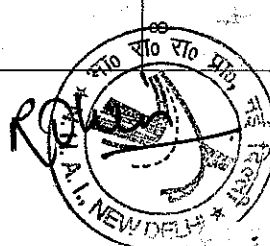


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**Annex-B**

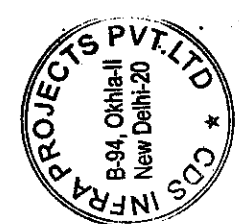
Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghafi and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
6	Schedule B 2.7.1		The vertical clearance of LVUP is mentioned as 4.5m in schedule B, as per Clause IRC:SP:99-2013, 2.10.2 (vertical clearance Table 2.11 vertical clearance is 3.5m Please clarify	As per Schedule B
7	TCS-1		Table 2.8 - Schedule - B - In TCS I - embankment height upto 2.5m is given in the description of TCS. However, as per IRC:SP:99 - 2013, clause 4.2.1 (ii), the bottom of subgrade shall be at least 1.0m above the high flood level/high water table/pond level. The basis of embankment height of 2.5m may Please be clarified.	The profile for the project highway has been designed based on site and design requirements mentioned in the manual with deviations as specified in Schedule D.
	Schedule D2.12.3		In schedule B of 2.12.3 of schedule D, the location & width of Connecting roads shall be as specified in schedule B, However the same is not mentioned in schedule B, Please clarify.	The location of the connecting road is as given in plan & profile indicated in Annexure -III of Schedule A. The width of the connecting road shall be equal to the width of the existing road/cart track subject to minimum specified in Cl. 2.12.3 of IRC: SP: 99-2013.
9	Schedule D of 4.2.2 - Item No 11		As per the TCS Type – I (Stage – I) given in the Schedule - B, the side slopes are indicated as 1V:1.5H which is deviation from the standards IRC: SP:99 – 2013. However, in the Schedule D – Clause 2 item No 11, it is mentioned as 2H:1V. Please clarify	Clause 2, item no. 11 in Schedule D shall be read as 1.5H:1V



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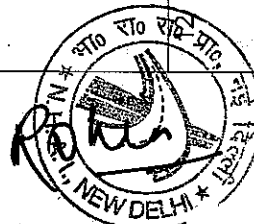
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
10	General		As per IRC :Sp:99 - 2013, Clause 9.3, In case of Depressed Median, Longitudinal Drains (Lined or Unlined) shall be provided to drain off water. However, in the schedule B, median drains are not proposed. Any drain proposed in Median during execution shall be considered as COS. Please clarify	As already mentioned in Cl. 6 of Schedule B, drainage system including surface and sub-surface drain is to be provided for the project highway as per IRC:SP:99-2013 and site requirements. Longitudinal median drains for draining of water is, therefore, included in the scope of work.
11	General		As per IRC:SP:99 - 2013 - the dedicated utility corridor in the TCS is indicated as 2.0m wide and as per TCS in Appendix - B - 3, the utility corridor is indicated as 3.0m and the same is not given under deviation in schedule D. Please clarify if the Corridor width shall be 2.0 or 3.0m	The width of the utility corridor shall be 3m as indicated in TCS.
	General		As per Schedule B - Utility ducts in the form of 1200mm diameter NP-4 pipe across the project highway along with inspection box/chamber for crossings of underground utilities in Builtup area as per IRC: SP:99-2013. The manual is silent on the spacing of the utility ducts and the since this is a Green Field Alignment, the concessionaire assumes that the Utility ducts in the form of Pipe Culverts with 1200mm dia at a spacing of 1km shall be placed across the project Highway. The spacing of the Utility ducts may Please be clarified.	Box culverts proposed in Schedule B shall be used for crossing of underground utilities, wherever required. However, in location where the distance between two adjacent box culverts is more than 1 km, utility ducts in the form of Pipe Culverts with 1200mm dia for crossings of underground utilities shall be provided across the project Highway as per IRC: SP:99-2013.
13	GAD		The foundation levels at abutments and Piers are missing and the same may be provided to assess the exact height as any	Ground level and FRL have been indicated in the GAD and the level (depth) of founding levels below the ground level at abutments and piers has also been


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 New Delhi-20



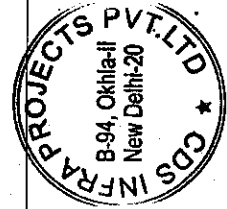
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
14	GAD		increase in height may have cost implications	indicated. The founding levels as specified in the GAD shall be treated as an approximate assessment. The actual founding levels and design of the structures and bridges shall be determined by the Contractor on the basis of detailed investigations in accordance with the Specifications and Standards. GAD of the box culvert has been annexed.
15	Plan and Profile		The box culvert GAD as per Clause 7.2.4 are missing and the same may be provided The vertical Alignment is observed to be designed for Safe Stopping sight distance throughout which is less than the ISD required for 100kmph. However, as per IRC :SP:99 - 2013, clause 2.9.3, the desirable minimum sight distance shall be adopted. Increasing the Sight distance to Desirable minimum would require the FRL to be changed and Minimum FRL as per Annexure - III of Schedule A will be affected. Please clarify	The vertical alignment of the project highway shall be designed meeting the design requirements specified in the manual with corresponding amendments detailed in Schedule D. The proposed profile of the project highway as indicated in the Annex-III of Schedule A shall be treated as an approximate assessment. The Contractor shall design the plan and profile of the project highway as per site/design requirement mentioned in Schedule D.
16	Boundary Wall - Schedule C - Clause 2.2.8	Boundary Wall  	As per Clause 4.5.7 of RW/NH-24036/27/2010-PPP - Dated: 25.04.2018 - Boundary wall along the ROW, except at ingress and egress points, shall be constructed as per enclosed Typical cross section which is 0.6m height above ground level which is less than the height of RCC Crash Barriers. Is the concessionaire free to propose wire fencing of height 1.2m or more	Typical modified drawing of the boundary wall to be adopted is enclosed with the reply to the pre-bid queries. However, the contractor, at his own expenses, can improve upon the same and provide wire fencing above the minimum specified height of the boundary wall.



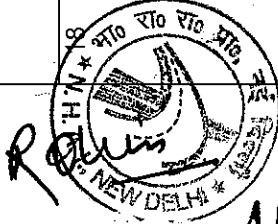
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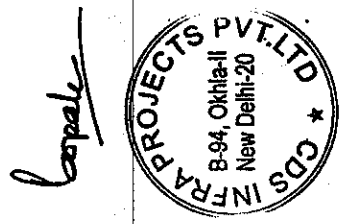
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Sl. No.	CI. No. / Section / Page No.	Description	Query	Response
17	Plan and Profile		for access control and consider accordingly in costing	All available details and drawings have been uploaded along with the bid document.
	Plantation - Schedule C - Clause 2.8	Plantation	The Centerline coordinates of the alignment at every 50m is provided in Schedule A. The concessionaire request the setting out details of the project Highway Alignment, setting out details of the interchange (loops and Ramps)  As per TCS - Schedule - B - the available space between the embankment toe and the Utility corridor is indicated as varies and the varies width is 6m on either side. As per Schedule C - clause 2.8 - Land scaping and Tree plantation it is stated that "Minimum 70,000 nos. of trees of desired type in two rows @ 3 m c/c near edge of ROW on both side and three rows @ 3 m c/c on central median (As per Schedule D) preferably local varieties like Mango, Neem, Sheesham, Babul, Peepal, Imli, etc. shall be planted". The unlined drain and the plantation of trees within 6m is not possible. This is only possible if the median width is reduced. Please clarify as these many trees cannot be accommodated in the available width. Also, as per IRC:SP:21 - 2009, clause	Plantation is to be done within the available RoW without disturbing the median width indicated in the TCS. In case, sufficient RoW is not available between embankment toe and utility corridor, the additional trees may be planted utilizing the utility corridor / median.



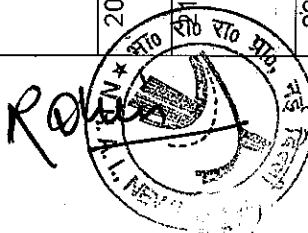
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
19	General		11.14.1, the minimum distance between the trees (two rows) shall be 3m.  Use of Flyash - As per MoRTH Circular No: RW/NH - 33044/30/2001 - S&R (R) dated 4th December 2003 - use of Flyash to be utilised in the embankment construction is not mentioned in Schedule - B. kindly mention the percentage of flyash to be utilised in embankment	Fly-ash to be used as per MoRTH&H guidelines vide circular No. 24028/14/2018-H dated 27.08.2018 and latest MoEF guidelines vide principal notification issued on 14-9-1999, subsequently amended vide notifications dated 27-8-2003, 3-11-2009 and 25-1-2016
20	General	Length of Cross road	Kindly specify the minimum length of cross roads for development	As per plan & profile and junction drawing indicated in Annexure -III of Schedule A.
	General	Development of Interchange	Kindly clarify the status of ROW acquired for the development of interchange	3D for acquisition of RoW has been published and determination of compensation award under section 3G is under progress.
22	Drawings		Kindly share the AutoCAD drawings for the structures	All available details and drawings have been uploaded along with the bid document.
23	General TCS	TCS for Toll Plaza	Kindly share the TCS for toll plaza section	Typical layout of the toll plaza has been uploaded along with the bid documents.



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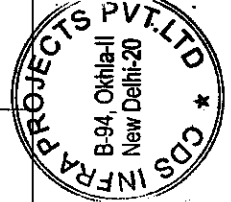
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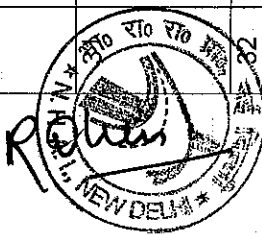
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
24	Clause no. 9. a) of Schedule B and Clause no. 2.2.8 of Schedule C	Road Boundary Wall	It is mentioned in Schedule-B and Schedule that Road Boundary wall of 0.6m above ground level shall be constructed as specified in Ministry Circular No. RW/NH-24036/27/2010-PPP Dated. 25.04.2018. However, as per Clause 10.10 of Manual, Fencing of 2.5m height above ground level and shall comprise of mild steel sections and welded steel wire mesh. Further, in Structure Drawing Volume, the Drawing of Boundary Wall is provided with height of 4m above ground level. No mention of the same is there in Schedule-D. Please clarify which boundary wall section to adopt.	Typical modified drawing of the boundary wall to be adopted is enclosed with the reply to the pre-bid queries. However, the contractor, at his own expenses, can improve upon the same and provide wire fencing above the minimum specified height of the boundary wall.
	Plan & Profile Drawings	FRL in P&P	Proposed Road Level are mentioned in Plan & Profile drawings at median centre line. As per TCS the median is depressed median. Kindly confirm at which level of the median centre line the proposed road level is to be maintained.	The level of the median centre line has been proposed considering the end lane status of project highway as 12 lane with flush median. However, the contractor shall design the project highway as per the TCS and the final levels for the depressed median shown in the TCS may be worked out accordingly.
26	Drawings	Interchange Plan & Profile & TCS	Kindly Provide the plan & profile drawings & TCS for the interchange Loops & Ramps.	Detailed drawings have been uploaded along with the bid documents. However, the copy of the same is annexed.
27	Schedule B	MSA for Road design	Kindly confirm the MSA for Main carriageway for expressway to be adopted for design of road.	Contractor shall design the pavement of main carriageway as long life perpetual flexible pavement while the pavement for connecting/service/slip road shall be designed for design traffic of 10 MSA.



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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
28		Typical cross Section – Clause 2.8 – Schedule B	As per IRC :Sp.99 - 2013, Clause 9.3, in case of Depressed Median, Longitudinal Drains (Lined or Unlined) shall be provided to drain off water. However, in the schedule B, median drains are not proposed. Any drain proposed in Median during execution shall be considered as COS. Please clarify	As already mentioned in Cl. 6 of Schedule B, drainage system including surface and sub-surface drain is to be provided for the project highway as per IRC:SP:99-2013 and site requirements. Longitudinal median drains for draining of water is, therefore, included in the scope of work.
29		Typical cross Section – Clause 2.8 – Schedule B	The typical cross section from Ch. 78+780 to Ch 78+800, the TCS type is missing. Please clarify	TCS III is to be followed
30	General	Land Acquisition	During the site visit it was observed the land acquisition is pending for the entire alignment. Kindly confirm the status of the land acquisition.	3D notification for the highway stretch has been published.
		Typical cross Section – Clause 2.8 – Schedule B	The TCS type from Ch 50+300 to Ch 50+380 - Typical Cross Section for 8 lane (2x4) for VUP, SVUP, LVUP, Flyover, the TCS type shall be Type 2. However, the TCS type is indicated as TCS Type 3.	There is minor bridge at Ch. 50+340 and TCS-3 is applicable for major/minor bridges.
	General	Connecting Road / realignment at culvert locations beyond ROW	As per the plan and profile drawings, development of connecting roads / realignment at box culverts beyond PROW at various locations. The Length of these connecting roads / Realignment of culverts are not mentioned in schedule B. Kindly confirm the same. Also, please confirm about the additional land required beyond ROW for development of the same. The list of these connecting roads/ culverts is as follows	The length of the connecting road shall be as per actual site requirement subject to minimum indicated in the plan & profile. The additional RoW for these connecting roads shall be provided.



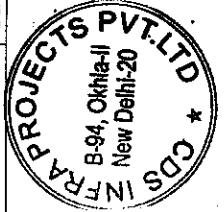
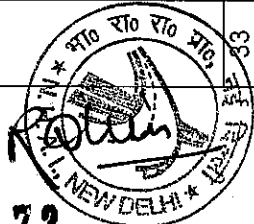
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	RFP Cl. 1.1.3 Section - Introduction - Background	The scope of work will broadly include Construction of Eight Lane Expressway	Defect Liability Period of 4 years is high, Bidder request to reduce Defect Liability Period to 2 years as in case of model EPC Agreement of MoR T&H. Please confirm.	As per RFP																																	
34	RFP Cl. 2.5.2 Section - Instructions to Bidders - Site visit and	It shall be deemed that by submitting a BID, the Bidder has:	As it is not possible for any prudent Bidder to verify such vast documents provided by the Authority and also the condition of the Site in such short period of time, Bidder requests to	As per RFP																																	

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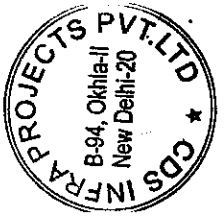
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	of verification information	(a) made a complete and careful examination of the Bidding Documents, Schedules annexed to EPC Agreement Document; (b) received all relevant information requested from the Authority; (c) accepted the risk of inadequacy, error or mistake in the information provided in the Bidding Documents or furnished by or on behalf of the Authority relating to any of the matters referred to in Clause 2.5.1 above. No claim shall be admissible at any stage on this account.	delete such unilateral provision wherever available under the RFP or under the EPC Agreement.	
35	Cl. 1.2.1(e) Interpretation (Page No. 12)	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; save and except as otherwise provided in this Agreement, any reference,	Bidder understands that this particular clause is not applicable to Schedule B, C, D and any variation in this regard will be dealt in accordance with Article 13 [Change of Scope]. Please confirm.	As per RFP
36	Cl. 1.2.1(s) Interpretation (Page No. 14)		The Bidder requested to modify the Clause 1.2.1(s) as follows;	As per RFP



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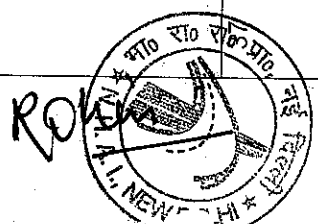




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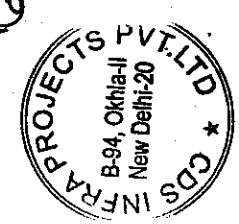
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>at any time, to any agreement, deed, instrument, licence or document of any description shall be construed as reference to that agreement, deed, instrument, licence or other document as amended, varied, supplemented, modified or suspended at the time of such reference; provided that this Clause shall not operate so as to increase liabilities or obligations of the Authority hereunder or pursuant hereto in any manner whatsoever;</p>	<p>"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 shall not operate so as to increase liabilities or obligations of the Authority and the Contractor hereunder or pursuant hereto in any manner whatsoever;"</p>	
	<p>Cl. 2.1 - Scope of the Project (Page No. 18)</p>	<p>(a) 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;</p>	<p>Bidder understand that design is in the Scope of the Contractor.</p>	<p>As per RFP</p>



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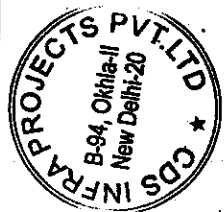
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
38	Cl. 3.1.4 - Obligations of the Contractor (Page No. 19)	The Contractor shall remedy any and all loss or damage to the Project Highway from the Appointed Date until the end of the Construction Period at the Contractor's cost, save and except to the extent that any such loss or damage shall have arisen from any default or neglect of the Authority.	Bidder request to modify clause as under:  The Contractor shall remedy any and all loss or damage to the Project Highway from the Appointed Date until the end of the Construction Period at the Contractor's cost, but only to the extent that such loss or damage shall have arisen from the reason solely attributable to the Contractor.	As per RFP
39	Cl. 3.1.6 - Obligations of the Contractor (Page No. 19)	The Contractor shall remedy any and all loss or damage to the Project Highway during the Maintenance Period at the Contractor's cost, including those stated in Clause 14.1.2, save and except to the extent that any such loss or damage shall have arisen on account of any default or neglect of the Authority or on account of a Force Majeure Event.	Bidder requests to modify the Clause 3.1.6 as follows:  "The Contractor shall remedy any and all loss or damage to the Project Highway during the Operation and Maintenance Period at the Contractor's cost, including those stated in Clause 14.1.2, if such loss or damage shall have arisen <b>solely on account of any default or neglect of the Contractor</b> ".	As per RFP
40	Cl. 3.2.1 Obligations relating to sub-contracts and any other agreements (Page No. 20 & 21)	The Contractor, whether Consortium/Joint Venture or sole, shall not sub-contract any Works in more than 49% (forty nine per	Bidder requests to modify the clause as follows:  The Contractor, whether Consortium/Joint Venture or sole, shall not sub-contract any	As per RFP



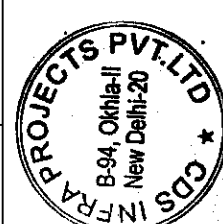
**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>cent) of the total length of the Project Highway and shall carry out Works directly under its own supervision and through its own personnel and equipment in at least 51% (fifty one per cent) of the total length of the Project Highway. 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</p>	<p>Works in more than 80% (eighty per cent) of the total length of the Project Highway and shall carry out Works directly under its own supervision and through its own personnel and equipment in at least 20% (twenty per cent) of the total length of the Project Highway. 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. 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.</p>	

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 New Delhi-20

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**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
41	Cl. 3.6 - Contractor's care of the Works (Page No. 22)	<p>shall at all times remain with the Contractor.*                      * May be deleted if the Contractor is not a Consortium</p> <p>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 Provisional Certificate (with respect to the Works completed prior to the issuance of the Provisional Certificate) and/or Completion Certificate (with respect to the Works referred to in the Punch List), save and except to the extent that any such loss or damage shall have arisen from any default or neglect of the Authority.</p>	<p>Bidder understands that Contractor shall not be responsible for any loss or damage arisen from any default or neglect of the Authority, its representative, old contractor, any other third party or on account of Force Majeure Event. Accordingly requests to modify the Clause 3.6 as follows:</p> <p>"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 Provisional Certificate (with respect to the Works completed prior to the issuance of the Provisional Certificate) and/or Completion Certificate (with respect to the Works referred to in the Punch List), save and except to the extent that any such loss or damage shall have arisen from any default or neglect of the Authority, <b>Authority's Representative, old contractor, any other third party or on account of Force Majeure Event</b>".</p>	As per RFP
42	Cl. 3.8 -	Except as otherwise stated in the Agreement:	The Bidder requests the Authority to delete such unilateral provision as it is impossible	As per RFP

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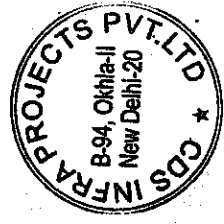
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	Unforeseeable difficulties (Page No. 23)	(a) the Contractor accepts complete responsibility for having foreseen all difficulties and costs of successfully completing the Works; (b) the Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs; and (c) the Scheduled Completion Date shall not be adjusted to take account of any unforeseen difficulties or costs.	for any bidder to ascertain unforeseen difficulties at the time of bidding. It is requested to make suitable provisions to cater such unforeseen difficulties duly considering the time and cost implications. Please confirm.	
	Cl. 4.1.5 - Obligations of the Authority (Page No. 24 & 25)	Notwithstanding anything to the contrary contained in this Agreement, the Parties expressly agree that the aggregate Damages payable under Clauses 4.1.4, 8.3 and 9.2 shall not exceed 1% (one per cent) of the Contract Price.	The bidder submits that Damages to the tune of 1% of the Contract Price is very minimal in comparison to the actual losses suffered by the Contractor under Clauses 4.1.4, 8.3 and 9.2. Accordingly, the Employer is requested to modify the clause in such a way that damages will be paid to the Contractor as per actuals.	As per RFP
44	Cl. 4.1.6 - Obligations of the Authority (Page No. 25)	The Authority agrees to provide support to the Contractor and undertakes to observe, comply with and perform, subject to and	Bidder understands that the Authority shall allow Time Extension and adjustment to the Contract Price for additional costs incurred by the Contractor for delay in procurement of Applicable Permits and also for delay in	As per RFP



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Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghafi and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
45	Cl. 4.2 - Maintenance obligations prior to the Appointed Date (Page No. 26)	<p>in accordance with the provisions of this Agreement and the Applicable Laws, the following: .....</p> <p>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 10 (ten) days prior to the last date for submission of the Bid, 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 repairs in the event of deterioration or damage are caused due to events including faulty design or substandard work executed by old contractor, floods, &amp; earthquake.</p>	<p>obtaining access to all necessary infrastructure facilities and utilities, including water and electricity beyond 18 days of Contractor's request in this regard and if such delays are not attributable to the Contractor. Please confirm.</p> <p>Bidder also request Authority to provide copy of the Applicable Permits already obtained for the Project.</p> <p>Bidder request to modify Clause as under:</p>	<p>As per RFP</p>

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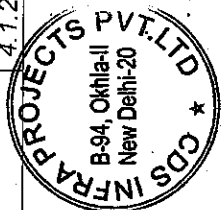
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**Annex-B**

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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
46	Cl. 5.2 - Representations and warranties of the Authority (Page No. 28)	undertake special repairs only in the event of excessive deterioration or damage caused due to unforeseen events such as floods or earthquake. The Authority represents and warrants to the Contractor that: .....	The Bidder requests to add the following provisions under the Sub Clause 5.2: (i) all information provided by it in the Tender Notice and invitation to bid in connection with the Project is, to the best of its knowledge and belief, true and accurate in all material respects."	As per RFP
47	Cl. 6.1.1 - Disclaimer (Page No. 30)	The Contractor acknowledges that prior to the execution of this Agreement, the Contractor has, ..... 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 its performance of its obligations hereunder. Save as provided in Clause 4.1.2 and Clause 5.2, the	The bidder requests the Employer to delete such unilateral provision as it is impossible for any bidder to ascertain unforeseen difficulties at the time of bidding. It is requested to make suitable provisions to cater such unforeseen difficulties duly considering the time and cost implications. Please confirm.	As per RFP

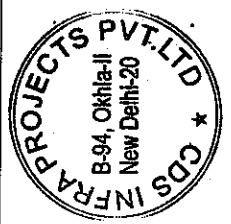
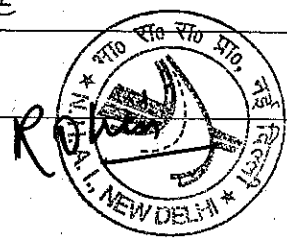


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
48	Cl. 6.1.3 - Disclaimer (Page No. 30)	<p>Authority makes no representation whatsoever, express, implicit or otherwise, regarding the accuracy, adequacy, correctness, reliability and/or 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.</p> <p>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 6.1.1 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</p>		As per RFP

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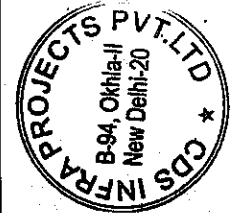
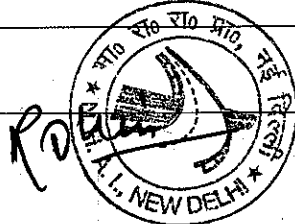
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
49	Cl. 6.1.6 - Disclaimer (Page No. 30)	Scheduled Completion Date. Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Contractor, and the Authority shall not be liable in any manner for such risks or the consequences thereof.		As per RFP
50	Cl. 7.1.1 – Performance Security (Page No. 32)	..... The Contractor shall along with the Performance Security provide to the Authority an irrevocable and unconditional guarantee from a Bank for a sum equivalent to Rs. .... crore (Rupees ... crore) in the form set forth in Schedule-G (the "Additional Performance Security"), to be modified, mutatis mutandis, for this purpose as security to the Authority if the Bid Price offered by the Contractor is lower by more than 10% with respect to the	Bidder request to delete provision of Additional Performance Security.	As per RFP

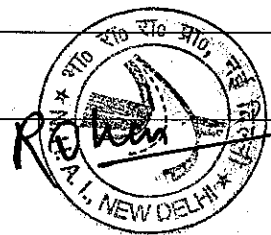


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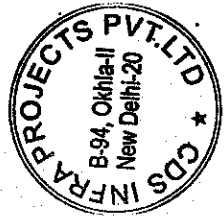
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
51	Cl. 7.1.3 - Performance Security (Page No. 33)	Estimated Project Cost.  In the event the Contractor fails to provide the Performance Security within 10 (ten) days of this Agreement, it may seek extension of time for a period not exceeding 30 (Thirty) days on payment of Damages for such extended period in a sum calculated at the rate of 0.01% (zero point zero one per cent) of the Contract Price for each day until the Performance Security is provided. For the avoidance of doubt the agreement shall be deemed to be terminated on expiry of additional 30 days time period and Bid security shall be encashed by the Authority.	The Bid Security provided along the Bid shall remain in force and effect till the submission of Performance Security. Hence, the bidder requests the Authority to abolish delay damages provision for delay in providing the same. Please confirm.	As per RFP
52	Cl. 7.3.1 - Appropriation of Performance Security (Page No. 33)	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	Bidder requests the Authority to modify the Clause 7.3.1 as follows:  "Upon occurrence of a Contractor's Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in	As per RFP



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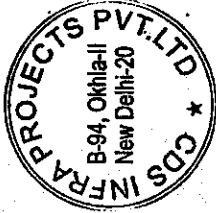


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
53	Cl. 7.3.3 - Appropriation of Performance Security (Page No. 34)	and appropriate the relevant amounts from the Performance Security as Damages for such Contractor's Default.	law, be entitled to encash and appropriate the relevant amounts from the Performance Security as Damages for such Contractor's Default. The Authority shall notify the Contractor of its decision to encash the Performance Security in pursuance with the provisions of this Clause 7.3.1 provided that no encashment of Performance Security on account of any reason shall be effected by the Authority without notifying the Contractor of its decision to encash Performance Security, and taking into consideration the representation, if any, made by the Contractor within 20 (twenty) days of such notice."	As per RFP
54	Cl. 7.4.1 - Release of Performance Security (Page No. 34)	The Authority shall return the Performance Security to the Contractor within 60 (sixty) days of the later of the expiry of the	Since the Additional Performance Security is a security against unbalanced bids, hence bidder requests not to encash the Additional Performance Security, in case the Contractor cannot achieve the Milestones - II/III/IV.	As per RFP

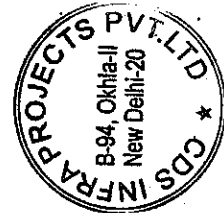
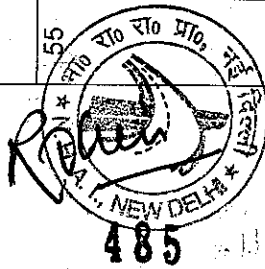
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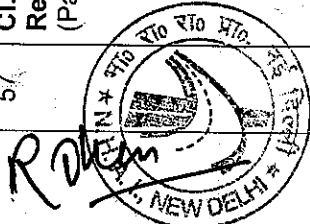
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		Maintenance Period or the Defects Liability Period under this Agreement. Notwithstanding the aforesaid, the Parties agree that the Authority shall not be obliged to release the Performance Security until all Defects identified during the Defects Liability Period have been rectified.	upon issuance of the Provisional Certificate and balance shall be released within 7 (seven) days of the expiry of the Defects Liability Period under this Agreement. 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."	
55	Cl. 7.4.2 - Release of Performance Security (Page No. 34)	The Authority shall return the Additional Performance Security to the Contractor within 28 (twenty eight) days from the date of issue of Completion Certificate under Article 12 of this Agreement.	Bidder requests the Authority to modify the Clause 7.4.2 as follows:  "The Authority shall return one half of the Additional Performance Security to the Contractor upon issuance of the Provisional Certificate and balance shall be released within 7 (seven) days after issuance of Completion Certificate under Article 12 of this Agreement."	As per RFP
56	Cl. 7.5.2 - Retention Money (Page No. 34)	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 from the Retention Money as	Bidder requests the Authority to modify the Clause 7.5.2 as follows:  "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. The Authority shall notify the Contractor of its	As per RFP



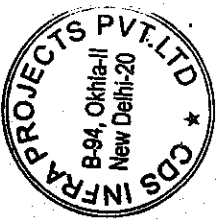
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
57	Cl. 7.5.3 - Retention Money (Page No. 34)	Damages for such Contractor's Default.  The Contractor may, upon furnishing an irrevocable and unconditional bank guarantee substantially in the form provided at Annex-II of Schedule-G, require the Authority to refund the Retention Money deducted by the Authority under the provisions of Clause 7.5.1. Provided that the refund hereunder shall be made in tranches of not less than 1% (one per cent) of the Contract Price.	decision to appropriate the relevant amount in pursuance with the provisions of this Clause 7.5.2 provided that no deduction of amount on account of Contractor's Default shall be effected by the Authority without notifying the Contractor of its decision for such deductions, and taking into consideration the representation, if any, made by the Contractor within 20 (twenty) days of such notice."  The Bidder requests the Authority to refund the Retention Money to the Contractor in tranches of Rs. 1 Cr to maintain smooth cash flow. Please confirm.	As per RFP
58	Cl. 7.5.5 - Retention Money (Page No. 34)	The Parties agree that in the event of Termination of this Agreement, the Retention Money and the bank guarantees specified	The Bidder requests to modify the Clause 7.5.5 as follows:  "The Parties agree that in the event of Termination of this Agreement on account	As per RFP



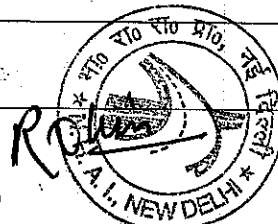
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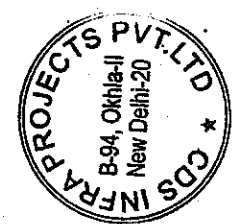
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
59	Cl. 8.2.1 - Procurement of the Site (Page No. 35)	<p>in this Clause 7.5 shall be treated as if they are Performance Security and shall be reckoned as such for the purposes of Termination Payment under Clause 23.6.</p> <p>The Authority Representative and the Contractor shall, within 30 (thirty)-days of the date of this Agreement, inspect the Site and prepare a memorandum containing an inventory of the Site including the vacant and unencumbered land, buildings, structures, road works, trees and any other immovable property on or attached to the Site. Subject to the provisions of Clause 8.2.3, such memorandum shall have appended thereto an appendix (the "Appendix") specifying in reasonable detail those parts of the Site to which vacant access and Right of Way has not been given to the Contractor.</p>	<p>of the Contractor's Default, the Retention Money and the bank guarantees 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."</p> <p>The bidder requests to modify first para of the Clause 8.2.1 as follows:                      "The Authority Representative and the Contractor shall, within 30 (thirty) days of the date of this Agreement, inspect the Site and prepare a memorandum containing an inventory of the Site including the vacant and unencumbered land, free from encumbrances, encroachments comprising of buildings, structures, road works, trees and any other immovable property on or attached to Site and in a continuous length. Subject to the provisions of Clause 8.2.3, such memorandum shall have appended thereto an appendix (the "Appendix") specifying in reasonable detail those parts of the Site to which vacant access and Right of Way has not been given to the Contractor. Signing of the memorandum, in two counterparts (each of which shall constitute an original), by the authorized representatives of the Parties shall be deemed to constitute a valid evidence of giving the Right of Way to the</p>	As per RFP



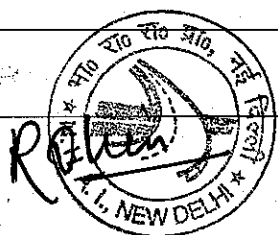
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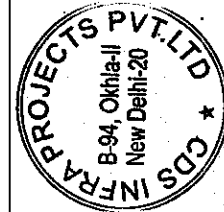
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		Signing of the memorandum, in two counterparts (each of which shall constitute an original), by the authorised representatives of the Parties shall be deemed to constitute a valid evidence 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.	Contractor for discharging its obligations under and in accordance with the provisions of this Agreement and for no other purpose whatsoever. For the avoidance of doubt, the permits / clearances / NOCs / cost estimates required for dismantling / shifting of buildings, structures, road works, trees and any other immovable property on or attached to the Site, if such obstruction adversely affects the execution of Works or Maintenance of the Project, shall be provided by the Authority along with the memorandum."	
60	Cl. 8.2.1 – Procurement of the Site (Page No. 35)	The Authority Representative and the Contractor shall, within 30 (thirty) days of the date of this Agreement, inspect the Site and prepare a memorandum containing an inventory of the Site .....	Bidder further understands that any delay in providing such permits/ clearances/ NOCs shall be considered for determining extension of time and related costs at actuals. Please confirm. Bidder request that a separate memorandum shall be prepared and signed jointly by the Authority Representative and the Contractor, wherein the present condition of the works executed by the old contractor shall be recorded duly verifying the compliance of such works with the Specifications and Standards. The memorandum shall also record the details of the works that needs reconstruction / restoration.	As per RFP



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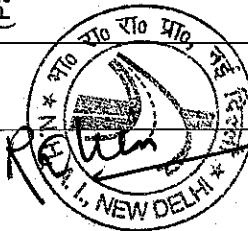
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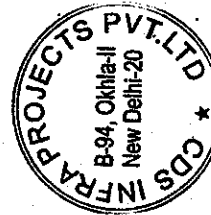
**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
61	Cl. 8.3.1 - Damages for delay in handing over the Site (Page No. 36)	"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 in 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 meter = $0.05 \times C \times 1/L \times 1/N$	All works executed by old contractor which requires reconstruction / restoration, maintenance of works executed by old contractor during Construction Period, its Maintenance and its Defects Liability shall be dealt as per Article 13 [Change of Scope] of the Agreement.  Bidder requests: <b>Either Compensation should be as per actuals.</b> <b>or</b> As per amended formula as below: <b>Amount of Damages in Rs. per day per meter = <math>2.5 \times C \times 1/L \times 1/N</math></b>  The Contractor understands that the compensation under this formula shall be applicable for the stretches where full / part width ROW is not available. Please confirm.	As per RFP



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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>Where C = the Contract Price; L = length of the Project Highway in meters; and N = Completion period in days (Appointed Date to Scheduled Completion Date)</p>		
62	Cl. 8.4 - Site to be free from Encumbrances (Page No. 37)	<p>"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 on account of any costs, compensation, expenses and charges for the 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 as long as it does not adversely affect Construction and Maintenance of the Project Highway."</p>	<p>Bidder requests to modify the clause as follows: "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 on account of any costs, compensation, expenses and charges for the 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 as long as it does not adversely affect Construction and Maintenance of the Project Highway."</p>	As per RFP

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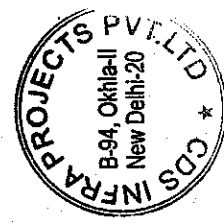
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
63	Cl. 8.6 - Special/Temporary Right of Way (Page No. 38)	<p>appurtenances to the Site shall not be deemed to be Encumbrances. It is further agreed that, unless otherwise specified in this Agreement, the Contractor accepts and undertakes to bear any and all risks arising out of the inadequacy or physical condition of the Site."</p> <p>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.</p>	<p>Bidder understands that the Clause 8.6 shall be dealt under Clause 13 [Change of Scope], if the ROW is provided on piecemeal basis than that envisaged under the relevant terms of the Agreement. Please confirm.</p>	<p>Contractor to bear all costs and charges under this clause for any special or temporary right of way as defined in the RFP</p>
64	Cl. 8.8 - Geological and archaeological finds (Page No. 38 & 39)	<p>".....The Contractor shall take all reasonable precautions to prevent its workmen or any other person from removing or damaging such interest or</p>	<p>The bidder understands that in case of geological or archaeological findings at Site affecting the construction activities, the selected bidder shall be entitled to Time Extension and also adjustment to the Contract Price at actuals. Please confirm.</p>	<p>As per RFP</p>

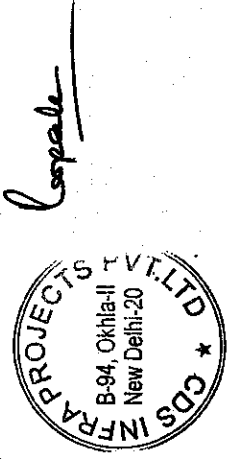
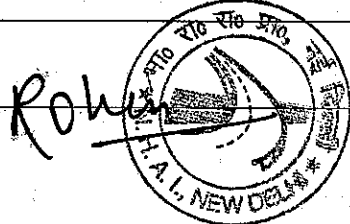


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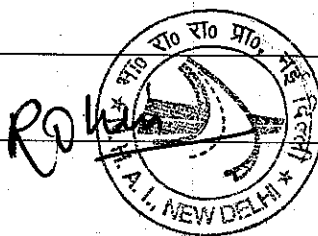
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>property and shall inform the Authority forthwith of the discovery thereof and comply with such instructions as the concerned Government Instrumentality may reasonably give for the 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."</p>		
65	<p>Cl. 9.2 - Shifting of obstructing utilities (Page No. 40)</p>	<p>The Contractor shall, in accordance with Applicable Laws and with assistance of the Authority, cause shifting of any utility (including electric lines, water pipes and telephone cables) to an appropriate</p>	<p>Bidder understands that the Authority shall cause shifting of all utilities as it shall be in a better position to get necessary approvals/shifting from the concerned authorities expeditiously.  Or else</p>	<p>As per RFP</p>

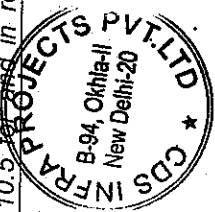


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>location or alignment, if such utility or obstruction adversely affects the execution of Works or Maintenance of the Project Highway in accordance with this Agreement. The actual cost of such shifting, as approved and communicated by the entity owning the utility, shall be paid by the Contractor and reimbursed by the Authority to the Contractor. In the event of any delay in such shifting by the entity owning the utility beyond a period of 180 (one hundred and eighty) days from the date of notice by the Contractor to the entity owning the utility and to the Authority, the Contractor shall be entitled to Damages in a sum calculated in accordance with the formula specified in Clause 8.3.1 for the period of delay, and to Time Extension in accordance with Clause 10.5 for the period in respect of</p>	<p>Following para to be added at the end of the clause:                  "..... <b>For the avoidance of doubt, the land required for construction of Project Highway hindered by such utility shall be included in Cl 8.2, (the Appendix) and dealt with accordingly"</b>                  Bidder requests to provide the following details with regards to shifting of obstructing utilities:                  a) details of utilities present within the RoW,                  b) detailed estimate sanctioned by the utility owning agencies,                  c) status of approval of estimate by the competent authority of the Authority,                  d) details of supervision charges deposited.                  e) details pertaining to shifting of obstructing utilities.                  f) Mode of reimbursement of the amount that will be incurred by the Contractor for shifting of utilities.</p>	



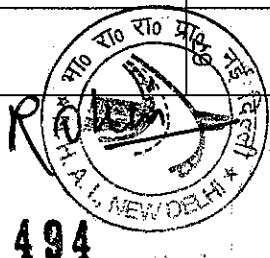
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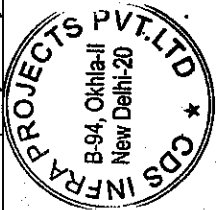
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
66	Cl. 9.3.4 – New utilities (Page No. 41)	<p>the part(s) of the Works affected by such delay, provided that if the delays involve any time overlaps, the overlaps shall not be additive.</p> <p>In the event the 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's Engineer.</p>	<p>The Bidder requests to modify this Clause 9.3.4 as under:                      "In the event the 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 and also adjustment to Contract Price due to additional costs incurred by the Contractor."</p>	As per RFP
	Cl. 9.4 – Felling of Trees (Page No. 41)	<p>The Authority shall assist the Contractor in obtaining the Applicable Permits for felling of trees to be identified by the Authority for this purpose if and only if such trees cause a Material Adverse Effect on the construction or maintenance of the Project Highway. The cost of such felling shall be borne by the Authority and in the event of any delay in felling thereof</p>	<p>1. Bidder requests the Authority to obtain the permits for felling of trees falling within the ROW and causing hindrance to the construction and maintenance of the Project before Appointed Date. Please Confirm.                      2. Bidder understands that any delay in procurement of approval for felling of trees shall be considered for the compensation in terms of time and cost at actuals. Please confirm.                      3. Bidder requests to modify the Clause 9.4 as follows:</p>	As per RFP



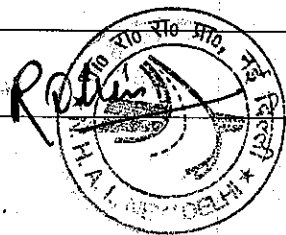
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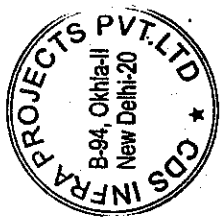
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>for reasons beyond the control of the Contractor, it shall be excused for failure to perform any of its obligations hereunder if such failure is a direct consequence of delay in the felling of trees. The Parties hereto agree that 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.</p>	<p>"The Authority shall obtain the Applicable Permits for felling of trees to be identified by the Authority for this purpose if and only if such trees cause a Material Adverse Effect on the Construction or Maintenance of the Project Works. 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. <b>The land required for construction of Project Highway hindered by such trees shall be included in Clause 8.2, the Appendix and dealt with accordingly.</b> The Parties hereto agree that 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 the Applicable Permit for felling of trees hereunder shall be procured by the Authority on or before the Appointed Date and any delay in getting such approval affecting the works shall be considered for adequate compensation for time and cost."</p>	<p>Bidder request to provide the following details:</p>

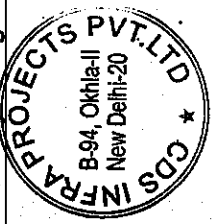
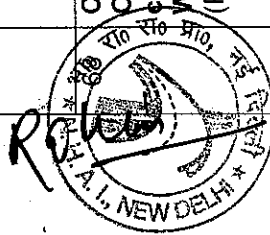


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
			<p>a) No. of trees presently existing in RoW.</p> <p>b) Status of latest permissions for felling of revenue trees/forest trees.</p> <p>c) Status of latest estimate for felling of trees and its approval from the competent authority.</p> <p>d) Status of deposition of demand amount.</p> <p>e) Mode of reimbursement of the amount that will be incurred by the Contractor for felling trees.</p>	
	Cl. 10.1.1 – Obligations prior to commencement of Works (Page No. 42)	<p>“Within 20 (twenty) days of the Appointed Date, the Contractor shall:</p> <p>(a).....</p> <p>(b).....</p> <p>(c).....</p> <p>(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.”</p>	<p>As acquiring of mining permission &amp; borrow area approval is quite a time-consuming exercise and vital time is lost in the same, the Bidder requests the Authority (i.e. NHAI) to directly procure mining rights &amp; borrow area approval in advance at the bidding stage itself, which can be leased out to the Contractor for execution and completion of the Works.</p> <p>Further, the Bidder requests information on the mining right presently available for the Project and also details pertaining to approved borrow areas.</p>	As per RFP
69	Cl. 10.1.2 – Obligations prior to commencement of Works (Page No. 42)	<p>“The Authority shall, within 30 (thirty) days of the date of this Agreement, appoint an engineer (the “Authority’s Engineer”) to</p>	<p>Bidder understands that, Appointment of the full time Authority’s Engineer will be made before the Appointed Date and the Contractor shall be entitled for additional</p>	As per RFP

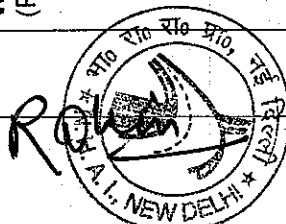


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**Annex-B**

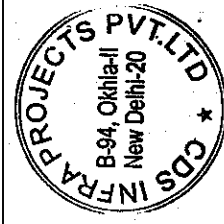
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
70	Cl. 10.1.6 – Obligations prior to commencement of Works (Page No. 43 & 44)	<p>discharge the functions and duties specified in this Agreement, and shall notify to the Contractor the name, address and the date of appointment of the Authority's Engineer forthwith."</p> <p>The safety audit pursuant to Clause 10.1.5 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's 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</p>	<p>time &amp; cost for delay in Appointment of full time Authority's Engineer.</p> <p>Bidder understand that, the Contractor would be compensated in terms of time and cost at actual in addition to the Contract Price for complying with the recommendations of the Safety Consultant on the works executed by the old contractor.</p>	<p>As per RFP</p>



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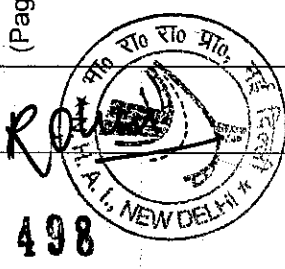




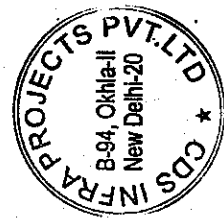
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
71	Cl. 10.2.1 – Design and Drawings (Page No. 44)	<p>the scope of Schedule-B, Schedule-C or Schedule-D, the Contractor shall make a report thereon and seek the instructions of the Authority for Change in Scope. For the avoidance of doubt, the Safety Consultant to be engaged by the Contractor shall be independent of the design and implementation team of the Contractor.</p> <p>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 of the Authority's Engineer.</p>	<p>Bidder understands that such works pursuant to alternative design shall be valued as per Clause 13 [Change of Scope]. Please confirm.</p> <p>Please confirm list of the designs and drawings that will be provided by the Authority.</p>	<p>The design of the project highway including any alternative design criteria on account of relaxation in design standards due to restricted Right of Way in any section is within the scope of work of the Contractor.</p> <p>Please refer Schedule I for the list of drawings</p>
72	Cl. 10.2.4(c) - Design and Drawings (Page No. 45)	<p>within 15 (fifteen) days of the receipt of the Drawings, the Authority's Engineer shall review the same and convey its observations to the Contractor with</p>	<p>Bidder requests to modify the Clause 10.2.4(c) as follows: "within 15 (fifteen) days of the receipt of the Drawings, the Authority's Engineer shall review the same and convey its</p>	<p>As per RFP</p>



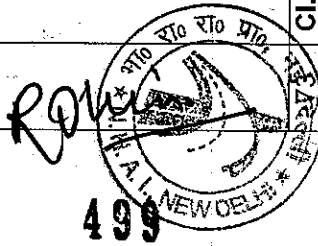
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		particular reference to their conformity or otherwise with the Scope of the Project and Specifications and Standards. The Contractor shall not be obliged to await the observations of the Authority's Engineer on Drawings submitted pursuant hereto beyond the said period of 15 (fifteen) days and if no such observation is conveyed within the said period the drawings are deemed acceptable to the Authority's Engineer and Contractor shall begin or continue Works. 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;	observations to the Contractor with particular reference to their conformity or otherwise with the Scope of the Project and the Specifications and Standards. The Contractor shall not be obliged to await the observations of the Authority's Engineer on the Drawings submitted pursuant hereto beyond the said period of 15 (fifteen) days and if no such observation is conveyed within the said period the drawings are deemed acceptable to the Authority's Engineer and Contractor shall begin or continue Works. 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;"	
	Cl. 10.2.5 - Design and Drawings (Page No. 46)	Any cost or delay in construction arising from review by the Authority's Engineer shall be borne by the Contractor.	The Bidder requests the Authority to delete such unilateral clause.	As per RFP
74	Cl. 10.3.1 - Construction of the Project Highway (Page No. 46)	The Contractor shall construct the Project Highway as specified in Schedule-B and Schedule-C, and in conformity with	Bidder understand that reconstruction / restoration of the works executed by the old contractor shall be executed as Change of Scope. Hence, the Contractor shall be	As per RFP

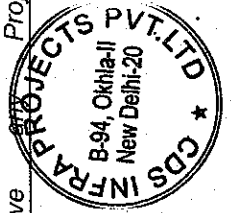


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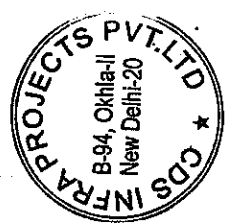
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>the Specifications and Standards set forth in Schedule-D. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works. The 730th (seven hundred and thirtieth) 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.</p>	<p>entitled for additional time for completion of such works over and above 730 days.</p>	
75	<p>Cl. 10.3.2 – Construction of the Project Highway (Page No. 46 &amp; 47)</p>	<p>"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 Project</p>	<p>1. Bidder requests the Authority to modify the clause restricting applicability of Damages only in case of non-achievement of the Scheduled Completion Date by the Contractor for reasons solely attributable to the Contractor. Please confirm. 2. Further, the Bidder request the Authority to modify the clause as follows:</p>	<p>As per RFP</p>



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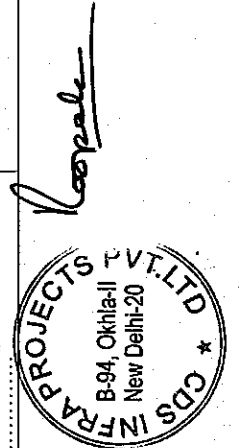
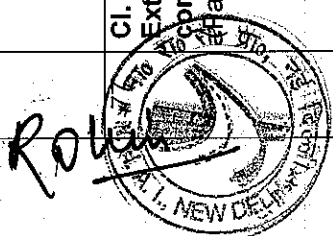
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>Milestone or the Scheduled Completion Date within a period of 30 (thirty) days from the date set forth in Schedule-J, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, it shall pay Damages to the Authority of a sum calculated at the rate of 0.05% (zero point zero five percent) of the Contract Price for delay of each day reckoned from the date specified in Schedule -J and until such Project Milestone is achieved or the Works are 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 .....</p>	<p>"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 the Scheduled Completion Date within a period of 90 (ninety) days from the date set forth in Schedule-J, for the reasons solely attributable to the Contractor, it shall pay Damages to the Authority of a sum calculated at the rate of 0.02% (zero point zero two percent) of the Contract Price for delay of each day reckoned from the Scheduled Completion Date till actual completion of the Works is achieved or the Works are 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 date set forth in Schedule-J shall be deemed to be modified accordingly .....</p>	



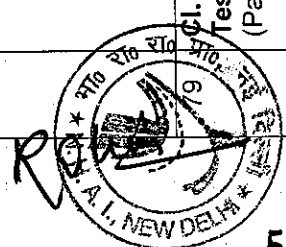
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
76	Cl. 10.4.1 – Maintenance during Construction Period (Page No. 47)	During the Construction Period, the Contractor shall maintain, at its cost, the existing lane(s) of the Project Highway so that the traffic worthiness and safety thereof are at no time materially inferior as compared to their condition 10 (ten) days prior to the date of this Agreement, .....	Bidder request to modify Clause as under: During the Construction Period, the Contractor shall maintain, at its cost, the existing lane(s) of the Project Highway so that the traffic worthiness and safety thereof are at no time materially inferior as compared to their condition 10 (ten) days prior to the date of this Agreement, .....	As per RFP
	Cl. 10.5.1 – Extension of time for completion (Page No. 48)	"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 Project Milestone is or will be delayed by any of the following, namely: (a)..... (b)..... (c)..... (d)....., and (e)....."	Bidder requests to add the following delay event to be considered for extension of time:  "f) any delay, impediment or prevention caused by other authorities/public or private entities, it's personnel or any other third parties for the reasons not at all attributable to the Contractor."	As per RFP

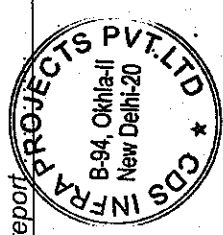


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
78	Cl. 10.5.5(b) – Extension of time for completion (Page No. 49)	"(b) the Contractor shall, no later than 10 (ten) days after the close of each month, send further interim claims specifying the accumulated delay, the extension of time claimed, and such further particulars as the Authority's Engineer may reasonably require; and"	The Bidder request the Authority to modify the sub Clause 10.5.5(b) as follows. It shall help the prospective Contractor to submit a realistic Extension of Time application as well as to ascertain the delay with more details.  "(b) the Contractor shall, no later than 10 (ten) days after the close of each quarter, send further interim claims specifying the accumulated delay, the extension of time claimed, and such further particulars as the Authority's Engineer may reasonably require; and"	As per RFP
	Cl. 11.10 – Tests (Page No. 53)	11.10.1 For determining that the Works conform to the Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out or cause to be carried out tests, ..... 11.10.2 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.	Bidder understand that, any cost incurred by the Contractor for testing of the works executed by the old contractor and remedial measure in pursuance thereof shall be reimbursed to the Contractor at actuals in addition to the Time Extension.	As per RFP



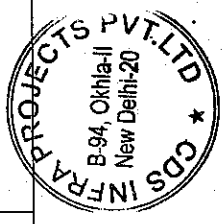
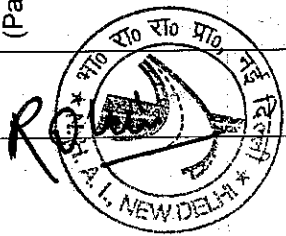
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Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

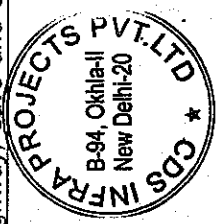
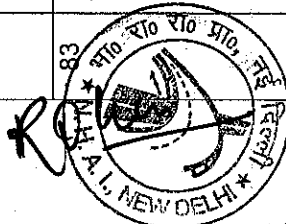
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
80	Cl. 11.12 – Rejections (Page No. 54)	If, as a result of an examination, inspection, measurement or testing, any Plant, Materials, design or workmanship is found to be defective or otherwise not in accordance with the provisions of this Agreement,.....	Bidder understand that provision of Sub-Clause 11.12 is not applicable to the works executed by the old contractor and any cost incurred by the Contractor for complying with the provision of Sub-Clause 11.12 with respect to works executed by the old contractor shall be reimbursed to the Contractor at actuals.	As per RFP
81	Cl. 11.13 – Remedial Work (Page No. 54 & 55)	"11.13.1 Notwithstanding any previous test or certification, the Authority's Engineer may instruct the Contractor to: .....  11.13.2 If the Contractor fails to comply with the instructions issued by the Authority's Engineer under Clause 11.13.1, .....	The Bidder requests to modify the Clause 11.13.1 as follows:  "Notwithstanding any previous test or certification, the Authority's Engineer may instruct the Contractor in writing specifying the reasons 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."	As per RFP



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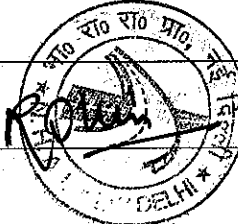
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
82	Cl. 11.17.4 – Suspension of unsafe Construction Works (Page No. 56)	If suspension of Works is for reasons not attributable to the Contractor, the Authority's Engineer shall determine any Time Extension to which the Contractor is reasonably entitled.	Bidder understand that the provision of Sub-Clause 11.3 shall not apply to the works executed by the old contractor. The Bidder requests to modify the Clause 11.17.4 as follows: "If suspension of Works is for reasons not attributable to the Contractor, the Authority's Engineer shall determine <b>as per good industry practice</b> any Time Extension and <b>also adjustment to the Contract Price</b> to which the Contractor is reasonably entitled."	As per RFP
83	Cl. 12.1.2 – Tests on completion (Page No. 56)	".....For the avoidance of doubt, it is expressly agreed that the Authority's 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."	The Bidder understands that the Contract Price will be adjusted on account of additional costs incurred due to such additional tests. Further, the Bidder understands that the Contractor shall be entitled to Time Extension and also adjustment to Contract Price in case of delay arising out of such event. Please confirm.	As per RFP
84	Cl. 12.2.1 – Provisional Certificate (Page No. 57 & 58)	"Subject to the provisions of Clause 12.2.5, upon completion of all Works forming part of the Project Highway, save and except	Bidder requests to modify the Clause 12.2.1 as follows: "Subject to the provisions of Clause 12.2.5, upon completion of all Works forming part of	As per RFP





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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>the Works for which Time Extension has been granted under Clause 10.5, the Authority's Engineer shall, at 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 minor outstanding items of works in respect of those Sections of the Project Highway for which the Provisional Certificate has been issued, within a period of 180 (one hundred and eighty) days of the date of Provisional Certificate, and those parts of the Works in respect of which Time Extension has been granted, within the extended period thereof.</p>	<p>the Project Highway, save and except the Works for which Time Extension has been granted under Clause 10.5, the Authority's Engineer shall, at 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 minor outstanding items of works in respect of those Sections of the Project Highway for which the Provisional Certificate has been issued, within a period of 180 (one hundred and eighty) days of the date of Provisional Certificate, and those parts of the Works in respect of which Time Extension has been granted, within the extended period thereof.</p>	<p>.....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. The Authority's Engineer shall issue the Provisional Certificate within 60 (sixty) days from the date of request by the Contractor for issuance of</p>



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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>Certificate, and those parts of the Works in respect of which Time Extension has been granted, within the extended period thereof. .... 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."</p> <p>"..... The Contractor undertakes to complete the minor outstanding items of works in respect of those Sections of the Project Highway for which the Provisional Certificate has been issued, within a period of 30 (thirty) days of the date of Provisional Certificate, and those parts of the Works in respect of which Time Extension has been granted, within the extended period thereof....."</p> <p>"All items in the Punch List shall be completed by the</p>	<p>the same. If the Authority's Engineer fails to provide the Provisional Certificate, for the reasons not attributable to the Contractor, the Provisional Certificate shall be deemed to have been issued on 14th day of expiry of aforementioned 60 days period and any Dispute pertaining to the same shall be dealt as per Article 26 [Dispute Resolution]"</p>	
	Cl. 12.2.1 - Provisional Certificate (Page No. 57 & 58)		<p>Bidder understand that, the works for which Time Extension has been granted, the period of 180 days shall be reckoned from the actual date of completion of such works.</p> <p>Bidder requests that the Damages pursuant to Sub-Clause 10.3.2 of this Agreement shall be calculated as percentage of value of such remaining work and not the Contract Price. Please confirm.</p> <p>Bidder requests that, the Contractor liability to pay Damages for delay in completion of the remaining Works shall arise only if the reasons for delay are solely attributable to the Contractor.</p>	As per RFP
86	Cl. 12.3 -			As per RFP



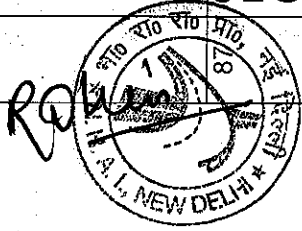
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**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	Completion of remaining Works (Page No. 58 & 59)	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 in accordance with the provisions of Clause 10.3.2 of this Agreement."		
	Cl. 12.2.5 - Provisional Certificate (Page No. 58)	"No Provisional Certificate shall be issued under the provisions of this Clause 12.2 until the Contractor has submitted valid claims for payment of at least 80% (eighty per cent) of the amount arrived at after reducing the lump sum price specified in Clause 19.1.1 by the amount attributable to works which have been withdrawn under the provisions of Clause 8.3.3....."	Bidder understands that in the event the Authority could not hand over certain part/section of the ROW to the Contractor for any reason whatsoever, one year prior to the Scheduled Completion Date, the Authority shall delink the said part/ section of the Project for purpose of issuance of the Provisional Certificate under Clause 12.2. Please confirm.	As per RFP



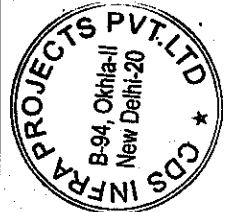
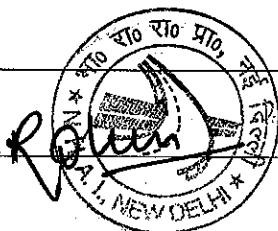
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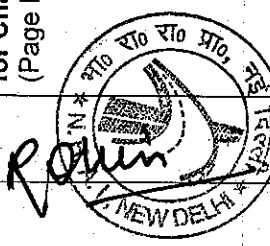
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
88	Cl. 13.1.2 - Change of Scope (Page No. 60)	"Change of Scope shall mean: (a) change in specifications of any item of Works; (b) omission of any work from the Scope of the Project except under Clause 8.3.3; provided that, Authority shall not omit any work under this Clause in order to get it executed by any other authority; 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."	Bidder requests the Authority to add the following event under this categories of Clause 13.1.2: "d. reconstruction / restoration of the works already executed by the old contractor, maintenance of the works executed by the old contractor during Construction Period, its Maintenance and its Defects Liability. e. changes to the levels, positions and/or dimensions of any part of the Works. f. changes to the sequence or timing of the execution of the Works. g. execute additional work of any kind necessary for the completion of the Works; and/or h. any change in Authority's requirement including the provisions stated under applicable Schedules forming the Scope of Works."	As per RFP
			Bidder understands that, the Authority shall not require the contractor to undertake any changes after 50% financial progress w.r.t Contract Price have been achieved.  If the situation warrants, the COS Order can be issued thereafter also subject to the condition that the works forming part of or affected by such Order shall not be reckoned for purposes of determining completion of	



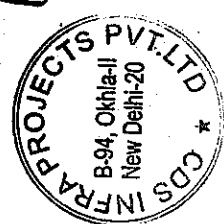
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
89	Cl. 13.2.1 - Procedure for Change of Scope (Page No. 60 & 61)	In the event of the Authority determining that a Change of Scope is necessary, it may direct the Authority's Engineer to issue to the Contractor a notice specifying in reasonable detail the works and services contemplated thereunder (the "Change of Scope Notice").	the Works and issuing of the Provisional Certificate. A similar provision is also there in the concession agreement wherein the Authority shall not require the contractor to undertake changes if such changes are likely to delay the works. Secondly, the Authority must issue COS Order within 15 days of receipt of requisite information from the Contractor. Please confirm.	As per RFP
90	Cl. 13.2.3 - Procedure for Change of Scope (Page No. 61)	"The Contractor's quotation of costs for the Change of Scope shall be determined on the following principles: ....."	In case of any COS, the design and drawings have to be developed by the Contractor by incurring additional costs, which the Contractor could not get compensated by the cost arrived at by using the MORTH Standard Data Book. Further, the contract contemplates that the Contract Price includes all duties, taxes, royalty, and fee levied in accordance with the laws and regulations in force, however, there is no provision for payment of such duties, taxes,	As per RFP



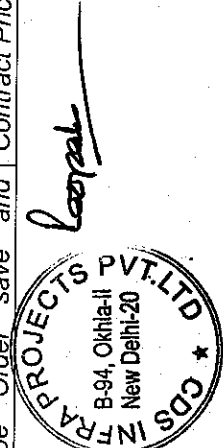
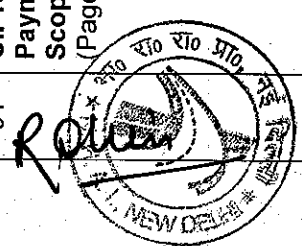
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**Annex-B**

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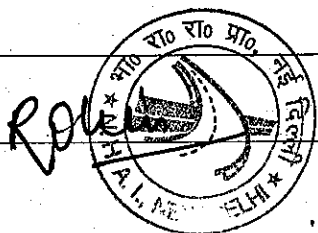
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
91	Cl. 13.3 – Payment for Change of Scope (Page No. 62)	Payment for Change of Scope shall be made in accordance with the payment schedule specified in the Change of Scope Order.	royalty, and fee under calculation as per MoRTH Standard Data Book.  Therefore, the Bidder request that, the procedure for deriving the cost of COS under Sub-Clause 13.2 of the EPC Agreement should be amended duly taking into account the design charges and also all duties, taxes, royalty, and fee levied in accordance with the laws and regulations in force at the time of COS. Please confirm.	As per RFP
92	Cl. 13.4 – Restrictions on Change of Scope (Page No. 62)	"13.4.1 No Change of Scope shall be executed unless the Authority has issued the Change of Scope Order save and	1. The Bidder understands that the Change of Scope works shall be adjusted for price adjustment of various components as per Clause 19.10 and the Base Date for this purpose shall be the date of preparation of other suitable date as fairly determined by the Authority's Engineer. Please confirm.  Bidder requests for addition of the following point in Clause 13.4: "13.4.4 No Change of Scope Order shall be issued after 50% financial progress w.r.t Contract Price have been achieved"	As per RFP



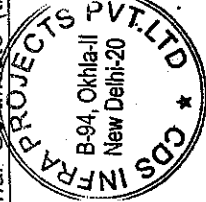
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
93	Cl. 14.1.1 – Maintenance obligations of the Contractor (Page No. 64)	<p>except any Works necessary for meeting any Emergency.</p> <p>13.4.2 Unless the Parties mutually agree to the contrary, the total value of all Change of Scope Orders shall not exceed 10 (ten) per cent of the Contract Price.</p> <p>13.4.3 Notwithstanding anything to the contrary in this Article 13, no charge made necessary because of any default of the Contractor in the performance of its obligations under this Agreement shall be deemed to be Change of Scope, and shall not result in any adjustment of the Contract Price or the Project Completion Schedule."</p> <p>The Contractor shall maintain the Project Highway for a period of 4 (four) years commencing from the date of the Provisional Certificate (the</p>	Bidder understand the Article 14 (Maintenance) shall apply to the Works excluding works executed by the old contractor which shall be dealt Change of Scope under Article 13.	As per RFP

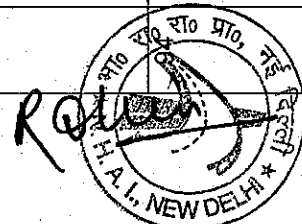


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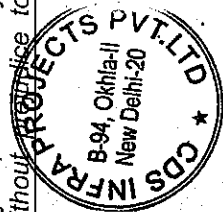


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>"Maintenance Period". For the performance of its Maintenance obligations, the contractor shall be paid 0.5% of the Contract Price for the first year and 1%, 1.5%, 2% of the Contract Price for the second, third and fourth year respectively in case of road projects.....</p>		
	<p>Cl. 14.7 – Authority's right to take remedial measures (Page No. 66 &amp; 67)</p>	<p>"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's 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</p>	<p>Bidder requests the Authority to modify the Clause 14.7 as follows:                  "In the event the Contractor does not maintain and/or repair the Project 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 or have established such reasons for not being able to commence remedial work within 15 (fifteen) days but not later than 30 (Thirty) days of receipt of the Maintenance Inspection Report under Clause 15.2 or a notice in this behalf from the Authority or the Authority's 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</p>	<p>As per RFP</p>



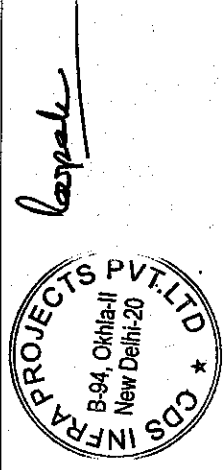
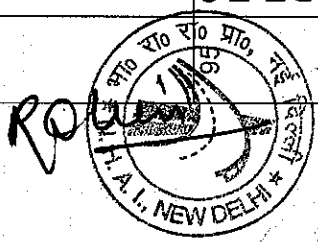
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		its rights under this Agreement including Termination thereof, be entitled to undertake such remedial measures at the cost of the Contractor, and to recover its cost from the Contractor. 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."	from the Contractor. In addition to recovery of the aforesaid cost, a sum equal to 10% (ten per cent) of such cost shall be paid by the Contractor to the Authority as Damages." Please confirm.	
	Cl. 15.2.4 - Inspection payments (Page No. 69) and	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 made every month until the compliance is procured.	The Bidder requests the Authority to modify the Sub-Clauses as follows: "Any deduction made on account of non-compliance will not be paid subsequently provided the Contractor establish the compliance thereof within 30 days of such deduction with valid reasons for delay in compliance and agreed by the Authority's Engineer. Such deductions will continue to be made every month until the compliance is procured."	As per RFP
96	Cl. 17.4 - Contractor's failure to rectify Defects (Page No. 73)	"In the event that the Contractor fails to repair or rectify such Defect or deficiency within the period specified in Clause 17.2, the Authority shall be	The Bidder requests the Authority to modify the Clause 17.4 as follows: "In the event that the Contractor fails to repair or rectify Defect or deficiency aroused due to the reason solely attributable to the Contractor, within the	As per RFP

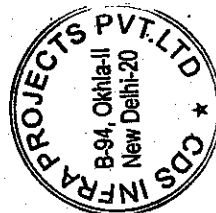


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		entitled to get the same repaired, rectified or remedied at the Contractor's cost so as to make the Project Highway conform to the Specifications and Standards and the provisions of this Agreement. All costs consequent thereon shall, after due consultation with the Authority and the Contractor, be determined by the Authority's Engineer. The cost so determined and an amount equal to 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"	period specified in Clause 17.2 or have established such reasons for not being able to commence defect rectification in 15 days but not later than 30 days which is agreed by the Authority's Engineer, the Authority shall be entitled to get the same repaired, rectified or remedied at the Contractor's cost so as to make the Project 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's Engineer. The cost so determined and an amount equal to 10% (ten 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."	
97	Cl. 18.1.2 – Appointment of the Authority's Engineer (Page No. 74)	The Authority's Engineer should be appointed within 30 days from the date of this Agreement or before declaration of Appointed Date. The Authority shall	Bidder understands that, Appointment of the full time Authority's Engineer will not be delayed the Appointed Date and the Contractor shall be entitled for additional time & cost for delay in Appointment of the full time Authority's Engineer.	As per RFP

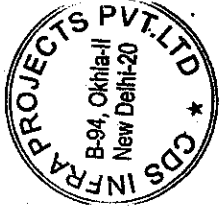


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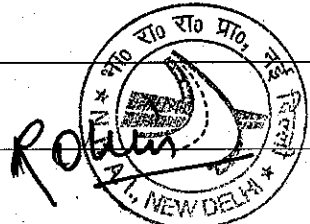
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
98	Cl. 19.2 – Advance Payment (Page No. 78 & 79)	<p>notify the appointment or replacement of the Authority's Engineer to the Contractor.</p> <p>"The Authority shall make an interest-bearing (@ Bank Rate<sup>s</sup>) advance payment (the "Advance Payment"), equal in amount to 10 (ten) percent of the Contract Price, exclusive 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) mobilisation advance would be released after submission of utilization certificate by the Contractor for the first 5% advance already released earlier."</p>	<p>1. Bidder requests to make an interest free Advance Payment to facilitate the Contractor and the amount of Bank Guarantee shall be equal to the amount of the advance being availed by the Contractor.</p> <p>2. Bidder also requests the Authority to stay abide by the schedule of Advance Payment stated under Cl 19.2 to avoid cash flow crisis for mobilization works. In case of delay in release of Advance Payment for reasons not attributable to the Contractor, further delaying the works shall be considered for determining Time Extension and related costs, if any, at actuals. Please confirm.</p>	As per RFP
99	Cl. 19.2.8 – Advance Payment (Page No. 80)	<p>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</p>	<p>Bidder request that interest shall be levied only on part of the Advance Payment balance to be re-paid at the time of Termination and that too if the reason for</p>	As per RFP



**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>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 19.2.7, in the event of Termination for Contractor Default, the Advance Payment shall be deemed to carry interest at the rate of 10% (ten per cent) per annum from the date of Advance Payment to the date of recovery by encashment of the Bank Guarantee for the Advance Payment. For the avoidance of doubt, the aforesaid interest shall be payable on each instalment of the Advance Payment, regardless of whether the instalment or any part thereof has been repaid to the Authority prior to Termination.</p>	<p>Termination is solely attributable to the Contractor. Please confirm.</p>	<p>As per RFP</p>
100	Cl. 19.7.4 –	<p>The Authority shall pay to the Contractor every quarter any amount due</p>	<p>The bidder request release of maintenance payment on monthly basis in line with Clause</p>	<p>As per RFP</p>

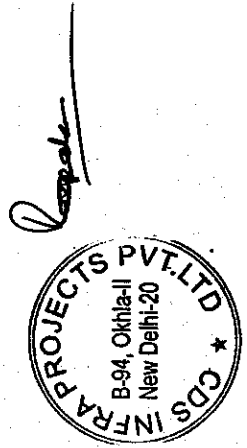
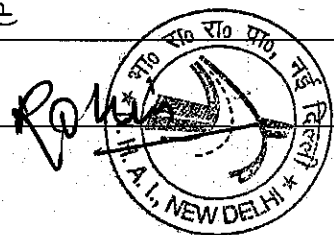


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**Annex-B**

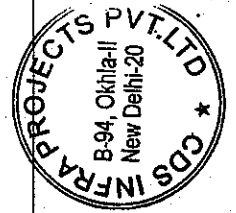
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	Payment for Maintenance of the Project Highway (Page No. 82)	under any IPC under this Clause 19.7. The payment shall be made no later than 30 (thirty) days from the date of submission of the last IPC for the relevant quarter.	19.4 and 19.5 to maintain the steady cash flow for carrying out Maintenance Works.	
101	Cl. 19.9.1 – Time of payment and interest (Page No. 83)	..... (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's 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's 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	Bidder understands that, period of 30 days mentioned under Clause 19.9.1 (a) for releasing payment is specifically with respect to the payment of balance 10% of the Stage Payment Works under Clause 19.5.2.	As per RFP



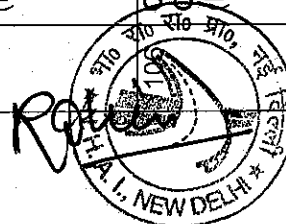
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
102	Cl. 19.10.4 (d) - Price adjustment for the Works (Page No. 85)	payment certificate issued to the Contractor; and (b) ..... "AI = The WPI for construction machinery for the month three months prior to the month to which the IPC relates."	As the base year of All-India Wholesale Price Index (WPI) has been revised from 2004-05 to 2011-12 by the Office of Economic Advisor (OEA), Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, construction machinery is no more the part of update WPI. Please clarify which item to be considered in substitution.	The WPI for "Manufacture of machinery for mining, quarrying and construction" shall be considered in substitution of construction machinery.
104	Cl. 19.10.4 (d) - Price adjustment for the Works (Page No. 85)	"CO = The WPI for grey cement for the month of the Base Date"  "LO = The consumer price index for industrial workers for the circle Faridabad in the State of Haryana, published by Labour Bureau, Ministry of Labour, Government of India, (hereinafter called "CPI") for the month of the Base Date.	As the base year of All-India Wholesale Price Index (WPI) has been revised from 2004-05 to 2011-12 by the Office of Economic Advisor (OEA), Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, grey cement is no more the part of update WPI. Please clarify which item to be considered in substitution.  Bidder requests to modify this clause as follows: "LO = Minimum rates of Wages published by the Chief Labour Commissioner, Ministry of Labour & Employment, Govt. of India or Labour Commissioner of State, whichever higher, for the month of the Base Date. LI = Minimum rates of Wages published by the Chief Labour Commissioner, Ministry of Labour & Employment, Govt. of India or	The WPI for "ordinary port land cement" shall be considered in substitution of grey cement.  As per RFP

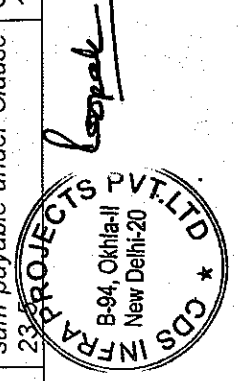


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
105	Cl. 19.10.4 (d) - Price adjustment for the Works (Page No. 86)	LI = The CPI for the month three months prior to the month to which the IPC relates." "SI = The WPI for steel (re-bars) for the month three months prior to the month to which the IPC relates."	Labour Commissioner of State, whichever higher, for the month to which the IPC relates." As the base year of All-India Wholesale Price Index (WPI) has been revised from 2004-05 to 2011-12 by the Office of Economic Advisor (OEA), Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, steel (re-bars) is no more the part of update WPI. Please clarify which item to be considered in substitution.	The WPI for "mild steel - long products" shall be considered in substitution of steel (re-bars).
106	Cl. 19.17.3 - Change in Law (Page No. 89 & 90)	"The Authority's Engineer shall, within 15 (fifteen) days from the date of receipt of the 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."	The Bidder understands that selected bidder shall be compensated at actuals in terms of both time and related costs in case of such eventuality hampering the scheduled project completion date or any extension thereof. Please confirm.	As per RFP
107	Cl. 21.8.1 - Termination Payment for Force Majeure Event (Page No. 99)	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.	The Bidder requests to compensate the Contractor for losses due to idling/ retention of resources on the Site during such period of Force Majeure causing Termination as Termination shall occur only upon the occurrence of such event for a period of 60 days or more within a continuous period of 120 days causing idling/ retention of	As per RFP

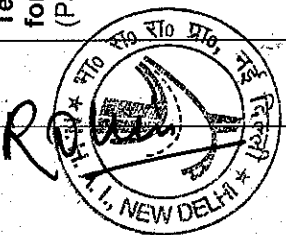


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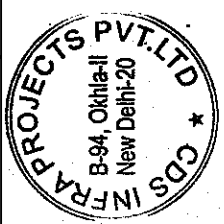


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
108	Cl. 21.8.2 – Termination Payment for Force Majeure Event (Page No. 100)	<p>Provided that in the event Termination occurs during the Maintenance Period, the Authority's Engineer shall only determine the value of Works associated with Maintenance.</p> <p>If Termination is on account of an Indirect Political Event, the Termination Payment shall include:</p> <p>(a) any sums due and payable under Clause 23.5; and</p> <p>(b) the reasonable cost, as determined by the Authority's 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.</p>	<p>selected bidder's resources for such period. Please confirm the same.</p>	As per RFP
109	Cl. 21.8.3 – Termination Payment for Force Majeure Event (Page No. 100)	<p>"If Termination is on account of a Political Event, the Authority shall make a Termination Payment to the</p>		As per RFP



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Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
110	Cl. 23.5.1 – Valuation of Unpaid Works (Page No. 107)	<p>Contractor in an amount that would be payable under Clause 23.6.2 as if it were an Authority Default."</p> <p>"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's Engineer shall proceed in accordance with Clause 18.5 to determine as follows the valuation of unpaid Works (the "Valuation of Unpaid Works"):</p> <p>(a) value of the completed stage of the Works, less payments already made;</p> <p>(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;</p> <p>(c) value of Maintenance, if any, for completed months, less payments already made.</p>		As per RFP

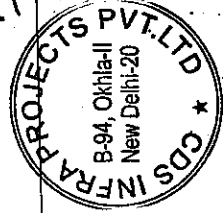
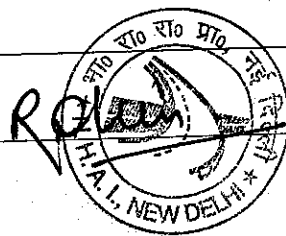


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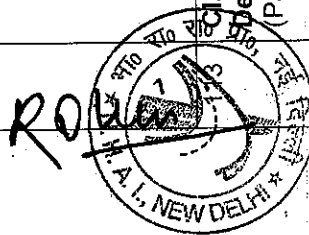
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
111	Cl. 23.1.1 - Termination Default for Contractor Default (Page No. 103)	"..... (c) the Contractor does not achieve the latest Project Milestone due in accordance with the provisions of Schedule-J, subject to any Time Extension, and continues to be in default for 45 (forty five) days; (d)..... (e)..... (f) the Project Completion Date does not occur within the period specified in the Scheduled Completion Date, or any extension thereof; (g) failure to complete the Punch List items within the periods stipulated there for in Clause 12.2.1;..... "	Bidder requests to replace the following points of the said clause: "(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) days for reasons solely attributable to the Contractor; (f) the Project Completion Date does not occur within the period specified in Schedule-J for the Scheduled Completion Date, or any extension thereof, for reasons solely attributable to the Contractor; (g) to be deleted"	As per RFP
112	Cl. 23.2.1 - Termination Authority Default (Page No. 105)	"In the event that any of the defaults specified below shall have occurred, and the Authority fails to cure such default within a Cure	Bidder request the Authority to include the following provision: "f) the Authority fails to provide, within a period of 365 (three hundred and sixty five	As per RFP



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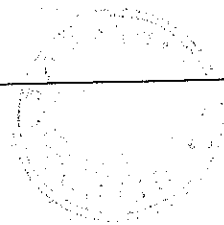
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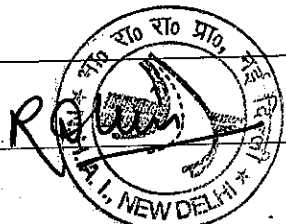
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	<p>Cl. 28.1 – Definitions (Page No. 123)</p>	<p>Period of 90 (ninety) days or such longer period as has been expressly provided in this Agreement, the Authority shall be deemed to be in default of this Agreement (the "Authority Default") 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:.....</p>	<p>days) from the Appointed Date, the Right of Way and other statutory clearances required for construction of the Project."</p>	<p>As per RFP</p>
		<p>"Appointed Date" means that date which is later of the 30th day of the date of this Agreement, the date on which the Contractor has delivered the Performance Security in accordance with the provisions of Article 7 and the date on which the Authority has provided the working front on no less than 90% (Ninety per cent) of the total length of Project Highway."</p>	<p>This provision of Appointed Date and the conditions set forth herein does not address the actual bottlenecks encountered by the contractors before the commencement of the Works. In addition to aforesaid provision, it is requested to include the following provisions as a condition precedent to be fulfilled by the Authority prior to declaration of the Appointed Date: a. For the purposes of providing constructive possession of the Right of Way to the Contractor, ROW must be available in full width and having completed all the formalities as per provision of 3 H of NH Act, 1956.</p>	



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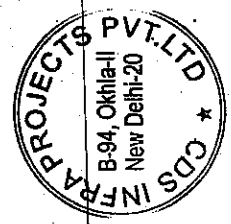
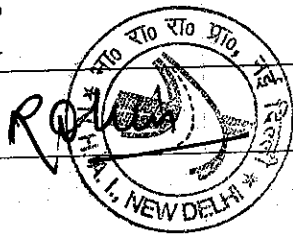
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
			<p>b. A full-time Authority's Engineer must have been appointed.</p> <p>c. Necessary permits and sanction of estimate of utility shifting (i.e. installation of new utilities and removal of existing utilities) is in place, payment have been deposited directly by the Authority with the entity owning the utility including the supervision charges.</p> <p>d. Necessary permits and approved cost estimate for felling of trees must be in place. All the formalities required for commencing felling of trees in forest area including the nationalized trees have been concluded by the forest department.</p> <p>e. Necessary permits and approved cost estimates for removal of structures have been completed by the Authority. All the formalities required for commencing dismantling of obstructing structures have been concluded by the Authority.</p> <p>Further, in case of any delay in declaring Appointed Date beyond 120 days from the last date of submission of Bid, the Bid price shall be revised for escalation in prices to be paid upfront for the period between scheduled Appointed Date and actual Appointed Date along with the other compensation, if any, arising due to such delay. Notwithstanding the above, the Contractor shall be at liberty to terminate the</p>	



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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
114	Cl. 28.1 - Definitions (Page No. 131)	<p>"Taxes" means any Indian taxes including 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</p>	<p>Contract Agreement at any time beyond this period if Appointed Date is not declared so. In such case the selected bidder shall be compensated at actuals in case of any losses suffered by it during this period. Please confirm.</p> <p>Also, Appointed Date shall not be declared on the onset of or during the monsoon season. Please confirm.</p> <p>Bidder requests to modify this Clause as follows:</p> <p>"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;</p>	<p>The word GST stands inserted after the word 'including' and before the word 'excise duties' in the given definition.</p>



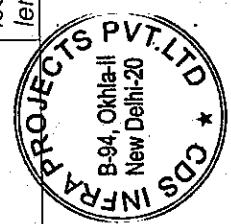
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
115	Annex II (Schedule – A) – Dates for providing Right of Way	taxes on corporate income," The dates on which the Authority shall provide Right of Way to the Contractor on different stretches of the Site are stated below:....	Bidder understand that Right of Way shall be handed over to the Contractor on full length and full width of the section as mentioned under this Clause.	90% of RoW including additional land for development of interchanges, wayside amenities and other project facilities will be provided on appointed date and remaining 10% will be handed over within the time period specified in the draft Contract Agreement.
116	Cl. 1.2.5 (Schedule – B) – Width of Carriageway (Page no. B-2)	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 and the same 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.	The Bidder understands that the scope defined in the schedules is accurate and forms the base for arriving at the bid price. Hence, requests the Authority to delete such arbitrary provision.	As per RFP
117	Cl. 2.6 (Schedule – B) –	Service Roads/ Slip Roads shall be constructed at the locations and for the lengths indicated below:		As per RFP

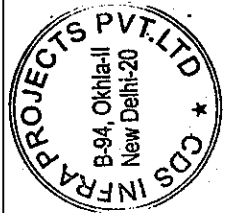
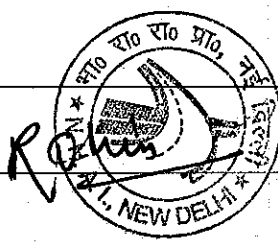


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Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

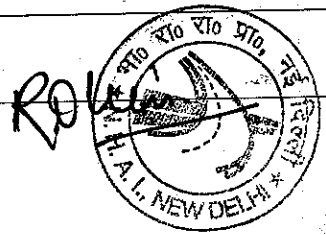
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	Service Roads/Slip Roads/Connecting Roads (Page no. B-3)	<p>.....</p> <p><b>Note:</b> 1. Above length of the service/slip/connecting roads is indicative and minimum specified. The actual length of the service/slip/connecting roads shall be determined by the Contractor in accordance with the IRC:SP:99-2013 requirements with approval from the Authority's Engineer. Any increase in the length specified in this Clause of Schedule-B 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.</p>		
118	Cl. 2.7.1 (Schedule – B) – Grade separated structures (Page no. B-4)	Grade separated structures shall be provided as per paragraph 2.13 of the IRC:SP:99-2013. Proposed levels at structure locations as shown in plan & profile specified in Annex III of schedule A are only for	The Bidder understands that the scope defined in the schedules is accurate and forms the base for arriving at the bid price. Hence, requests the Authority to delete such arbitrary provision.	As per RFP



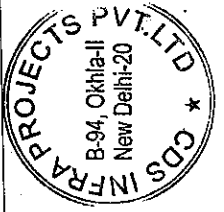
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>guidance and any changes in levels shall not constitute any change of scope. The requisite particulars are given below:</p> <p>Note: The length of loops and ramps are minimum and likely to get changed as per site requirement; Any change as per site requirement may not constitute 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.</p>		
119	Cl. 3 (b) (Schedule – B) – Intersections and grade separators (Page no. B-8 & 9)	<p>Note:</p> <p>(i) Any other junction not mentioned above but observed during the construction of the project shall be improved as per IRC:SP:99-2013 requirements. The same shall not constitute a</p>		As per RFP



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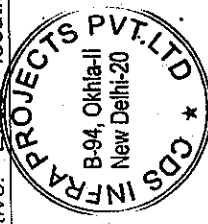
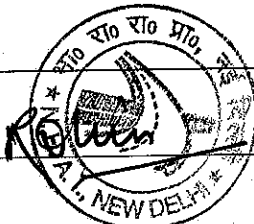


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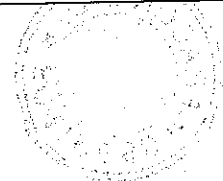
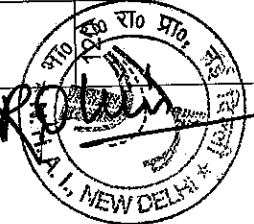
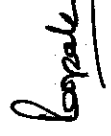

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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>Change of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.</p> <p>(iii) The contractor 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 out in section-3 of IRC:SP:99-2013. The same shall not constitute a Change of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.</p> <p>(iv) .....</p> <p>(v) Location and span arrangement of grade-separated structures are separated structures are indicative. Exact location</p>		



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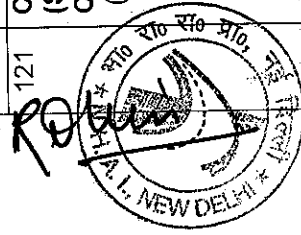
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>may be decided in consultation with Authority Engineer. Any Change in span arrangement shall not be treated as change of scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 16.</p>		
	<p>Cl. 7.2.4 (Schedule – B) – Culverts (Page no. B-13)</p> 	<p>Note: 1. Any additional Barrel length required as per site conditions shall not constitute a Change of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13. 2. Any variations in ventway/span arrangements specified in</p>	<p>The Bidder understands that the scope defined in the schedules is accurate and forms the base for arriving at the bid price. Hence, requests the Authority to delete such arbitrary provision.</p>	<p>As per RFP</p>  

**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

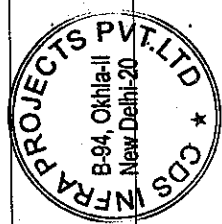
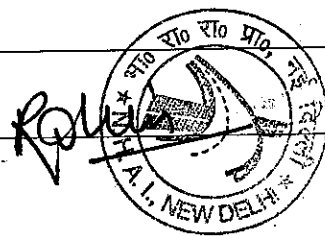
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
121	Cl. 7.2.7 (Schedule – B) – Culverts (Page no. B-13)	<p>this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.</p> <p>In case of culverts proposed for widening/repair as per details in Clause 7.2.3 above, the same shall be re-constructed if the design shows that these are unsafe for design loads. No change of scope shall be considered in such cases.</p>		As per RFP
122	Cl. 10 (Schedule – B) – Compulsory Afforestation (Page no. B-17)	<p>Minimum 20,000 no. of trees are required to be planted by the contractor as compensatory afforestation in accordance with IRC:SP-99-2013 keeping in view IRC:SP-21-2009. Any increase in no. of trees shall not be treated as change of scope, save and except any variations arising out of a Change of Scope</p>		As per RFP



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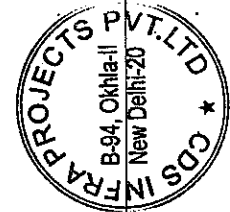
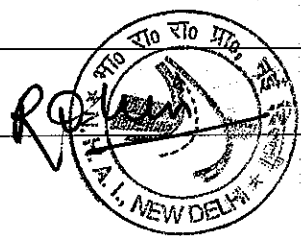
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
123	Cl. 12 (Schedule – B) – Toe Wall and Retaining Walls (Page no. B-17 & 18)	expressly undertaken in accordance with the provisions of Article 13. ..... <b>Note:</b> Above Length and height of Toe Wall/ Retaining wall is tentative and minimum specified. The actual length of Toe Wall/ Retaining wall shall be determined by the Contractor in accordance with the IRC:SP:99-2013 requirements with approval from the Authority's Engineer. Any increase in the length and height specified in this Clause of Schedule-B 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.	The Bidder understands that the scope defined in the schedules is accurate and forms the base for arriving at the bid price. Hence, requests the Authority to delete such arbitrary provision.	As per RFP
124	Cl. 16 (Schedule – B) – Change of Scope (Page no. B-18)	The length of Structures and bridges specified hereinabove shall be treated as an approximate		As per RFP



**Annex-B**

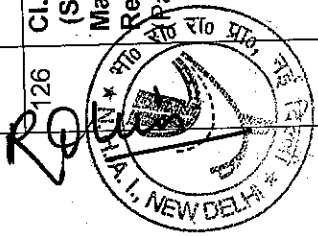
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>assessment. The proposed span arrangement of above structures may be changed based on innovative design of structure, latest construction techniques and aesthetics of structures and the actual lengths of Structures and bridges 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 specified in this Schedule-B 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.</p>		
125	<p>Cl. 2.1 Annex - I (Schedule - C) - Toll Plazas (Page no. C-3)</p>	<p>No. of toll lanes specified above are minimum indicative. The Contractor shall design and provide toll lane as per IRC: SP-99-</p>	<p>As per RFP</p>	<p>As per RFP</p>

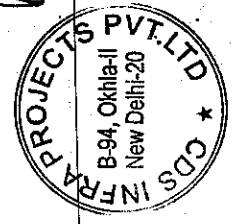


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
126	Cl. 1.2 (Schedule - E) - Maintenance Requirements (Page No. 134)	2013 subject to minimum specified above. Any increase in no. of toll lane shall not be treated as change of scope, 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.  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.	Bidder requests the Authority to add the following para at the end of Clause 1.2 (Schedule - E):  The Authority shall notify the Contractor of its decision to appropriate the relevant amount in pursuance with the provisions of this Clause 1.2 provided that no deduction of amount on account of Contractor's Default shall be effected by the Authority without notifying the Contractor of its decision for such deductions, and taking into consideration the representation, if any, made by the Contractor within 20 (twenty) days of such notice."	As per RFP
127	Cl. 4 (Schedule - E) - Extension of time limit (Page No. 134 & 135)	Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of any Defect or deficiency	Bidder requests the Authority to modify this Clause as under:  Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of any Defect or deficiency	As per RFP



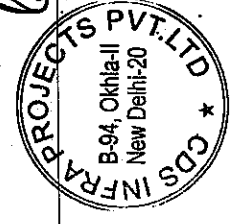
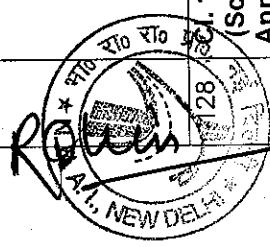
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**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

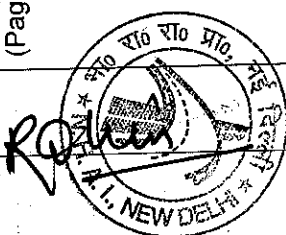
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time &amp; cost in conformity with Good Industry Practice. Such additional time &amp; cost shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.</p>	<p>justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time &amp; cost in conformity with Good Industry Practice. Such additional time &amp; cost shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.</p>	
	<p>Cl. 1.1 (Schedule – F) – Applicable Permits (Page No. 140)</p>	<p>"The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits: (a) ..... to (i) ....."</p>	<p>i) Bidder understands that any delay and impediment on account of government instrumentalities/ authorities in procuring various permits and approvals shall entitle the Contractor for appropriate Time Extension and related costs. Please confirm. ii) Bidder request to provide list of Applicable Permits already in place for the project. iii) Bidder also requests the Authority to provide clarification, whether forest clearance is required for the project. If yes, what is the status of the clearance?</p>	<p>As per RFP</p>
129	<p>Cl. 1.2 (Schedule – M) – Payment reduction for non-compliance with the Maintenance</p>	<p>"Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance subsequently. The</p>	<p>Bidder requests to modify the clause as follows: "Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid subsequently provided the Contractor</p>	<p>As per RFP</p>



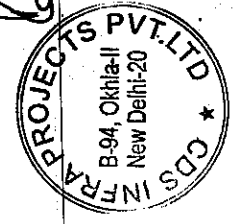
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
130	Cl. 4.18 Annex - I (Schedule - N) - Construction Period (Page No. 168)	<p>The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph 4.18 and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.</p>	<p>establish the compliance thereof within 30 days of such deduction with valid reasons for delay in compliance and agreed by the Authority's Engineer."</p> <p>1. The Bidder understands that Authority's Engineer shall be the authorized person to issue Provisional/ Completion Certificate and shall issue the same as per the terms of this Agreement. Please confirm.</p> <p>2. Further, bidder understands that any determination of Time Extension and/ or additional costs shall be carried out within reasonable time and shall not be delayed beyond 60 days from the date of Contractor's notice in this regard. Please confirm.</p> <p>3. The Bidder understands that the Authority's Engineer shall forward all the correspondences exchanged between the Authority's Engineer &amp; Authority related to Project to the Contractor. Please confirm.</p>	As per RFP
131	Cl. 6 Annex - I (Schedule - N) - Determination of costs and time (Page No. 168 & 169)	<p>6.1 The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.</p> <p>6.2 The Authority's Engineer shall determine the period of Time Extension that is required</p>	As per RFP	As per RFP



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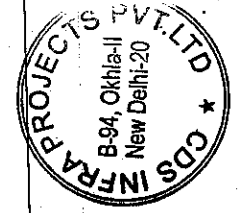
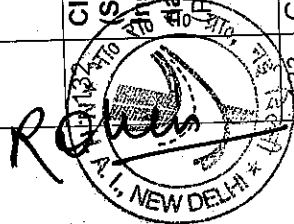




**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

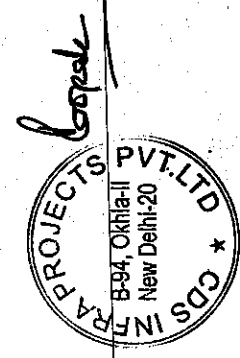
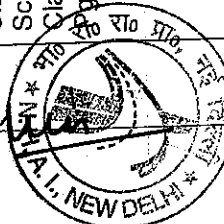
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		to be determined by it under the Agreement. 6.3 The Authority's Engineer shall consult each Party in every case of determination with the accordance with the provisions of Clause 18.5.		
	Cl. 4 (Schedule - P) - Insurance to be in joint names (Page No. 174)	"The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority."	The bidder requests to modify the Clause as follows: "The insurance under paragraphs 1 to 3 except the resources mobilized by the Contractor shall be in the joint names of the Contractor and the Authority." Please confirm.	As per RFP
	General	Hydraulic Report	Please provide the following hydraulic data of River/ Nala for all bridges structures. 1. Bed level 2. Velocity of water 3. Linear water way	All available data has been uploaded along with the bid document.
134	General	Utility shifting	Please provide a detailed Utility Relocation plan and network drawings of underground telephone lines, OFC & Electric cable lines, pipe line and other utilities. We presume that, Authority will obtain the necessary approvals/permissions regarding utility shifting plans and their cost estimates from respective departments. Please confirm the status.	Please refer Article 9 of the draft Contract Agreement.



**Annex-B**

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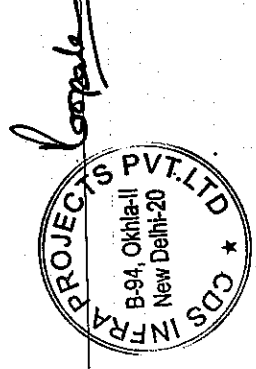
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
135	General	Mining and Quarry availability	Request to clarify the restriction on Mining, if any, We presume that Authority will obtain the necessary permissions/ approvals from respective department before awarding the project. Please confirm.	As per Article 3 of the draft Contract Agreement uploaded along with the bid document.
136	General	Forest Department/Wildlife Sanctuary/Reserved Forest/Protected Forest	Kindly clarify whether any part of the Project Highway or any Project Facilities comes under the Forest Department/Wildlife Sanctuary/Reserved Forest/Protected Forest and status of the clearance for the same.	The project stretch passes through protected forest and the proposal for necessary clearances has been submitted to the concerned authorities for forest clearance.
137	Clause 1.4, Schedule A, Pg. No. A1 Clause 1, Annex - III, Schedule A, Pg. No. A25, Clause 1, Schedule B, Pg. No. B2	Clause 1.4 of Schedule A states that "The alignment plans of the Project Highway are specified in Annex-III. The proposed levels (minimum FRL) as indicated in the alignment plan shall be followed by the contractor. However, contractor, however, improve/upgrade the Road Profile as indicated in Annexure-III based on site/design requirement."	Responsibility of the contractor involves both design and construction. Schedule B, Clause 2 give the freedom to design the geometry of the expressway as per IRC:SP:99 - 2013. Though there are limitations in changing the horizontal alignment due to land constraints, vertical profile of the highway has to be designed afresh based on the original ground levels obtained from topographic surveys.	The proposed profile of the project highway as indicated in the Annex-III of Schedule A is an approximate assessment. The Contractor shall design the alignment plan and profile of the project highway based on site as well as design requirement mentioned in Schedule D within the available RoW. In this regard amendment to relevant clause of Schedule A and B uploaded along with the reply to pre-bid queries may be referred to.
		Clause 1 (Annex - III) of Schedule A states "Finished road level indicated in the alignment plan shall be followed by	Stipulating minimum FRL criteria is not prudent as there is no guarantee on the original ground levels considered in Schedule B drawings. The profile of the project road is governed by the top level of structures (VUP, PUP, FO etc.). Minimum vertical clearance of the structures is fixed. However, the depth of superstructure may vary depend on the structural design and	



**Annex-B**

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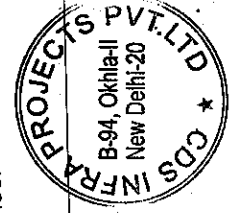
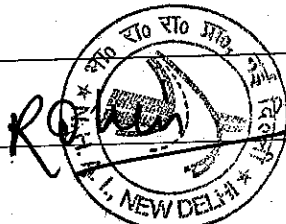
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>the contractor as minimum FRL. In any case, the finished road level of the project highway shall not be less than those indicated in the alignment plan. The contractor shall, however, improve/upgrade the Road profile as indicated in Annexure-III based on site/design requirement."</p> <p>Clause 1 of Schedule A states "The proposed profile of the project highway as indicated in the Annex-III of Schedule A shall be followed by the contractor (as minimum FRL) as given in the alignment plan. Based on site/design requirement, the Contractor may, however, improve/upgrade upon the alignment plans and profiles as indicated in Annexure - III of Schedule A and raise the finished roadway level (FRL) with approval from the</p>	<p>hence the top level guiding the FRL. There may also be changes in invert levels of VUP &amp; PUPs during the detail design. Hence there will be both raising OR lowering of the profile during detailed design, which are technically justified. In anyways IRC: SP:99 - 2013 clearly specifies the minimum embankment height to be followed.</p> <p>Considering the above, the minimum FRL criteria shall be deleted and design freedom as per the essence of EPC contract shall be given to the contractor. Kindly confirm.</p>	



**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

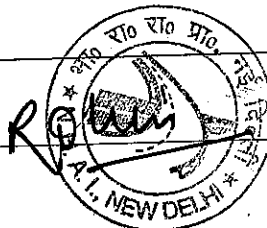
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
138	Clause 2.6 of Annexure-I of Schedule B.	Authority's Engineer within the available Right of Way." Note 2: specifies that, "The realignment of existing track to the SVUP outside the PROW and connecting roads between consecutive underpasses wherever required as per plan & profile uploaded with bid document and specified in Annex.III of schedule A is to be constructed by the contractor as per site requirement in consultation with Authority Engineer and the same would not constitute any change of scope	Kindly include all the locations of connecting roads in Clause 2.6 of Annexure I Schedule B.	The location of the connecting road is as given in plan & profile indicated in Annexure -III of Schedule A and referred to in relevant clauses of Schedule B. The length of the connecting road shall be as per actual site requirement subject to minimum indicated in the plan & profile indicated in Annexure -III of Schedule A. The width of the connecting road shall be equal to the width of the existing road/cart track subject to minimum specified in Cl. 2.12.3 of IRC: SP: 99-2013.
139	Clause 2.6 of Annexure-I of Schedule B.	Service Road/Slip Road /Connecting Roads. Slip road length given for four locations. 1. 62+425 62+770 Left Side 345m 2. 63+520 63+930 Left Side 410m 3. 69+110 69+520 Right Side 410m 4. 70+275 70+620 Right Side 345m	As per TCS drawings, No Slip roads is shown in any of the TCS drawings. Request the Authority to clarify the discrepancy of Slip Road lengths and TCS Type.	Wayside amenities have been proposed at these locations. The slip lanes are to be provided for access to the proposed wayside amenity as per Schedule B and typical layout of the wayside amenity uploaded along with bid documents. The layout of the highway section at these locations indicating the TCS to be followed is enclosed with the replies to pre-bid queries.



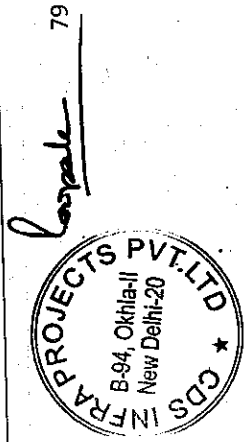
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
140	Clause 2.7 of Annexure-I of Schedule B.	It has been observed that the TCS for ramps and loops have not been provided for the interchange at km 66+587	Kindly provide the TCS drawings for loops and ramps.	The layout of the proposed interchange indicating the TCS for ramps and loops at these locations is enclosed with the replies to pre-bid queries.
141	Clause 2.8 of Annexure-I of Schedule B.	From the typical cross section table given in the cited clause and the Plan & Profile Drawing, it has been observed that there are TCS mismatch at numerous locations.	Kindly confirm that the TCS schedule given in Schedule B is tentative and actual schedule shall be as per detail design.	The TCS schedule as given in Schedule B is to be followed and shall be treated as an approximate assessment. Actual length of the TCS schedule shall be prepared by the contractor based on detailed investigation and site requirements. Any variation in length of respective TCS specified in Schedule B 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.
142	Clause 3 of Annexure-I of Schedule B.	Notes: In most of the notes it is specified that other junction not mentioned in schedules shall not constitute a change of Scope. Even it is specified that the span arrangement of Grade separated structures is tentative.	Request the Authority to specify the exact number of junctions to avoid the ambiguity. Request the authority to specify the exact span and length of the grade separated structures. Any change in the structure length shall be treated as COS.	As per RFP Please refer Clause 15 of Schedule B Please refer Clause 15 of Schedule B
143	Clause 15, Annexure I of Schedule B, pg B-18	Change of Scope	Since this is being a green field project and limited time of Bidding period it is impractical	Please refer Clause 15 of Schedule B



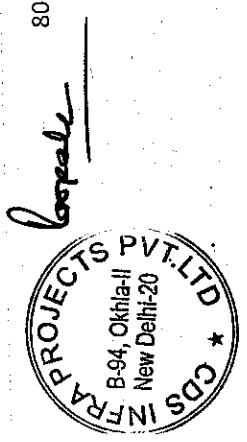
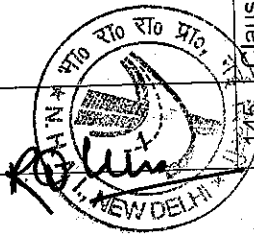
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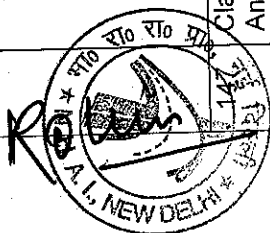
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
144	Clause 5.2, Annex-1, Schedule B, Page No. B9	The cited clause from Schedule B states, "The pavement shall be perpetual type for entire length of project highway, except for connecting road/slip road/service road and roadside amenities where, flexible pavement shall be proposed".	for bidders to carry out due diligence in assessing the total length of structures. We presume that the Bidders are free to rearrange the Span arrangement for the Major and Minor Bridges, keeping the length of the structure unchanged, as per Schedule B. Please confirm. Kindly confirm that, as per Schedule B, Pavement type for Toll Plaza is perpetual flexible pavement. Also, update the list of deviation in Schedule D accordingly.	The pavement type for toll plaza shall be rigid as specified in Cl. 12.4.14 of IRC SP:99-2013.
145	Clause 5.3.1 & 5.3.2 of Annexure-I of Schedule B.	Perpetual Flexible Pavement	Since perpetual pavement is proposed for the project, the thickness shall be fixed as given Schedule B. The minimum clause for traffic/thickness shall be eliminated. Kindly confirm.	The Contractor shall design the pavement of main carriageway as long life perpetual flexible pavement while the pavement for connecting/service/slip road shall be designed for design traffic of 10 MSA. In order to meet the intended functional requirement of respective pavement layers as well as compaction of heavy bituminous layers on main carriageway, the minimum thickness of respective pavement layers has been indicated in Clause 5.2 of Annexure I of Schedule B. In this regard, amendment to this clause 5.2 of Annexure



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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
146	Clause 7.2.4 of Annexure-I of Schedule B.	<p>Details of Culverts:                      Apart from other culvert details, it is specified that,                      At km 64.934-----                      1x3.0x2.5m Box Culvert                      At km 60.516-----                      1x2.0x2.0m Box Culvert                      At km 53.028-----                      1x2.0x2.0m Box Culvert</p>	<p>There is a discrepancy in the span details provided in clause 7.2.4 when compared with the details provided in P&amp;P Drawings. As per P&amp;P,                      At km 64.934-----1x3.0x2.0m Box Culvert                      At km 60.516-----1x3.0x3.0m Box Culvert                      At km 53.028-----not shown in p&amp;p</p> <p>Request the Authority to clarify the discrepancy and confirm the exact span arrangement of Box culverts at the above specified locations.</p>	<p>I of Schedule B uploaded alongwith reply to pre-bid queries may also be referred to. Shall be read as 1x3.0x3.0m Box Culvert</p>
	Clause 7.2.4 of Annexure-I of Schedule B.	<p>At the bottom of the culvert table, it is specified that, "In addition to above, box culverts of size 2m x 2m shall be provided as per site requirements for facilitating access of farmers to field channels on either side of the carriageway. The location of such culverts shall be decided in consultation with Authority Engineer</p>	<p>Request the Authority to specify the bifurcation of these additional culverts as per TCS wise.</p>	<p>These culverts are proposed for facilitating the irrigation and movement requirement of the farmers whose eland holding is likely to be divided into two parts. Therefore, as mentioned in the Schedule B, the location of these additional culverts of size 2x2 m shall be determined and decided in consultation with the Authority Engineer at the time of execution.</p>



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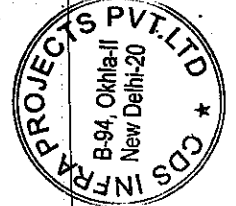
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
148	Clause 7.3.2 of Annexure-I of Schedule B.	Details of Major and Minor Bridges Minor bridge specified at km 50.340 and span specified is 1x40m	There is Discrepancy in length of the structure specified under this clause and the lengths specified in TCS Tables for structures type TCS. From km 50.300 to 50.380 = 80m shown as TCS Type-3 Request the Authority clarify the discrepancy.	The proposed bridge is at skew to the existing canal. Please refer plan and profile uploaded alongwith the bid documents
149	Clause 2.7.1 and Clause 7.7 of Annexure-I of Schedule B.	List of the Major bridges and Structures. Under this clause it is specified that the number of flyovers are 1. As per clause 2.7, there is no flyover specified i.e. Flyovers are Nil	Request the Authority to clarify the discrepancy in number of flyovers.	As per Cl. 2.7.1 of Schedule B
150	Appendix B-3 of Annexure-I of Schedule B.	Typical cross section drawings	In TCS-1, width of median shown includes shyness 0.75m and 1.0m earthen portion towards median side but in remaining TCS it shown as excluding the above, please clarify the discrepancy	The width of the median in the remaining TCS also includes shyness of 0.75 m and 1.0 m earthen portion towards median side.
151	Clause-5 and Appendix B-3 of Annexure-I of Schedule B.	Typical cross section drawings, pavement thickness	The pavement layer type suggested in clause 5 and that shown in TCS drawings differs. Request the Authority to remove the pavement layer type from TCS drawings and minimum pavement thickness statement from clause 5.	In order to meet the intended functional requirement of respective pavement layers as well as compaction of heavy bituminous layers on main carriageway, the minimum thickness of respected pavement layers has been indicated in Clause 5.2 of Annexure I of Schedule B. In this regard, amendment to this clause 5.2 of Annexure I of Schedule B uploaded alongwith reply to pre-bid queries may also be referred to.



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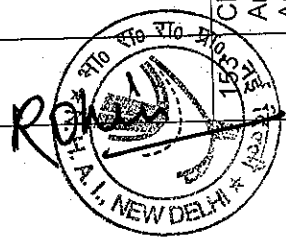




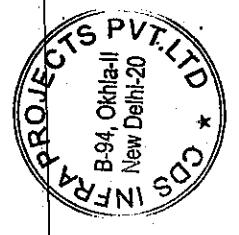
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
152	Clause-2.1 of Annexure-I of Schedule C.	It has been observed from the Plan & Profile that toll plazas have been provided on each Ramp location. However, the scope on number of toll plazas is unclear in schedule C.	Kindly confirm that toll plaza shall be provided for each ramp as shown in Plan and Profile. Also, confirm the number of toll lanes to be provided at each location	Toll plaza shall be provided for each entry/exit ramp as indicated in the plan and profile. No. of toll lane specified each entry/exit ramp in this clause of Schedule C are minimum indicative. The Contractor shall design and provide toll lane as per IRC:SP:99-2013 subject to minimum specified above. Any increase in no. of toll lanes shall not be treated as 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.
	Clause-2.2.7 of Annexure-I of Schedule C And Annexure-1 of Schedule D	The cited clause in schedule C states "Three beam metal crash barriers shall be provided in entire length on both sides of each main carriageway (i.e. on earthen shoulder of both side carriageway), Loops and Ramps excluding by stretches covered by bridges and RE wall structures, where concrete barriers to be provided." The cited clause of Schedule D states "Three beam metal crash barriers shall be provided in entire	Kindly clarify the requirement of providing the three beam along the median for both carriageways.	Three beam metal crash barriers shall be provided as mentioned in Cl. 8.1 of Annexure-1 of Schedule B and Clause-2.2.7 of Annexure-1 of Schedule C.



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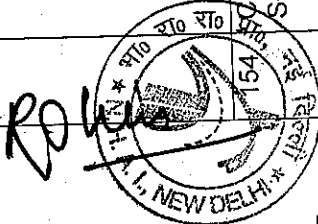


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		length on both sides of each main carriageway (i.e. on median and on earthen shoulder of both carriageway), Loops and Ramps excluding stretches covered by bridges and RE wall structures, where concrete barriers to be provided" However, the TCS drawings do not indicate Thrie beam metal crash barrier on the median side.		
	Clause 12 of Annexure I, Schedule B, pg B17	Toe wall and retaining walls: The cited clause mentions the stretches of retaining walls.	Kindly confirm that the mentioned locations are tentative and the wall height shall be as per design.	The locations of toe walls and retaining walls as given in Schedule B shall be treated as an approximate assessment. Actual length and height of the toe walls and retaining walls shall be determined by the contractor based on detailed investigations and site requirements. Any variation in length and height of toe walls and retaining walls specified in Schedule B 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.
155	TCS Drawings Pg. No. B20-B21 Annexure-I of Schedule-D	The cited clause of Schedule - D mentions "Drainage where	Kindly confirm that continuous surface RCC drain shall be provided on earthen shoulders for all heights of embankment.	Adequate drainage shall be provided in embankments with height more than 6 m



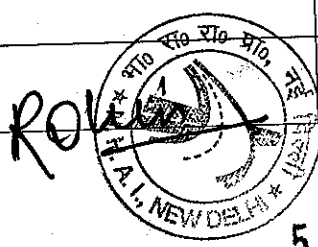
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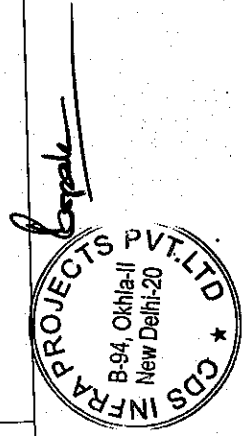
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		Embankment Height is more than 6 meters: Adequate Continuous Surface RCC drain (Except Structures having approach slabs) shall be provided on both side Earthen Shoulder including RCC Chutes at designed intervals with energy dissipation basin irrespective of any Height of Embankment. The drainage system shown in TCS shall be minimum. However, the provided TCS drawing do not show any such provision for high embankment sections.	Also kindly include the same in TCS drawings.	and approaches to structures as per Cl. 9.4 of the IRC SP 99:2013.
156	Clause 10, Annexure – I, Schedule B, Pg. No. B17 Clause 2.8 , Annex – I, Schedule C, Pg. No. C-11/12	Minimum 20,000 no. of trees are required to be planted by the contractor as compulsory afforestation in accordance with IRC: SP:99-2013 keeping in view IRC: SP:21-2009. Any increase in no. of trees shall not be treated as change of scope, save and except any variations arising out of a Change of Scope	Kindly clarify the number of trees to be planted by the contractor as Schedule B & C has different requirements.	The total number of trees to be plated shall be sum of the number of trees mentioned under Clause 10, Annexure – I, Schedule B, and Clause 2.8 , Annex – I, Schedule C,



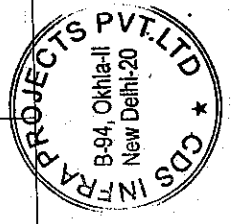
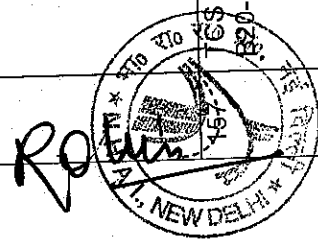
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
158	Clause 2.4.1 (A), Annex I of Schedule C, Page C-4	expressly undertaken in accordance with the provisions of Article 13. Minimum 70,000 nos. of trees of desired type in two rows @ 5 m c/c near edge of ROW on both side and three rows @ 5 m c/c on central median (As per Schedule D) preferably local varieties like mango, Neem, Sheesham, Babul, peepal etc. shall be planted TCS type 2 and 3 shows Stone pitching in the depressed median for full height of the embankment. The cited clause states that "Wayside amenities of about 18 Hectares shall be developed at the following locations in accordance to Schedule - D. The layout with minimum number of units per facility and the minimum area per facility to be developed is given in given in the drawings folder uploaded along with the bid documents. However, the provisions given in above	It is understood that the stone pitching is proposed on slopes near the abutment of the structures and not for the entire length of the approach. Kindly confirm. Kindly provide the layout drawing of Rest area as mentioned in the cited clause.	Stone pitching is to be provided as per sote requirements conforming to TCS 2 & 5. Layout drawing of the wayside amenity has been uploaded along with the bid documents. Copy of the same is enclosed.

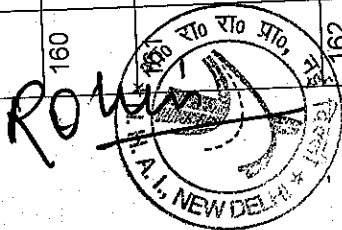


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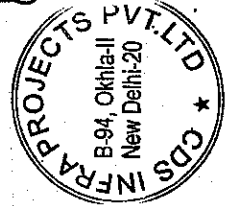
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
159	Clause 2.8 of Annex-I of Schedule C, Pg C-11	referred drawings shall be minimum". However, drawings are not provided for Rest Area / Other amenities layout. Landscaping and Tree Plantation	Contractor requests to provide source of water for providing Drip Irrigation System.	As per Article 3 of the draft Contract Agreement uploaded along with the bid document.
160	Clause 2.8 of Annex-I of Schedule C, Pg C-11	Landscaping and Tree Plantation	Contractor requests to provide details and specifications for the Drip Irrigation System to be provided.	As per relevant IS codes and best industry practices.
161	Clause 2.6, Schedule C, Pg C-10	Lighting	We understand that the lighting for the project facilities shall be as per IRC: SP: 99-2013 as mentioned in schedule D. Contractor understands that the requisite LT feeders at required locations shall be provided by the Authority.	Contractor shall provide the entire infrastructure for lighting of the project facilities including LT feeders at required locations.
162	Clause 1.8, Annexure II, Schedule D, Pg D-21	Meteorological System Location The Meteorological Data System shall be located at an interval of average 100km.	Request to confirm the provisions as this package is only of 31.8 km, approx.	No Meteorological Data System shall be provided for the project highway.
163	Clause 1.6, Annex - II of Schedule D, Pg D-18	The Camera viewing distance of at least 1km in each direction.	By this clause contractor understands that the CCTV camera shall be installed at 2km interval. Please confirm.	As per Annexure-II of Schedule D.
164	Clause 1.2, Annex II of Schedule D	The ATMS shall among many things comprise following sub-systems:	Kindly specify the numbers and locations/chainages of each of the sub-systems to be provided.	As per Annexure-II of Schedule D.



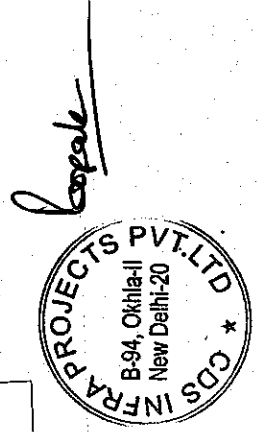
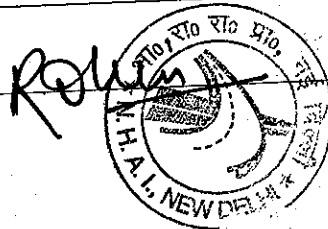
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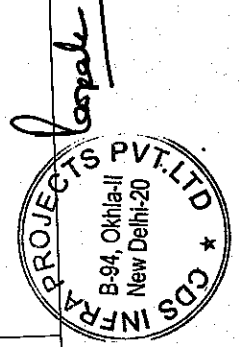
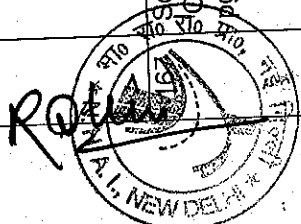
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
165	Schedule B Clause 9b for Overhead Cantilever Sign', pg B6	<p>i. backbone Communication</p> <p>ii. Emergency System</p> <p>iii. Mobile Communication System</p> <p>iv. Variable Message Sign System</p> <p>v. Meteorological Data System</p> <p>vi. Automatic traffic counter-cum-classifier system</p> <p>vii. Video Surveillance System</p> <p>viii. Video Incident Detection System (VIDS)</p> <p>ix. Central Control Room (CCR)</p> <p>xi. Power Supply System</p>	<p>Please confirm that the quantities and chainages specified in this clause are not binding and the Contractor shall design as per IRC:SP:99-2013.</p>	<p>Please refer the amendment uploaded alongwith the reply to pre-bid queries</p>



**Annex-B**

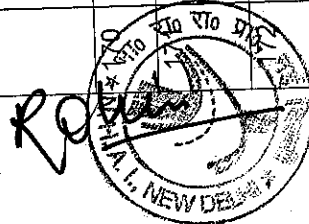
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
166	Schedule B Clause 9b for 'Overhead Cantilever Sign', pg B6	This clause specifies overhead/cantilever signs "other than toll plaza locations". However, IRC:SP-99-2013 does not specify that overhead signs are required for toll plaza approaches. Please specify quantity and chainages of overhead signs at approaches of toll plaza/booths.	Please specify quantity and chainages of overhead signs at approaches of toll plaza/booths.	
	Schedule B Clause 9b for 'Overhead Gantry Sign', pg B6	This clause specifies locations of overhead gantry signs. However, the locations are on straight stretches of the MCW and not at the approaches of any specific interchange/exit/structure, etc. Please confirm that the chainages specified in this clause are not binding and the Contractor is free to decide locations of overhead gantry signs as appropriate locations of overhead gantry signs as appropriate keeping the quantity same as per this Clause.	Please confirm that the chainages specified in this clause are not binding and the Contractor is free to decide locations of overhead gantry signs as appropriate keeping the quantity same as per this Clause.	

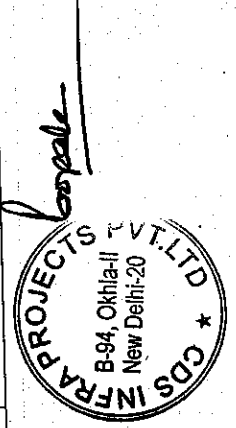


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
168	Clause 7.3.2 of Schedule B, Page No B-14 & Drawing No. CPC/P-152/CH=50+340/S-100	Minor Bridge at Design CH 50+340, span Arrangement 1 x 40m	Kindly confirm whether the proposed bridge is over the lined canal or stream. Drawing no CPC/P-152/CH=50+340/S-100 shows trapezoidal canal at proposed minor bridge location. Kindly provide canal dimensions.	Refer plan & profile
169	Drawing No. CPC/P-152/CH=47+490/S-100	General arrangement drawing SVUP size (1 x 10.0 x 4.5m)	<ul style="list-style-type: none"> <li>Bidder understand that shear key for all underpasses shall be provided based on structural stability requirement. Please confirm.</li> <li>Median opening in box type structures is mandatory. Please confirm.</li> </ul>	Shear key shall be provided as per design requirement.  As per site/design requirements
	GAD for Culverts	GAD for culverts is not available.	Kindly provide GAD for culverts with skew angles.	GAD of the box culvert has been annexed.
	General	Exposure condition	Bidder understand that as per IRC: 112 exposure condition is moderate. Please confirm.	As per manual.
	General	Type of Structure and span configuration	As an EPC contract, can bidder adopt innovative alternate structure or alter the span or structural configuration of structures by maintaining client requirements i.e. total span length & clearances? Please confirm.	Please refer Cl. 15 of Schedule B
173	General	Type & grade of material	As an EPC contract, can bidder adopt alternate material of structures? Please confirm. As an EPC contract, can bidder have flexibility to change the grade materials? Please confirm.	Please refer Cl. 15 of Schedule B
174	General	Location of project	Whether stretch under consideration is nearer to heavy industries or mines? Please confirm.	Coordinates of the project highway and .kmz file of the project alignment has already been uploaded for reference of the bidder.



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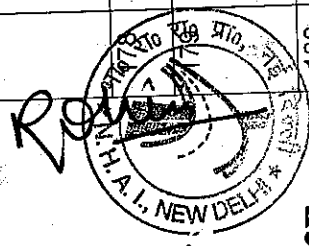




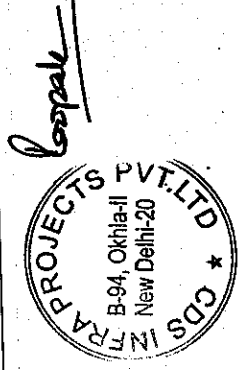
**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
175	General	Congestion Factor	Congestion factor is not required for this project. Please confirm.	As the project highway is access controlled, congestion factor may not be considered in calculating the live load
176	Schedule B	Wearing coat	Wearing coat thickness mentioned in the structural drawings are indicative & shall be provided as per latest MORTH Specifications. Please confirm.	As per manual and design requirement
177	General	Existing utilities	It is requested that the network drawings of information regarding the underground and overhead utilities should be made available along with the detailed relocation plan to all the bidders, if any.	Please refer Article 9 of draft Contract Agreement.
	General	Drawings	Kindly provide the plan and profile drawings in CAD format.	Available data has been uploaded along with the bid documents.
	General	Hydraulic data for minor bridge	Kindly provide the max. Discharge, maximum velocity, lowest water level, scour levels for all major bridges and minor bridges as specify in schedule B 7.3 at CH. 50+340.	Available data has been uploaded along with the bid documents.
180	Schedule B, Clause 7.2.6	Floor protection works shall be as specified in the relevant IRC codes and specifications.	Length of floor protection work shall be as specified in the relevant IRC codes and specifications.	As per manual and design requirements
181	Schedule D	Specifications and standards	In case of conflicts in the IRC codes due to revision, latest provisions in MORTH or IRC codes shall be referred. Please confirm.	As per manual and design requirements
182	Schedule B, 7.2	Culverts	In case of Earth cushion over box culverts, approach slab shall be provided as per IRC: SP 13, plate 16, 18 and 20. Please confirm.	Approach slab can be dispensed with in case of culverts
183	Schedule B, 7.3 Bridges	Bridges	Minimum vertical clearance at center of opening shall be maintained below soffit	As per manual and design requirements



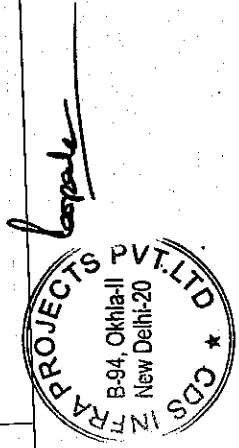
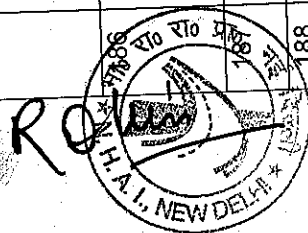
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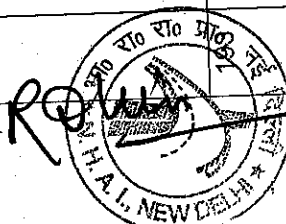
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
184	General	Seismic zone	level of superstructure of bridges as per relevant IRC standards. The proposed alignment is fall under Seismic zone III. Please confirm.	As per manual
185	General	Designs	Bidder understand that the provisions given in IRC: SP - 13 are the guidelines for the designer. However as an EPC contract, bidder have a freedom / flexibility in the design of culverts. Please confirm.	Please refer Cl. 15 of Schedule B
186	General	Design and drawings	Bidder understand that Independent approval from esteemed academic institute i.e. IIT or equivalent is not mandatory. Please confirm.	As per Article 10 of the draft Contract Agreement and relevant instructions issued by the Ministry of Road Transport & Highways.
187	General	Median width	Median width shall be as per Cl. 2.5.1 of IRC: SP 99. Please confirm.	As per TCS and clarification at sl. No 124 above.
188	General	General	Bidder understand that the side slopes for embankments and in cutting sections are completely based on slope stability analysis and there is no alternate criteria to be adhere.	As per TCS subject to fulfilment of manual/ design requirement.
189	General	General	The grade of material indicated in the drawing are for reference only. However as an EPC contract, bidder have freedom to select material grades.	Please refer Cl. 15 of Schedule B
190	General	General	The levelling course below foundation shall be as per latest IRC: 78 in all structures.	Please refer Cl. 15 of Schedule B
191	Schedule D, Clause No. 2, Page D-3	In fill section the embankment side slope shall be minimum 2 (H): 1 (V). The embankment height > 6m shall be	But in TCS, it is shown as 1.5 (H): 1 (V). Can we reduce the slope as per standard and IRC specification.	Clause 2, item no. 11 in Schedule D shall be read as 1.5H:1V



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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
192	Schedule D, Clause No. 2, Page D-3	designed in accordance with IRC:75 Thrie beam metal crash barriers shall be provided in the entire length on both sides of each main carriageway (i.e. on median and on earthen shoulder of both carriageway, loops and ramps excluding stretches covered by bridges and RE wall structures, where concrete barriers to be provided.	Can we provide rope barrier instead of thrie beam metal beam crash barrier as per manual specification.	As per RFP
	Schedule B, Clause 10	Minimum 20,000 no. of trees are required to be planted by the contractor as compensatory afforestation in accordance with IRC:SP-99-2013 keeping in view IRC:SP-21-2009. Any increase in no. of trees shall not be treated as change of scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.	But as per Schedule C it is given as 70000 please clarify.	The total number of trees to be plated shall be sum of the number of trees mentioned under Clause 10, Annexure - I, Schedule B, and Clause 2.8, Annex - I, Schedule C,
194	Schedule B, Cl. 7.3.2	New bridges at the following locations on the	Median width in shown as varies can we reduce median in structural portion.	Median width shall be as per TCS



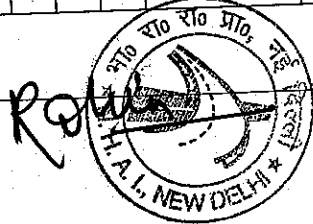
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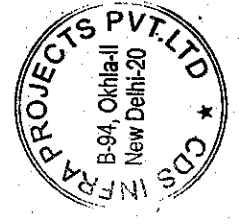
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
195	General	project highway shall be constructed. GADs for the new bridges are attached in the drawing folder. Pavement at toll plaza location	Please clarify will it be rigid or flexible.	The pavement type for toll plaza shall be as specified in Cl. 12.4.14 of IRC SP:99-2013.
196	General	General	The levelling course below foundation shall be as per latest IRC: 78 in all structures.	As per manual and design requirements
197	<b>1.3 Procedure of estimating the value of work done</b>			
(a)	<b>1.3.1 Road works</b>			
Procedure for estimating the value of road work done shall be as follows:				
Table 1.3.1				
<b>A. Deleted.</b>				
<b>B.1- Reconstruction/New 8-Lane Realignment / Bypass (Flexible Pavement)</b>				
(1) Earthwork up to top of the sub-grade + Site Clearance		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 5(five) km length, whichever is less.	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 1(one) km length, whichever is less.	Modified Schedule H for the project highway is enclosed.
(2) Earthwork in Shoulders				
(3) Sub-base Course (CTSB)				
(4) Non bituminous Base course (WMM)				



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**Annex-B**

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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	(5) Bituminous Base course			
	(6) Wearing Coat			
	<b>B.2- Reconstruction/New 8-Lane Realignment / Bypass (Rigid Pavement)</b>			
	(1) Earthwork up to top of the sub-grade	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 1(one) km length, whichever is less.	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 1(one) km length, whichever is less.	
	(2) Sub Base Course			
	(3) Dry Lean Concrete (DLC) Course	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 5(five) km length, whichever is less.		
	(4) Pavement Quality Control (PQC) Course			
	<b>C.1- Reconstruction/ New Service Road/ Slip Road (Flexible Pavement)</b>			
	(1) Earthwork up to top of the sub-grade	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 5(five) km length, whichever is less.	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 1(one) km length, whichever is less.	
	(2) Earthwork in Shoulders			
	(3) Sub-base Course (CTSB)			
	(4) Non bituminous Base course (W/M/M)			
	(5) Bituminous Base course			
				Modified Schedule H for the project highway is enclosed.



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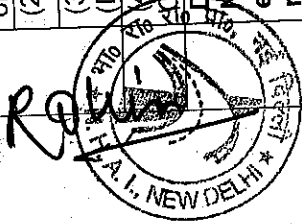
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	(6) Wearing Coat			
	<b>C.2- Reconstruction/New Service road (Rigid Pavement)</b>			
	(1) Earthwork up to top of the sub-grade	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 1(one) km length, whichever is less.	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 1(one) km length, whichever is less.	
	(2) Sub Base Course	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 5(five) km length, whichever is less.		
	(3) Dry Lean Concrete (DLC) Course	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 5(five) km length, whichever is less.		
	(4) Pavement Quality Control (PQC) Course.	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 5(five) km length, whichever is less.		
	<b>D. Reconstruction &amp; New Culverts on existing road, realignments, bypasses</b>	Cost of each culverts shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least five culverts	For cast in Situ Culvert: 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 each Culvert For Pre Cast Culvert: 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	Modified Schedule H for the project highway is enclosed.
	Culverts (length <6m)		Payment shall be made on the completion of	
	Additional Culverts		a. Precast Box/ Hume Pipe - 70% b. Transportation - 10% c. Installation - 20 %	
(b)	<b>1.3.2 Minor Bridge works and Underpasses/Overpasses.</b>			
	Procedure for estimating the value of Minor bridge and Underpasses/Overpasses shall be as stated in			
	Table 1.3.2:			
	A.I- Deleted.			



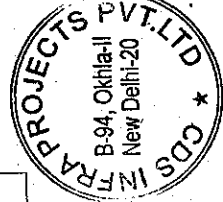
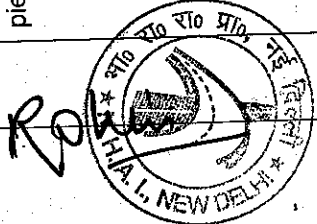
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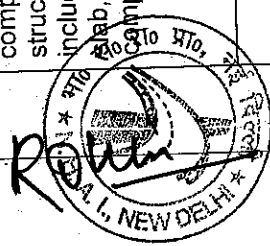
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	A.2- New Minor Bridges (length > 6m & < 60m)	<p>Foundation: Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation shall be made on pro-rata basis on completion of atleast two foundations of each bridge.</p> <p>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.</p>	<p>Foundation: Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation shall be made on pro-rata basis on completion of atleast two foundations of each bridge.</p> <p>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.</p>	<p>Modified Schedule H for the project highway is enclosed.</p>
	(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	<p>Foundation: Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of each bridge subject to completion of atleast two foundations of each bridge.</p> <p>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.</p>		
	(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap including wing/ return/ retaining wall upto top	<p>Sub-structure: Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the</p>	<p>Sub-structure: Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against sub-structure shall be made on pro-rata basis on completion of at least two sub structures upto abutment/pier cap level of each bridge.</p>	



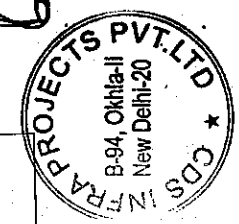
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		scope of sub-structure of each bridge subject to completion of at least two sub structures upto abutment/pier cap level of each bridge.		
	(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure of atleast one span in all respects as specified in the column of "Stage of Payment" in this sub-clause.	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of	
			a. Slab - 80%	
			b. Wearing Coat, Expansion Joint, Hand Rail, Crash Barrier, road sign & markings, tests on completion etc complete in all respect - 20%	
	(4) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use		(4) Approaches: Payments shall be for each Minor Bridge made on prorata basis after completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.	Modified Schedule H for the project highway is enclosed.
	(5) Guide Bunds and River Training Works: On completion of Guide	(5) Guide Bonds and River Training Works: Payment shall be made on prorata		



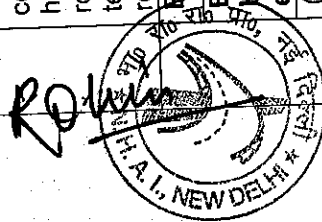
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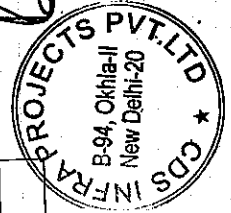
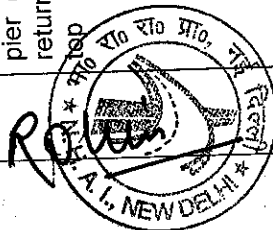
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	Bunds and river training works complete in all respects	basis on completion of a stage i.e. completion of Guide Bunds and River training Works in all respects as specified.		
	6) Other Ancillary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion in all respect	(6) Other Ancillary Works: Payment shall be made on pro-rata basis on completion of a stage in all respects as specified		
	<del>B.1-Deleted.</del>			Modified Schedule H for the project highway is enclosed.
	<b>New Underpasses/Overpasses</b>			
	(1) Foundation: On completion of the foundation work including return walls, abutments, piers.	Foundation: Cost of each Underpass/Overpass shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation shall be made on pro-rata basis on completion of atleast two foundations of each Underpass/Overpass. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.	Foundation: Cost of each Underpass/Overpass shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation shall be made on pro-rata basis on completion of atleast two foundations of each Underpass/Overpass. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.	



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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.		
	(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap including wing/ return/ retaining wall upto	Sub-structure: Cost of each Underpass/Overpass shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against sub-structure shall be made on pro-rata basis on completion of at least two sub-structures upto abutment/pier cap level of each Underpass/Overpass.	Sub-structure: Cost of each Underpass/Overpass shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against sub-structure shall be made on pro-rata basis on completion of at least two sub-structures upto abutment/pier cap level of each Underpass/Overpass.	
	(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings, tests on completion in all respect	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure of atleast one span in all respects as specified in the column of "Stage of Payment" in this sub-clause.	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of	
		a. Slab - 80%		

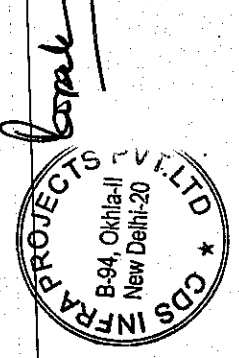


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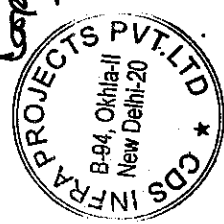
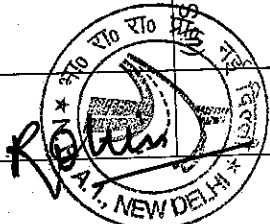
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
			<p>b. Wearing Coat, Expansion Joint, Hand Rail, Crash Barrier, road sign &amp; markings, tests on completion etc complete in all respect - 20%</p> <p>(4) Approaches: Payments shall be for each Underpass/Overpass made on prorata basis after completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.</p> <p>(5) Other Ancillary Works: Payment shall be made on pro-rata basis on completion of a stage in all respects as specified</p>	
(c)			<p>1.3.3 Major bridge works, ROBRUB and Structures.</p> <p>Procedure for estimating the value of Major bridge works, ROBRUB and Structures shall be as stated in table 1.3.3:</p>	
	A.1- Deleted.			Modified Schedule H for the project highway is enclosed.
	A.2- New Major Bridges			
	(i) Foundation	(i) Foundation: Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. on completion of	(i) Foundation: Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. on completion of	



**Annex-B**

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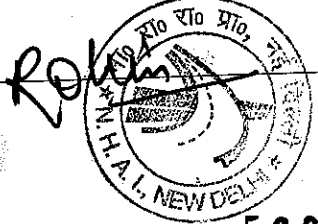
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		<p>against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge subject to completion of atleast two foundations of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.</p>	<p>atleast one foundations of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.</p>	
	Sub-structure	<p>(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of the major bridge subject to completion of atleast two sub-structures of abutments/piers upto abutment/pier cap level of the major bridge.</p>	<p>(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. on completion of atleast one sub-structures of abutments/piers up to abutment/pier cap level of the major bridge.</p>	
	(iii) Super-structure (including bearings)	<p>(iii) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e.</p>	<p>(iii) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including</p>	



**Annex-B**

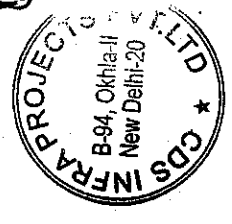
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		completion of super-structure including bearings of at least one span in all respects as specified.	bearings of at least one span in all respects as specified. If Pre cast method is adopted Payment @ 80 % for each span of Girders & 20% shall be paid for erection and remaining works.	
	(iv) Wearing Coat including expansion joints	(iv) Wearing Coat: Payment shall be made on completion of wearing coat including expansionjoints complete in all respects as specified.	(iv) Wearing Coat: Payment shall be made on completion of wearing coat including expansionjoints complete in all respects as specified.	
	(v) Miscellaneous Items like hand rails, crash barriers, road markings etc.	(v) 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.	(v) Miscellaneous: Payments shall be made on prorata basis ie on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.	
	(vi) Wing walls/return walls	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.	(vi) Wing walls/return walls: Payments shall be made on prorata basis i.e on completion of all wing walls/return walls complete in all respects as specified.	
	(vii) Guide Bunds, River Training works etc.	(vii) Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works.	(vii) Guide Bunds, River Training works: Payments shall be made on prorata basis i.e on completion of all guide bunds/river training works etc. complete in all respects as specified.	



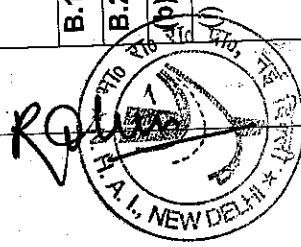
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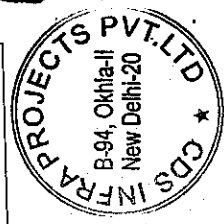
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		etc. complete in all respects as specified.		
	(viii) Approaches Retaining walls, stone pitching and protection works)	(viii) Approaches: Payments shall be made on prorata basis i.e. completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.	(viii) Approaches: Payments shall be made on prorata basis i.e. completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.	
	B.1 - Deleted.			
	B.2 - (a) ROB			
	(b) RUB			
	(i) Foundation	(i) Foundation: Cost of each ROB/RUB shall be determined on prorata basis with respect to the total linear length (m) of the ROBs/RUBs. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. on completion of at least one foundations of the ROB/RUB.	(i) Foundation: Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROBs/RUBs. Payment against foundation shall be made on pro- rata basis on completion of a stage i.e. on completion of at least one foundations of the ROB/RUB.	Modified Schedule H for the project highway is enclosed.
		(i) Foundation: Cost of each ROB/RUB shall be determined on prorata basis with respect to the total linear length (m) of the ROBs/RUBs. Payment against foundation shall be made on prorata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB subject to completion of atleast two foundations of the ROB/RUB.	(i) Foundation: Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROBs/RUBs. Payment against foundation shall be made on pro- rata basis on completion of a stage i.e. on completion of at least one foundations of the ROB/RUB.	In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
		In case where load testing		



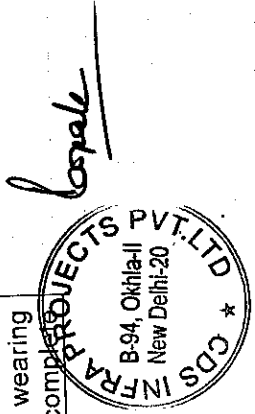
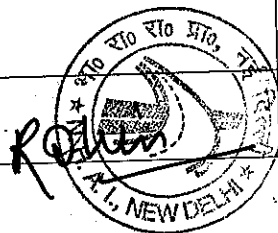
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Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

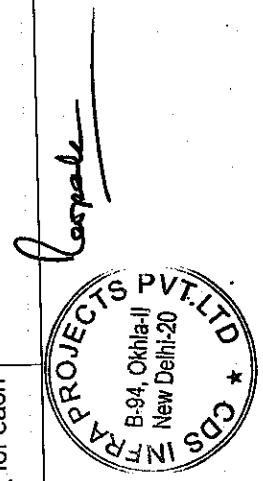
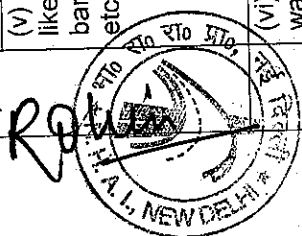
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		is required for foundation, the trigger of first payment shall include load testing also where specified.		
	(ii) Sub-structure	(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of the ROB/RUB subject to completion of atleast two sub-structures upto abutment/piers upto level of the ROB/RUB.	(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of at least one sub-structures of abutments/piers upto abutment/ pier cap level of the ROB/RUB.	
	(iii) Super-structure (including bearings)	(iii) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. Completion of super-structure including bearings of atleast one span in all respects as specified.	(iii) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. Completion of super-structure including bearings of at least one span in all respects as specified. If Pre cast method is adopted Payment @ 80 % for each span of Girders & 20% shall be paid for erection and remaining works.	
	(iv) Wearing Coat including expansion joints in case of ROB. In case of	(iv) Wearing Coat: Payment shall be made on completion of (a) in case of	Wearing Coat: Payment shall be made on completion of (a) in case of ROB-wearing coat including expansion joints	



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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	RUB, rigid pavement under RUB including drainage facility as specified.	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 as specified	in all respects as specified and (b) in case of RUB- rigid pavement under RUB including drainage facility complete in all respects as specified as specified	
	(v) Miscellaneous Items like hand rails, crash barriers, road markings etc.	(v) 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	(v) Miscellaneous: Payments shall be made on pro rata basis i.e on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified	
	(vi) Wing walls/return walls	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/ret^ walls complete in all respects as specified.	(vi) Wing walls/return walls: Payments shall be made on prorata basis i.e. on completion of all wing walls/ret^ walls complete in all respects as specified.	
	(vii) Approaches (including Retaining walls/ Reinforced Earth wall, stone pitching and protection works)	(vii) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.	(iii) Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. a. Casting of Panel - 20% ( for each approach) b. Backfilling / Erection of Panel - 60% ( To be paid on completion of 25% of scope for each Approach) c. Finishing in all respect - 20 % ( for each Approach)	

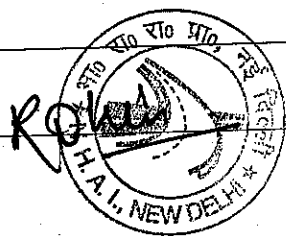




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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	C.1- Deleted.			
	C2 - New Elevated Section Flyovers/Grade Separators (1) Foundation	(i) Foundation; Cost of each Structure shall be determination pro rata basis with respect to the total Linear length (m) of the structures. Payment against foundation shall be made on pro-rata basis on completion of at least one foundations of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.	(1) Foundation; Cost of each Structure shall be determination pro rata basis with respect to the total Linear length (m) of the structures. Payment against foundation shall be made on pro-rata basis on completion of at least one foundations of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.	Modified Schedule H for the project highway is enclosed.
	(2) Sub-structure	(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of	(2) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. on completion of at least onesub-structures of abutments/piers upto abutment/pier cap level of the structure	

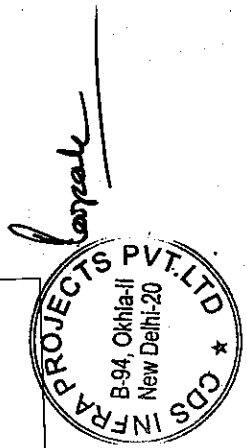
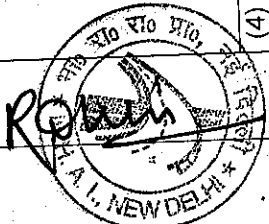


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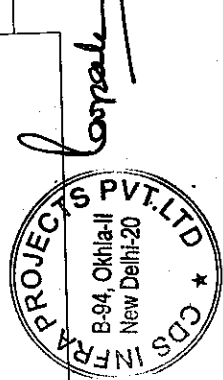
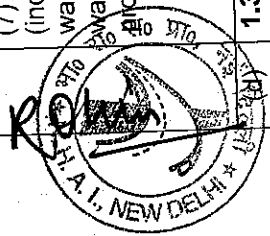
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SI. No.	Cl. No. / Section / Page No.	Description	Query	Response
	(3) Super-structure (including bearings)	the structure subject to completion of at least two sub-structures of abutments/piers upto abutment/ pier cap level of the structure (iii) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of at least one span in all respects as specified.	(3) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of at least one span in all respects as specified. If Pre cast method is adopted Payment @ 80 % for each span of Girders & 20% shall be paid for erection and remaining works.	
	(4) Wearing Coat including expansion joints	(iv) Wearing Coat: Payment shall be made on completion of wearing coat including expansion Joints complete in all respects as specified.	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion Joints complete in all respects as specified.	
	(5) Miscellaneous Items like hand rails, crash barriers, road markings etc	(v) Miscellaneous: Payment shall be made on prorata basis i.e. completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.	(5) Miscellaneous: Payments shall be made on prorata basis i.e. completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.	



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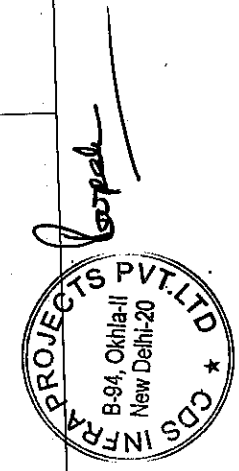
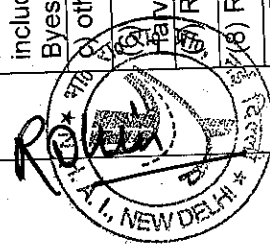
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	(6) Wing walls/return walls	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.	(6) Wing walls/return walls: Payments shall be made on pro rata basis i.e. completion of all wing walls/return walls complete in all respects as specified.	
	(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	(vii) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified	(7) Approaches: Payments shall be made on completion of 10 (ten) percent of total area of approaches including stone pitching, protection works etc."	
<b>1.3.4 Other Works</b>				
Procedure for estimating the value of other works done shall be as stated in table 1.3.4:				
	(1) Toll plaza	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro rata basis with respect to the total of all toll plazas	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro rata basis with respect to the total of all toll plazas	Modified Schedule H for the project highway is enclosed.
	(2) Road side drains Lined Drains / Unlined Drain	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 10 % (ten per cent) of the total length.	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 5 % (ten per cent) of the total length.	
	(3) Road signs, markings, Km stones, Safety devices etc.			
	(4) Crash Barrier			



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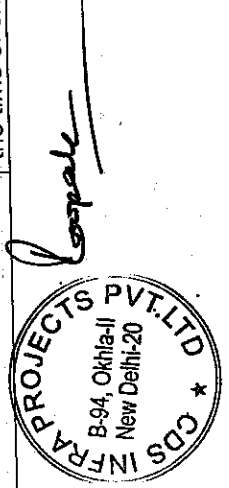
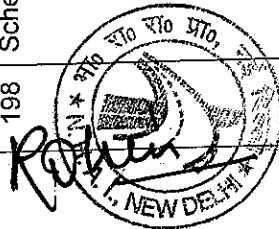
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	(5) Project Facilities	Payment shall be made on pro rata basis for completed facilities.	Payment shall be made on pro rata basis for completed facilities.	
	a) Bus bays			
	b) Wayside Amenities excluding Slip Roads & but including all internal roads (Service areas including Truck Lay-Byes)			
	(6) others			
	(7) Rain Water Harvesting	Unit of measurement is linear length. 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.	Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (five per cent) of the total length.	
	(8) Retaining Wall			
	(9) RE Wall			
	(9) Street Lighting			
	(10) Utility Ducts			
	(11) ATMS			
	(12) Road side Plantation including Horticulture in Wayside Amenities			
	(13) Repair of protection works other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROBs/RUBs.			
	(14) Gabion Wall			



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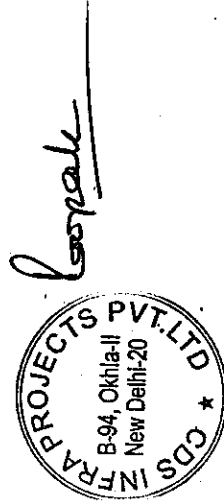
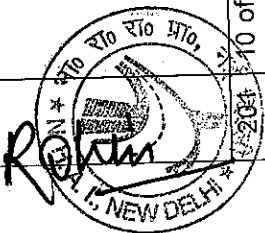
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
198	Schedule-C, 2.4.3	<p>Wayside Amenities - (g) Fueling Station: The Contractor shall establish the fuel station in the area earmarked for such fuel station and is required to fulfill the eligibility criteria as determined by the concerned Oil Marketing Companies (OMCs) for setting up of a fuel station with prior approval from Authority Engineer and NHAI.</p>	<p>Request to provide eligibility criteria as determined by the concerned Oil Marketing Companies (OMCs) for setting up of a fuel station</p>	<p>The contractor has to provide, construct and maintain the basic infrastructure for the wayside amenities as per the typical layout and requirements specified in Schedule C and Schedule D. Subsequent operation of the facilities including fuel stations shall be responsibility of the Authority.</p>
199	7.2.4 of schedule B, Page B-13	<p>In addition to above, additional 30 nos. box culverts of size 2m x 2m shall be provided as per site requirements for facilitating access of farmers to field channels on either side of the carriageway. The location of such culverts</p>	<p>Payment shall be made on prorate basis every 3 months. Payment shall be made on prorate basis every 3 months.</p> <p>Please clarify if more than 30nos. of culvert required will form change of scope or not.</p>	<p>These culverts are proposed for facilitating the irrigation and movement requirement of the farmers whose eland holding is likely to be divided into two parts. Therefore, as mentioned in the Schedule B, the location of these additional culverts of size 2x2 m shall be determined and decided in consultation with the Authority Engineer at the time of execution.</p>



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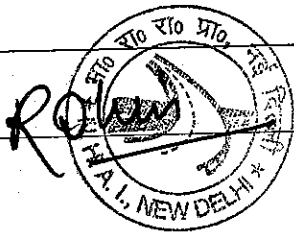
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
200	7.2.9 of schedule B, Page 14	shall be decided in consultation with Authority Engineer Utility ducts in form of NP-4 Hume Pipe dia. 1.2m shall be provided across the Project Highway and along with inspection chamber for crossing of underground utilities in Built-up areas as per IRC:SP:99-2013 requirements. Location for such utility crossing shall be finalized in consultation with Authority Engineer.	We understand that Utility ducts along with Inspection chambers need to be provided only in Built up areas. As there are no Built up areas as per Schedule A, we presume that No Utility duct and Inspection chambers are to be provided. Please clarify.	Box culverts proposed in Schedule B shall be used for crossing of underground utilities, wherever required. However, in location where the distance between two adjacent box culverts is more than 1 km, utility ducts in the form of Pipe Culverts with 1200mm dia for crossings of underground utilities shall be provided across the project Highway as per IRC: SP:99-2013.
201	10 of schedule B, Page B-17	Minimum 20,000 no. of trees are required to be planted by the contractor as compensatory afforestation in accordance with IRC:SP:99-2013 keeping in view IRC:SP:21-2009.	Please clarify the given quantity will be included in tree plantation along the project road on Available open land within ROW as per 2.8 of schedule C or in excess of it.	The total number of trees to be plated shall be sum of the number of trees mentioned under Clause 10, Annexure - I, Schedule B, and Clause 2.8, Annex - I, Schedule C.
202	15 of schedule B, Page B-18	The length of Structures and bridges specified hereinabove shall be treated as an approximate assessment. The proposed span arrangement of above structures may be changed based on innovative design of structure, latest	We presume that any change in span arrangement shall be deemed to be covered within the scope of work provide the overall structure length is equal in both cases. Further, we presume that, in case if there is any increase in the overall structure length, increase in approach length due to increase in depth of girder for increased span, the same shall be treated as COS.	Clause 15 is clear in this regard.



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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		construction techniques and aesthetics of structures and the actual lengths of Structures and bridges 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 specified in this Schedule-B 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.		
203	5.3.2 of schedule B, Page B-10	Perpetual Flexible	Please clarify Subgrade will be provided below Cement Treated Sub base or not.	Pavement layer as indicated in this clause are above the subgrade layer
204	Schedule-A, Annex-IV	Environment Clearances Under Process	We understand that Environmental Clearances shall be obtained by Bid submission date.	TOR for environmental clearance has been approved by MOEF and preparation of EIA/EMP report has been submitted to the concerned authorities for public hearing. Environmental clearance is expected by Dec., 2018.
205	Schedule-A, Annex-II	Dates for providing Right of Way	We understand ROW for entire project land with 100 M width shall be handed over by Appointed date without any delay.	90% of RoW including additional land for development of interchanges, wayside amenities and other project facilities will be.



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Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

SI. No.	Cl. No. / Section / Page No.	Description	Query	Response
		31.8 Km of 100 M width on Appointed date		provided on appointed date and remaining 10% will be handed over within the time period specified in the draft Contract Agreement.
206	Clause 10.3.1	Schedule Completion date	Since the project comprises lot of Structures and Other significant scope of works, 2 years' time for completion may not be not sufficient, request the Authority to increase the completion period at least by 12 months.	As per RFP
	General	EPC Agreement	Please clarify whether Contractor need to refer any amendments related to EPC agreement in addition to the Agreement provided as part of Bid documents.	Any amendment uploaded on the e-tender portal before Bid Due Date will form part of the Bid Documents.
	General	Type of Structure	Since the project is EPC, we presume that the contractor shall be allowed to submit their own design for all the proposed structure based on individual assessments by any suitable method within codal provisions and specifications such as open foundation as an alternative for pile foundation or vice versa kindly confirm	Please refer Article 10 of the Draft Contract Agreement uploaded alongwith the bid documents.
209	General	Geotechnical Investigation report	Please provide the complete sub soil investigation report for structures	All available data has been uploaded along with the bid document.
210	Schedule B, Clause 2.8		In Schedule B, Under Typical Cross Section of Project Highway the Total Length does not match with the Chainages. Please clarify.	The TCS schedule as given in Schedule B shall be treated as an approximate assessment. Actual length of the TCS schedule shall be prepared by the contractor based on detailed investigation and site requirements. Any variation in length of respective TCS specified in Schedule B shall not constitute a change



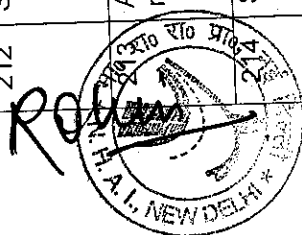
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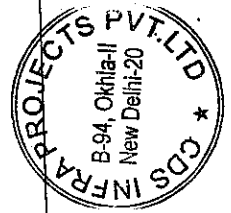
**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
211	Schedule B clause 2.8		Kindly provide TCS for the chainages after Km 78+780 As end chainage for the package is 78+800. TCS is available till 78+780 in schedule.	TCS 3 is to be followed
212	Schedule B, Clause 7.7		As per Schedule B, Clause 7.7 table there is 1 no. of Flyover but as per Schedule B, Clause 2.7 total no. flyover is nil. Please Clarify.	As per Cl. 2.7.1 of Schedule B
	Amendment in feasibility report		As per first Amendment in feasibility report, Page no.8, the total number of Minor and Major Bridge differ as regard to Technical Schedule. Please Clarify.	As per Cl. 2.7.1 of Schedule B
	Schedule B, Clause 10		As per Schedule B, clause 10 Compulsory Afforestation Minimum no. of trees are 20,000 whereas as per Schedule C clause 2.8 Landscaping and Tree Plantation point No. 3 Minimum No. of trees are mentioned as 70,000. Please Clarify.	The total number of trees to be plated shall be sum of the number of trees mentioned under Clause 10, Annexure - I, Schedule B, and Clause 2.8, Annex - I, Schedule C
215	Schedule-H		In column 2 (Weightage in percentage to the Contract Price) the percentage comes 119.88%, which seems to be wrong. Please clarify.	Amended Schedule H for the project highway is enclosed.
216	General		What is the status of pre-construction activities, such as land acquisition, utility relocations, etc.?	3D notification for the project highway has been published and determination of compensation award under section 3G is under progress. As regards utility shifting, the joint inspection with concerned



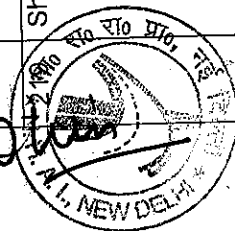
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Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
217	General		Does the project road passes through any forest land?	agencies is under progress and approval of utility shifting estimates will be ensured at the time of appointed date. The project stretch passes through protected forest and the proposal for necessary clearances has been submitted to the concerned authorities for necessary forest clearance.
218	General		Please provide us the Feasibility Report prepared for the project Road for reference purpose a.) We presume that there shall be utilities such as water pipelines, gas pipelines etc. running along or crossing over the Project road. Request Authority to kindly clarify the status of shifting of such utilities. b.) We understand that the Authority shall be responsible for shifting of such utilities and all cost shall be borne by the Authority.	Available data has been uploaded along with bid documents.
220	Detailed Report Feasibility		Request you to please upload the Feasibility / Detailed Project Report for reference.	a) The joint inspection for utility shifting is under progress with concerned agencies and approval of utility shifting estimates will be ensured at the time of appointed date. b) Please refer Article 9 of the draft Contract Agreement uploaded along with the bid document.
221	Forest Land & Clearance		Request the Authority to kindly provide details of Forest land to be diverted and status of Forest Clearance	Available data has been uploaded along with bid documents. The project stretch passes through protected forest and the proposal for necessary clearances has been submitted to the concerned authorities for necessary forest clearance.
222	Wildlife Clearance		Request the Authority to kindly provide Applicability and status of wildlife clearance	The project stretch does not pass through any wildlife area.
223	Details of Pending Litigations		Details of all pending litigation against the project?	No litigation at this stage of bidding.



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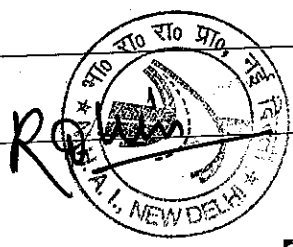


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**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
224	Status of Land Acquisition		(i) Total land required for project (in Ha.) (ii) Land already in possession (EROW) (in Ha.) (iii) Total additional land to be acquired a) Private land (in Ha.) b) Govt land (in Ha.) c) Forest (in Ha.) (iv) Notification under Section 3(A) Completed for (in Ha.) (v) Notification under Section 3(D) Completed for (in Ha.) (vi) Determination of Compensation amount under Section 3(G) (vii) Area of land for which Funds have been deposited with Competent Authority for Land Acquisition (CALA) by NHA1 (in Ha.) (viii) Areas of land for which compensation has been disbursed by CALA (in Ha.)	3D notification for the project highway has been published and determination of compensation award under section 3G is under progress.
225	Schedule C Highway Lighting At Toll Plazas, Truck Lay Bys, Grade Separated Structures, Underpasses, Build up sections, Major intersections & Bus Stops Locations Bidder understand that the electricity charges shall not be included in the		The Contractor Shall maintain and operate the Highway Lightening including its Maintenance during Maintenance Period.	The Contractor Shall provide and maintain the Highway Lightening during the Maintenance Period. The operational cost of the same including expenses for electricity, if any, shall be borne by the Authority.



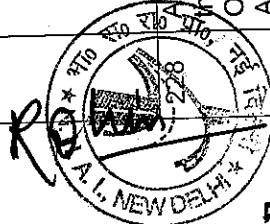
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**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
226	scope of the Contractor. Please confirm. General		Pending Litigation Delay in execution of the project highways due to pending litigation, if any, shall be treated as Political Force Majeure event and contractor may kindly be compensated accordingly.	As per RFP
227	General		Bore Well Permissions Bidder Request NHA1 to Facilitate for getting the borewell permission for the execution of work, as it is learnt that the minimum 3-4 month timeframe is required for getting such permission. What is the status of pre-construction activities like land acquisition, additional lands as required for Toll Plaza, Bus bays etc., utility relocations and necessary Environmental clearances, forest land diversion, tree cutting permission etc.? Since the limit of the project is less months and there are heavy penalties on non-achievement of the milestone, any pending pre-construction activity shall delay the project and cause under financial loss to the contractor.	Please refer Article 3 of the draft Contract Agreement uploaded along with the bid document.  Please refer relevant replies to the status of pre-construction activities given above
229	Annex-II (Schedule A) Dates for Providing Right of Way.		What about the ECA and FCA status for the additional ROW which is under the process of additional land acquisition by NHA1; as indicated under footnote.	The status of pre-construction activities for the project highway including additional RoW to be acquired for various project facilities has already been indicated above



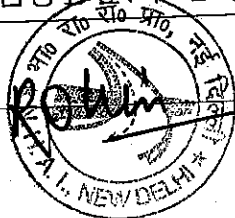
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Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14384\_1]

SI. No.	Cl. No. / Section / Page No.	Description	Query	Response
230	The Government of India (GOI) has introduced Goods and Service Tax (GST) in place of VAT, Central Sales Tax, Excise Duty etc. w.e.f. 01.07.2017. At present, the Road Infrastructure is proposed to be taxed @ 2% Goods and Services Tax (GST) as per revised notification dated 22nd August, 2017.		GST is applicable on the above mentioned components, the Estimated Project Cost of NHAI mentioned in RFP Documents may kindly be revised to that extent.	The bidder has to quote his cost for the project highway including GST.
231	Pavement thickness for Main Carriageway, Service Road, Truck Laybye, Bus-bay, etc.		Can Contractor adopt alternate pavement technique as per IRC specification/manual? Please clarify.	The type of pavement shall be as defined in Cl. 5 of Schedule B subject to minimum pavement thickness indicated therein. In this regard amendment to relevant clause of the Schedule B uploaded alongwith the reply to pre-bid queries may be referred to.
232	28.1 - Definitions <b>Appointed Date</b> means that date which is later of the 30th day of the date of this Agreement, the date on which the Contractor has delivered the Performance Security in accordance with the provisions of Article 7 and		1. In case of any delay in declaring Appointed Date beyond 120 days from the date of submission of Bid, the Bid price shall be revised for escalation in prices to be paid upfront for the period between scheduled Appointed Date and actual Appointed Date along with the other compensation, if any, arising due to such delay. Notwithstanding the above, selected bidder shall be at liberty to terminate the Contract Agreement at any	As per RFP.



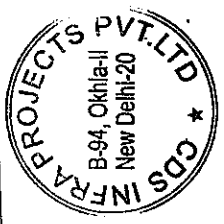
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**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
	the date on which the Authority has provided the Right of Way on no less than 90% (Ninety per cent) of the total length of "Project Highway"		time beyond this period if Appointed Date is not declared so. In such case the selected bidder shall be compensated at actuals in case of any losses suffered by it during this period. Please confirm. 2- Appointed Date shall not be declared on the onset of or during the monsoon season. Please confirm.	
233	DCA Cl. 19.10	Price adjustment for the Works	As the base year of WPI is changed from 2004-05 to 2011-12, the commodities are also changed. So, please change the commodities to be consider for WPI changes as per base year 2011-12.	The base year of WPI shall be read as 2011-12 with following change in the commodities:  The WPI for "Manufacture of machinery for mining, quarrying and construction" shall be considered in substitution of construction machinery.  The WPI for "ordinary port land cement" shall be considered in substitution of grey cement.  The WPI for "mild steel - long products" shall be considered in substitution of steel (rebars).  The type of pavement at toll plazas shall be rigid pavement as mentioned at Cl. 12.4.14 of IRC SP 99-2013.
234	Schedule B Cl. 5	Pavement design	Type of pavement at Toll plaza/Toll booths is not mentioned. Please provide the same.	Box culverts proposed in Schedule B shall be used for crossing of underground utilities, wherever required. However, in location where the distance between two
235	Schedule B Cl. 7.2.9	Utility ducts in form of NP-4 Hume Pipe dia 1.2m shall be provided across the Project Highway and along	As per schedule Built-up area is not in alignment, there is no need of providing utility crossings. Please confirm.	

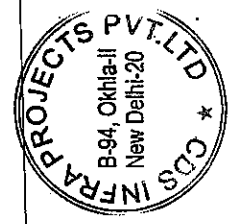
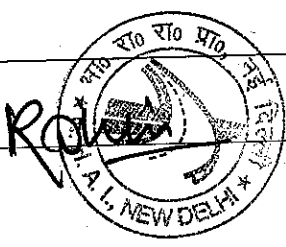


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**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

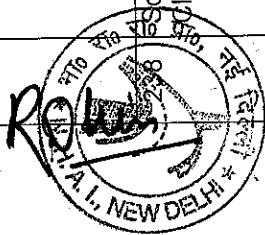
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
236	Schedule C Cl. 2.2.8	with inspection chamber for crossing of underground utilities in Built-up areas as per IRC:SP:99-2013 requirements. Location for such utility crossing shall be finalized in consultation with Authority Engineer. <b>Boundary wall</b> As the Highway is completely access controlled facility, boundary wall is its integral part to help enforcing of the acquired access rights. Access control extends to the limits of the legal access control on the ramps i.e., along the ramps to the beginning of the taper on the local road. RCC boundary wall shall be provided along the entire length on either side (including transverse requirements at structure locations) in accordance with Schedule D and Guidelines vide circular No.RW/NH-	Can we provide the Barbed wire fencing or Chain link fencing instead of RCC boundary wall. Please confirm.	adjacent box culverts is more than 1 km, utility ducts in the form of Pipe Culverts with 1200mm dia for crossings of underground utilities shall be provided across the project Highway as per IRC: SP:99-2013.  Typical modified drawing of the boundary wall to be adopted is enclosed with the reply to the pre-bid queries. However, the contractor, at his own expenses, can improve upon the same and provide wire fencing above the minimum specified height of the boundary wall.



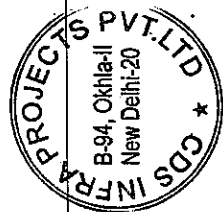
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Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018 NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
237	Schedule B, Schedule D Cl. 7.3.6, Cl. 2 Sl. No. 14	24036/27/2010-PPP dated 25.04.2018. <b>Schedule B Cl. 7.3.6-</b> Structures in marine environment: Nil <b>Schedule D Cl.2 Sl. No. 14-</b> Additional protection measures shall be taken as per IRC: SP: 80 with all amendments considering all structures in Marine/Aggressive Environment	Clases mentioned are contradictory. So, please confirm that we have to consider the Marine/Aggressive environment or not?	As per manual and design requirements
	Schedule C, Schedule D Cl. 2.2.7, Cl. 2 Sl. No. 8	<b>Schedule C Cl. 2.2.7- Crash Barriers</b> Thrie beam metal crash barriers shall be provided in entire length on both sides of each main carriageway (i.e. on earthen shoulder of both side carriageway), Loops and Ramps excluding by stretches covered by bridges and RE wall structures, where concrete barriers to be provided. Concrete crash barriers shall be provided on bridges/structures, RE Walls/ retaining walls as	As per schedule B it is mentioned to provide Thrie beam crash barrier on earthen shoulder only, but as per schedule D it is mentioned to provide Thrie beam crash barrier on earthen shoulder and median also. So, please confirm which clause we have to consider.	Thrie beam metal crash barriers shall be provided as mentioned in Cl. 8.1 of Annexure-I of Schedule B and Cl. 2.2.7 of Annexure-I of Schedule C.



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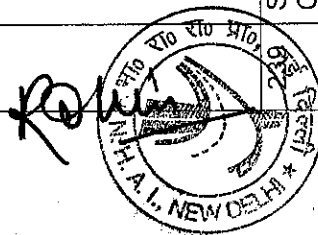




**Annex-B**

Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAL\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
		specified in Schedule B <b>Schedule D Cl.2 Sl. No. 8-</b> Thrie beam metal crash barriers shall be provided in entire length on both sides of each main carriageway (i.e. on median and on earthen shoulder of both carriageway). Loops and Ramps excluding stretches covered by bridges and RE wall structures, where concrete barriers to be provided		
	Schedule B CL 2.7	Details of Loop and Ramp	Please provide chainages and width of Loop and Ramp	Please refer plan & profile
240	Schedule B CL 2.8	Typical Cross Section of Project Highway	Please provide TCS for Loop and Ramp.	Typical layout of the interchange indicating the plan & profile of the loop and ramps along with TCS to be followed is enclosed.
241	Schedule B CL 5.1	Type of Pavement	Please provide Type of Pavement for Toll Booths Area.	The type of pavement at toll plazas shall be rigid pavement as mentioned at Cl. 12.4.14 of IRC SP 99-2013.
242	Schedule B CL 10.0	Minimum 12,000 no. of trees are required to be planted by the contractor as compensatory afforestation in accordance with IRC:SP:99-2013 keeping in view IRC:SP:21-2009	As per Schedule C, cl 2.8 Land Scaping and Tree Plantation, minimum 60,000 of trees to be planted. Please clarify the minimum no of trees to be planted.	The total number of trees to be plated shall be sum of the number of trees mentioned under Clause 10, Annexure - I, Schedule B, and Clause 2.8 , Annex - I, Schedule C,



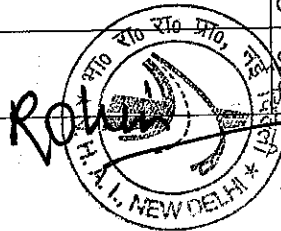
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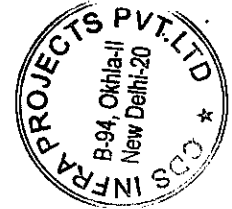
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Reply to pre-bid queries for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

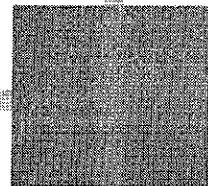
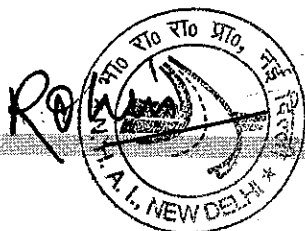
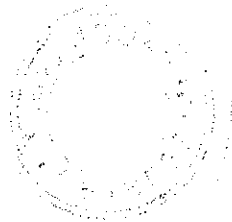
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Response
243	General		Please mention the Specification of Painting for Substructure and Superstructure if any?	As per manual.
244	Schedule C CL 2.10	Toll Booth	Please provide Type of Pavement for Toll Booths Area.	The type of pavement at toll plazas shall be rigid pavement as mentioned at Cl. 12.4.14 of IRC SP 99-2013.
245	Article 5 5.2	<b>5.2 Representations and warranties of the Authority</b> 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.	Kindly confirm whether Authority has procured the Right of way for 90% of total length of project Highway. We request you to provide us the details of stretches, for which the Land Acquisition process has been completed. Please provide the status of payment of compensation & physical availability of land on appointed date.	3D notification for the project highway has been published and determination of compensation award under section 3G is under progress.
246	General	Utility Shifting	Please provide the status of approval of concerned Authority for utility shifting.	The joint inspection for utility shifting is under progress with concerned agencies and approval of utility shifting estimates will be ensured at the time of appointed date.
247	General		we request you to kindly extend the Bid submission date by 3 weeks	Please refer the amendment

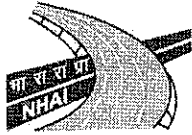


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# CORRIGENDUM-2





भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
**National Highways Authority of India**  
(Ministry of Road Transport and Highways)  
जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200  
फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/BM/Delhi/Vadodara/2018/Pkg 3

Dated: 28.11.2018

Corrigendum-I

To

All applicants

Sub: Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana - Reg.

In view of the recent amendments to RFP and DCA for the EPC projects issued by Ministry of Road Transport & Highways (MoRT&H) dated 20.11.2018 following amendments are made in the NIT, RFP, DCA and Schedules:

NIT

1. Maintenance period specified as '4 years' stands amended and shall be read as '10 years'.
2. Bid due date for the subject project has been extended from 05.12.2018 to 27.12.2018 (upto 1100 Hrs) with following schedule:

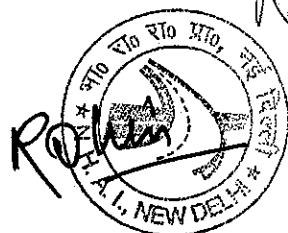
(a) Deadline for downloading of bid documents	-	<u>27.12.2018</u> (upto 1100 hrs)
(b) Deadline for online submission of bids	-	<u>27.12.2018</u> (upto 1100 hrs)
(c) Deadline for physical submission of bids	-	<u>28.12.2018</u> (upto 1100 hrs)
(d) Opening of bids	-	<u>28.12.2018</u> (upto 1130 hrs)

Request for Proposal (RFP)

Uploaded RFP including its amendments for the subject project has been modified in line with the latest amendments issued by MoRT&H and amended RFP is enclosed at Annex-A. All bid conditions shall be as per the amended RFP.

Draft Contract Agreement (DCA)

Uploaded DCA including its amendments for the subject project has been modified in line with the latest amendments issued by MoRT&H and amended DCA is enclosed at Annex-B.



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## Schedules

1. Schedules A, B, C, D and I uploaded along with bids documents including their amendments shall be applicable.
2. Amended Schedule H uploaded along with reply to pre-bid queries shall be applicable.
3. Schedules E, F, G, J to R has been modified in line with the latest amendments issued by MoRT&H and amended Schedules E, F, G, J to R are enclosed along with DCA at Annex-B.

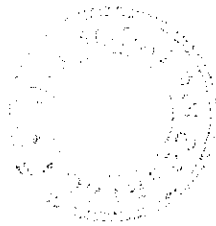
## Pre-bid queries

Replies to pre-bid queries at S.No. 33-114, 126-132, 206, 228, 232-233, 245, related to RFP, DCA and Schedules E, F, G, J to P uploaded vide corrigendum dated 05.11.2018 stands deleted in view of the above amendments to RFP, DCA and Schedules E, F, G, J to P. Remaining clarifications related to Schedule A to D, H & I and general queries raised by the bidders shall be applicable as clarified.

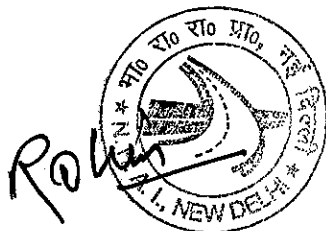
## Notice for 2<sup>nd</sup> pre-bid meeting

In view of the above amendments to RFP, DCA and Schedules E, F, G, J to R, 2<sup>nd</sup> pre-bid meeting is scheduled on 05.12.2018 at 1200 Hrs. to clarify the queries of the bidders in regards to above amended documents. The bidders shall submit the queries in writing to the Authority latest by 05.12.2018 (1100 hrs).

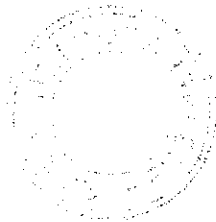
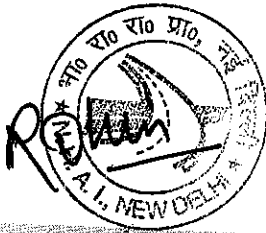
*Rohin*  
28/11/18  
(Rohin Kumar Gupta)  
General Manager (T)  
Bharatmala

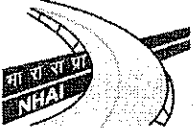


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# CORRIGENDUM





# भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय)

## National Highways Authority of India

(Ministry of Road Transport and Highways)

जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075

G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200

फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/BM/Delhi/Vadodara/2018/Pkg 3

Dated: 13.12.2018

### Corrigendum

To

All applicants

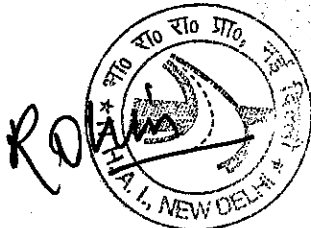
Sub: Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana - Reg.

The reply of queries of the 2<sup>nd</sup> Prebid meeting held on 05.12.2018 for the subject project has been enclosed at Annex-A.

2. All other terms and conditions will remain same.

*Rohin*  
13/12/18

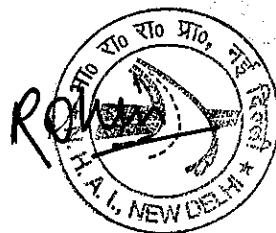
(Rohin Kumar Gupta)  
General Manager (T)  
Bharatmala



*Corrigendum*





**Annex-A**  
**to Corrigendum dated 13.12.2018**



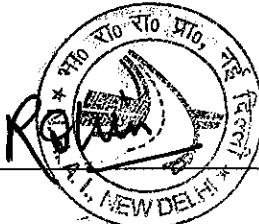


Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

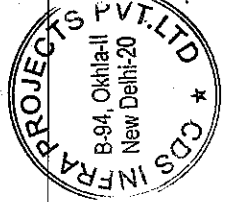
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
1	MORTH Circular over change of RFP and DCA documents	On 20th Nov 2018, Ministry of Road Transport and Highways, EAP Section, has published a circular with new updated draft contract agreement for EPC projects (Circular no. RW/NH-37010/4/2010-EAP(Printing) Vol. IV, dated 20th Nov 2018"). It is also mentioned in the circular that "This EPC document shall be used for all the National Highways and centrally sponsored road works proposed to be implemented on EPC Mode of Contract for which the bids will be invited in future and for which bids are yet to be received".	Please clarify that, is this circular and new draft contract agreement will be applicable for this tender? If Yes, to implement changes as per this new document, we need at least 4 weeks extension for preparation of our bids. Please clarify these.	Amended RFP and DCA are as per the Ministry's instructions and sufficient time of more than 4 weeks has been given to the bidders since upload of amended documents.
2	Impact in tendering due to changes in IRC 112	As per the latest amendment no. 5 of IRC 112, the relative humidity has been clearly defined for the various locations in India. This has been the one of the criteria for defining the exposure conditions as per Table 14.1 of IRC 112. Now, this leads to large changes in severity conditions of various cities at proposed project region, and accordingly grade of concrete reinforcement covers etc. needs re-designing.	To accommodate these changes as per new IRC, we need extension of 4 weeks. Please provide.	Bid due date has been extended to give sufficient time to the bidders.
3	-	 	Extension of bid due date by 20 days.	Bid due date has been extended to give sufficient time to the bidders.

Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAL\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
4	1.2.(i)(e) Interpretation	"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;"	Bidder understands that this particular clause is not applicable to Schedule B, C, D and any variation in this regard will be dealt in accordance with Article 13 [Change of Scope]. Please confirm.	Applicable to the Schedules also.
5	1.2.(i)(s) Interpretation	"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 shall not operate so as to increase liabilities or obligations of the Authority hereunder or pursuant hereto in any manner whatsoever;"	The Bidder requested to modify the Clause 1.2.1(s) as follows;  "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 shall not operate so as to increase liabilities or obligations of the Authority and the Contractor hereunder or pursuant hereto in any manner whatsoever."	As per RFP
6	2.1 - Scope of the Project	"(a) 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;"	Bidder requests to modify the Clause 2.1(a) as follows: "(a) design and 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	Design of the project is included in the scope of the work as defined in the obligation of the Contractor under article 4

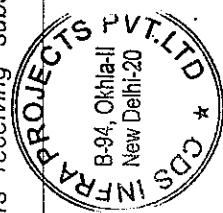
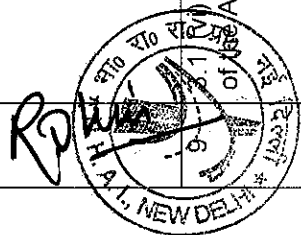


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Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018 NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
7	3.1.(iii) (c) Obligations of the Authority	"(c) all environmental clearances as required under Clause 3.3."	conformity with the Specifications and Standards set forth in Schedule-D; Please provide the status of environmental clearance.	EIA report has been submitted and public hearing is scheduled on 17 <sup>th</sup> December, 2018. EC for the project highway is expected by 31.01.2019. As per RFP
8	3.1 (v) - Obligations of the Authority	..... Both the parties agree that payment of such Damages shall be full and final settlement of all claims of the Contractor and such compensation shall be the sole remedy against delays of the Authority and both parties further agree that the payment of Damages shall be the final cure for the Contractor against delays of the Authority, without recourse to any other payments.	The bidder submits that Damages to the tune of 1% of the Contract Price is very minimal in comparison to the actual losses suffered by the Contractor under Clauses 4.1 (iv), 8.3 and 9.2. Accordingly, the Employer is requested to modify the clause so as to get the damages on above account to the Contractor as per actuals. Bidder understands that the Authority shall allow Time Extension and adjustment to the Contract Price for additional costs incurred by the Contractor for delay in procurement of Applicable Permits and also for delay in obtaining access to all necessary infrastructure facilities and utilities, including water and electricity beyond 18 days of Contractor's request in this regard and if such delays are not attributable to the Contractor. Please confirm.	As per RFP
		..... (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 at rates and on terms no less favorable than those generally available to commercial customers receiving substantially equivalent services;		



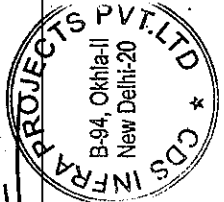
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Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
10	3.1 (vi) - Obligations of the Authority	<p>(c) procure that no barriers that would have a material adverse effect on the works are erected or placed on or about the Project Highway by any Government Instrumentality or persons claiming through or under it, except for reasons of Emergency, national security, law and order or collection of inter-state taxes;</p> <p>.....</p> <p>"The Authority agrees to provide support to the Contractor and undertakes to observe, comply with and perform, subject to and in accordance with the provisions of this Agreement and the Applicable Laws, the following:-(</p> <p>(a) .....</p> <p>(b) .....</p> <p>(c) .....</p> <p>(d) .....</p> <p>(e) .....</p> <p>(f) .....</p>	<p>The Bidder requests to add the following provision under Clause 3.1 (vi):</p> <p>"(g) bear the responsibility and costs relating to all Rehabilitation and Resettlement required for the construction of Project"</p> <p>Bidder also requests to add the following at the end of Clause 3.1 (vi):</p> <p>"Further, the Authority shall indemnify, defend, save and hold harmless the Contractor against any and all suits, proceedings, actions, demands and third party claims for any loss, damage, cost and expense of whatever kind and nature arising out of any matters pertaining to any obligation other than the Contractor's Obligations as per the Contract Agreement, and specifically indemnify the Contractor against any obligations pertaining to Environmental</p>	As per RFP

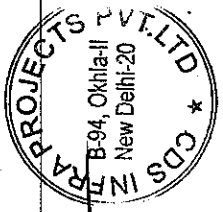


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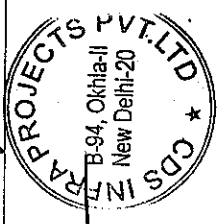
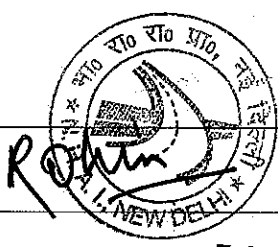
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Sl. No.	Cl. No. / Section / Page No.	Description	Query including tree cutting."	Authority's reply to the pre-bid query
11	3.4- Termination upon delay	Without prejudice to the provisions of Clauses 8.3, and subject to the provisions of Clause 7.3, the Parties expressly agree that in the event the <b>Appointed Date does not occur, for any reason whatsoever, within 90 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. 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.</b>	Bidder requests the following modification: 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 any reason whatsoever, within 90 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) <b>along with forthwith release of Performance security.</b>	As per RFP
12	4.1 (vi) - Obligation of the Contractor	"The Contractor shall remedy any and all loss or damage to the Project Highway during the Maintenance Period at the Contractor's cost, including those stated in Clause 14.1 (ii), save and except to the extent that any such loss or damage shall have arisen on account of any willful default or neglect of the Authority or on account of a Force Majeure Event."	Bidder requests to modify the Clause as follows: "The Contractor shall remedy any and all loss or damage to the Project Highway during the Operation and Maintenance Period at the Contractor's cost, including those stated in Clause 14.1 (ii), if such loss or damage shall have arisen <b>solely on account of any</b>	As per RFP



Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
13	4.1 (vii) - Obligation of the Contractor	"(f) support, cooperate with and facilitate the Authority in the implementation and operation of the Project in accordance with the provisions of this Agreement;"	<b>default or neglect of the Contractor".</b> Bidder requests to modify the clause as follows: <b>"(f) upon written request from the Authority, support, cooperate with and facilitate the Authority in the implementation and operation of the Project in accordance with the provisions of this Agreement;"</b>	As per RFP
14	4.1 (ix) - Obligation of the Contractor	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. 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's 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.	Bidder requests to delete this provision.	As per RFP
15	4.2 (i) - Obligations relating to sub-contracts and any other agreements	"The Contractor, whether Joint Venture or sole, shall not sub-contract any Works in more than 49% (forty nine 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 51% (fifty one per cent) of the Contract Price. Further, in case the Contractor is a Joint Venture, then the Lead Member shall carry out Works directly	Bidder requests to modify the clause as follows:  The Contractor, whether Consortium/Joint Venture or sole, shall not subcontract any Works in more than <b>80% (eighty per cent)</b> of the total length of the Project Highway and shall carry out Works	As per RFP

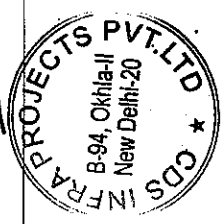


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
16	4.6 - Contractor's care of the Works	<p><i>through its own resources (men, material and machines etc.) in at least 51% (fifty one per cent) of total length of the Project Highway"</i></p>	<p>directly under its own supervision and through its own personnel and equipment in at least 20% (twenty per cent) of the total length of the Project Highway. 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. 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.</p>	As per RFP
		<p>"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."</p>	<p>Bidder understands that Contractor shall not be responsible for any loss or damage arisen from any default or neglect of the Authority or any other third party or on account of Force Majeure Event. Accordingly requests to modify the Clause 3.6 as follows:</p> <p>"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</p>	



*Signature*



Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHA1\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
17	4.8 - Unforeseeable difficulties	<p>"Except as otherwise stated in the Agreement:</p> <p>(a) the Contractor accepts complete responsibility for having foreseen all difficulties and costs of successfully completing the Works;</p> <p>(b) the Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs; and</p> <p>(c) the Scheduled Completion Date shall not be adjusted to take account of any unforeseen difficulties or costs."</p> <p>(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:</p>	<p>except to the extent that any such loss or damage shall have arisen from any wilful default or gross neglect of the Authority, Authority's Representative, any other third party or on account of Force Majeure Event".</p> <p>The Bidder requests the Authority to delete such unilateral provision as it is impossible for any bidder to ascertain unforeseen difficulties at the time of bidding. It is requested to make suitable provisions to cater such unforeseen difficulties duly considering the time and cost implications. Please confirm.</p> <p>Bidder request to delete such provision which is hypothetical in nature.</p>	<p>As per RFP</p> <p>As per RFP</p>

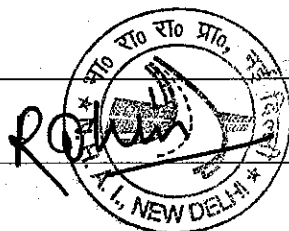


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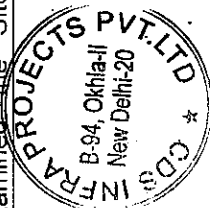


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
19	4.10 Environmental Measures	<p>(a) undertake all steps as may be possible to mitigate or neutralize the liability that has arisen, and (b) indemnify the Authority against any such liability and compensate the Authority to that extent.</p> <p>(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:</p> <p>(a) any other contractors employed by the Authority;</p> <p>(b) the workmen of the Authority;</p> <p>(c) the workmen of any Governmental Instrumentality who may be employed in the execution of work on or near the Site; and</p> <p>(d) such other persons as is required in the opinion of the Authority for successful completion of the Project.</p> <p>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.</p>	Bidder should be made available prior to submission of bids the environmental requirements/ conditions under the applicable law.	All available details have been uploaded alongwith the bid documents.
20	4.11 (i)- Site Data	The Contractor shall be deemed to have inspected and examined the Site and its	The Bidder requests the Authority to delete such unilateral provision	As per RFP

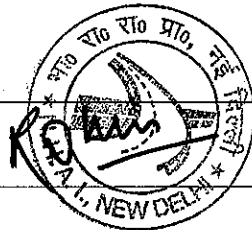


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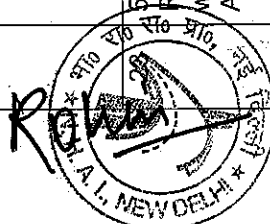
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
		<p>surroundings and to have satisfied himself before entering into the Agreement in all material respects including but not limited to:</p> <p>(a) the form and nature of the Site (including, inter-alia, the surface and subsurface conditions and geo-technical factors);</p> <p>(b) the hydrological and climatic conditions;</p> <p>(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.</p> <p>(d) the suitability and the adequacy of the Site for the execution of the Works;</p> <p>(e) the means of access to the Site and the accommodation the Contractor may require;</p> <p>(f) arranging permits as required as per of the Agreement.</p> <p>(g) the requirements of operation and maintenance; and</p> <p>(h) all other factors and circumstances affecting the Contractor's rights and obligations under the Agreement, the Contract Price and Time for Completion.</p>	<p>as it is impossible for any bidder to ascertain unforeseen difficulties at the time of bidding. It is requested to make suitable provisions to cater such unforeseen difficulties duly considering the time and cost implications. Please confirm.</p>	
21	4.12- Sufficiency of Contract Price	<p>The Contractor shall have satisfied itself as to the correctness and sufficiency of the 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</p>	<p>The Bidder requests the Authority to delete such unilateral provision as it is impossible for any bidder to ascertain unforeseen difficulties at the time of bidding. It is requested to make suitable provisions to cater such unforeseen difficulties duly considering the time and cost implications. Please confirm.</p>	As per RFP

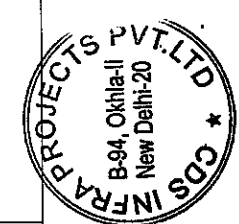


Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
22	(iii)- 5.1 Representations and warranties of the Authority	to the Authority and in accordance with this Agreement. 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.	The Bidder requests the Authority to delete such unilateral provision as it is impossible for any bidder to ascertain unforeseen difficulties at the time of bidding. It is requested to make suitable provisions to cater such unforeseen difficulties duly considering the time and cost implications. Please confirm.	As per RFP
	(iv)- 5.1 Representations and warranties of the Authority	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 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.	Bidder requests to delete the following from the said Clause: ".....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."	As per RFP



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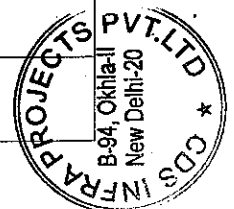
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
24	5.2 - Representations and warranties of the Authority	"The Authority represents and warrants to the Contractor that: (a)..... (b)..... (c)..... (d)..... (e)..... (f)..... (g)..... and (h)....."	The Bidder requests to add the following provisions under the Sub Clause 5.2:  "(i) there are no actions, suits or proceedings 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 default or breach of this Agreement or which individually or in the aggregate may result in any material impairment of its ability to perform its obligations under this Agreement;  (j) all information provided by it in the Tender Notice and invitation to bid in connection with the Project is, to the best of its knowledge and belief, true and accurate in all material respects."	As per RFP
25	6.1 (i) - Disclaimer	"..... the Authority makes no representation 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."	The Bidder and the Authority understands that it is impossible for any bidder to ascertain all the information provided by the Authority in the documents including RFP, Schedules, Annexures, Drawings, site condition reports at the time of bidding, therefore the bidder assumes all the above	As per RFP

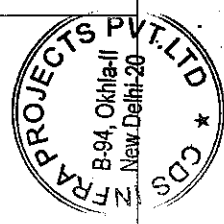


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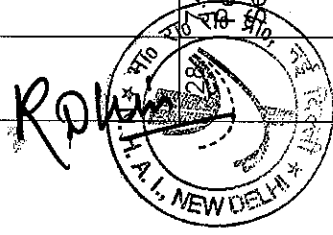
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
26	7.1 (iii) - Performance Security	<i>In the event the Selected Bidder fails to provide the remaining Performance Security and Additional Performance Security, if any, as prescribed herein, it may seek extension of time for a further period up to 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 Bid 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."</i>	information's are true and hence forms the basis of the bid submitted by the bidder.  The Bid Security provided along the Bid shall remain in force and effect till the submission of Performance Security. Hence, the bidder requests the Authority to abolish delay damages provision for delay in providing the same. Please confirm.	As per RFP
27	7.3 (i) - 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 as Damages for such Contractor's Default."</i>	Bidder requests the Authority to modify the Clause 7.3 (i) as follows:  "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 as Damages for such Contractor's Default. The Authority shall notify the Contractor of its decision to encash the Performance Security in pursuance with the	As per RFP



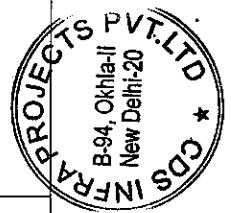
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
	7.4 (i) - Release of Performance Security	"The Authority shall return the Performance Security to the Contractor within 60 (sixty) days of the later of the expiry of the Maintenance Period or the Defects Liability Period under this Agreement. 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."	provisions of this Clause 7.3 (i) provided that no encashment of Performance Security on account of any reason shall be effected by the Authority without notifying the Contractor of its decision to encash Performance Security, and taking into consideration the representation, if any, made by the Contractor within 20 (twenty) days of such notice."	As per RFP
29	7.4 (ii) - Release of Performance Security	"The Authority shall return the Additional Performance Security to the Contractor within 28 (twenty eight) days from the date of issue of Completion Certificate under Article 12 of this Agreement."	Bidder requests the Authority to modify the Clause 7.4.2 as follows:  "The Authority shall return one half of the Performance Security to the Contractor upon issuance of the Provisional Certificate and balance shall be released within 7 (seven) days of the expiry of the Defects Liability Period under this Agreement. 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."	As per RFP

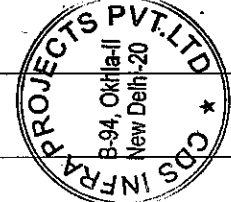


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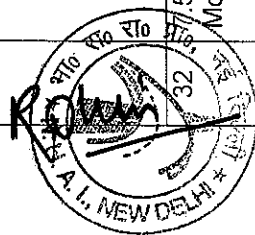
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
30	7.5 (ii) - Retention Money	"Upon occurrence of a Contractor's Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to appropriate the relevant amounts from the Retention Money as Damages for such Contractor's Default."	Security to the Contractor upon issuance of the Provisional Certificate and balance shall be released within 7 (seven) days after issuance of Completion Certificate under Article 12 of this Agreement. Bidder requests the Authority to modify the Clause 7.5 (ii) as follows:  "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. The Authority shall notify the Contractor of its decision to appropriate the relevant amount in pursuance with the provisions of this Clause 7.5 (ii) provided that no deduction of amount on account of Contractor's Default shall be effected by the Authority without notifying the Contractor of its decision for such deductions, and taking into consideration the representation, if any, made by the Contractor within 20 (twenty) days of such notice."	As per RFP
31	7.5 (iii) - Retention Money	Within 15 (fifteen) days of the date of issue of the Completion Certificate, the Authority shall refund	The Bidder request to modify the clause as below	As per RFP



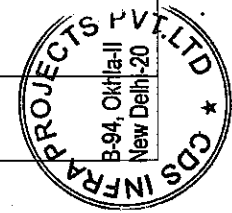
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
		the balance of Retention Money remaining with the Authority after adjusting the amounts appropriated under the provisions of Clause 7.5 (ii).	"The Contractor may, upon furnishing an irrevocable and unconditional bank guarantee, require the Authority to refund the Retention Money deducted by the Authority under the provisions of Clause 7.5 (i). The Bidder requests the Authority to refund the Retention Money to the Contractor in tranches of Rs. 1 Cr to maintain smooth cash flow. Please confirm.	As per RFP
	7.5 (iv) - Retention Money	"The Parties agree that in the event of Termination of this Agreement, the Retention Money and the bank guarantees 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."	The Bidder requests to modify the Clause 7.5.5 as follows: "The Parties agree that in the event of Termination of this Agreement on account of the Contractor's Default, the Retention Money and the bank guarantees 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."	As per RFP
33	8.2 (i) - Procurement of the Site	"The Authority Representative, the Contractor and Authority's Engineer shall, within 10 (ten) days of the date of this Agreement, inspect the Site and prepare a detailed memorandum containing an inventory of the Site including the vacant and unencumbered land, buildings, structures, road works, trees and any other immovable property on or attached to the Site (hereinafter referred to as the "Handover Memorandum"). Subject to the provisions of	The bidder requests to modify first para of the Clause 8.2 (i) as follows: "The Authority Representative, the Contractor and Authority's Engineer shall, within 10 (ten) days of the date of this Agreement, inspect the Site and prepare a detailed memorandum containing an inventory of the Site including the vacant and unencumbered	As per RFP



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*Boopal*



Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAL\_14381\_1]

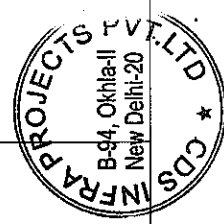
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
		<p>Clause 8.2 (iii), the Handover Memorandum shall have appended thereto an appendix (the "Appendix") specifying in reasonable detail those parts of the Site to which vacant access and Right of Way has not been given to the Contractor along with details of hindrances in the Construction Zone. ....</p>	<p>land, buildings, structures, road works, trees and any other immovable property on or attached to the Site (hereinafter referred to as the "Handover Memorandum"). Subject to the provisions of Clause 8.2 (iii), the Handover Memorandum shall have appended thereto an appendix (the "Appendix") specifying in reasonable detail those parts of the Site to which vacant access and Right of Way has not been given to the Contractor along with details of hindrances in the Construction Zone. For the avoidance of doubt, the permits / clearances / NOCs / cost estimates required for dismantling / shifting of buildings, structures, road works, trees and any other immovable property on or attached to the Site, if such obstruction adversely affects the execution of Works or Maintenance of the Project, shall be provided by the Authority along with the memorandum." Bidder further understands that any delay in providing such permits/ clearances/ NOCs shall be considered for determining</p>	



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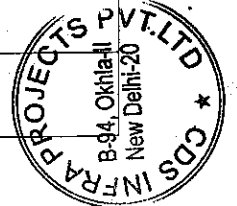
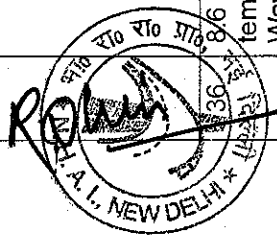
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
34	8.3 (i) - Damages for delay in handing over the Site	<p>"In the event the Right of Way to any part of the Site is not provided by the Authority on or before 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 in 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:</p> <p>Amount of Damages in Rs. per day per meter = <math>0.05 \times C \times 1/L \times 1/N</math></p> <p>Where  C = the Contract Price; L = length of the Project Highway in meters; and N = Completion period in days (Appointed Date to Scheduled Completion Date)</p>	<p>extension of time and related costs at actuals. Please confirm.</p> <p>Bidder requests:</p> <p><b>Either Compensation should be as per actuals.</b></p> <p>or</p> <p>As per amended formula as below:</p> <p><b>Amount of Damages in Rs. per day per meter = <math>2.5 \times C \times 1/L \times 1/N</math></b></p> <p>The Contractor understands that the compensation under this formula shall be applicable for the stretches where full / part width ROW is not available. Please confirm.</p>	As per RFP
35	8.4 - Site to be free from Encumbrances	<p>"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 on account of any costs, compensation, expenses and charges for the 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</p>	<p>Bidder requests to modify the clause as follows:</p> <p>"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 on account of any costs,</p>	As per RFP



Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAJ\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
		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."	compensation, expenses and charges for the 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 as long as it does not adversely affect Construction and Maintenance of the Project Highway."	
	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."	Bidder understands that the Clause 8.6 shall be dealt under Clause 13 [Change of Scope], if the ROW is provided on piece-meal basis than that envisaged under the relevant terms of the Agreement. Please confirm.	No
37	8.8 - Geological and archaeological finds	".....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	The bidder understands that in case of geological or archaeological findings at Site affecting the construction activities, the selected bidder shall be entitled to Time Extension and also adjustment to the Contract Price at actuals. Please confirm.	As per RFP

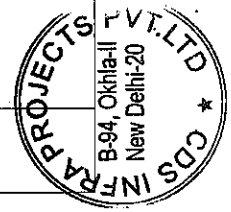


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
38	9.2 - Shifting of obstructing utilities	concerned Government Instrumentality within a reasonable period." "The Contractor shall, in accordance with Applicable Laws and with assistance of the Authority, undertake the work of shifting of any utility (including electric lines, water pipes, gas pipelines 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. The cost of such shifting, as per estimates prepared by the entity owning the utility and approved by the Authority, shall be reimbursed by the Authority to the Contractor. The scope of work of such shifting of Utilities shall be as indicated in Schedule-B. In the event of any delay of such shifting on the part of the contractor, no extension of time for completion of the project and no claims, in any manner, shall be admissible on this account against the Authority. The work of shifting of Utilities can be taken up by the Contractor any time after signing of the Agreement."	Please provide copy of Schedule – B indicating the scope of work of such shifting of Utilities.	List as submitted by the DPR Consultant of the utilities to be shifted is enclosed with the replies to the pre-bid queries for reference of the bidders. Joint verification of the same is under progress with the concerned utility owning department and complete list of the utilities to be shifted shall be provided to the Contractor at the time of signing of the Contract Agreement. The cost of shifting of such utilities as per estimates prepared by the entity owning the utility and approved by the Authority, shall be reimbursed by the Authority to the Contractor as per the provision of the Contract Agreement.
39	9.3 (iv) - New utilities	"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's Engineer."	The Bidder requests to modify this Clause 9.3.4 as under.  "In the event the 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 and also adjustment to Contract Price as	As per RFP

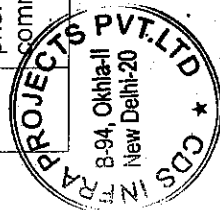


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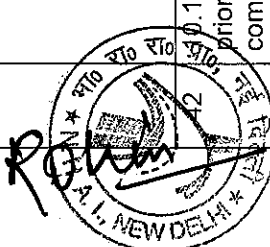
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
40	9.4 - Felling of trees	"The Authority shall assist the Contractor in obtaining the Applicable Permits for felling of trees in non-forest area to be identified by the Authority for this purpose 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 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."	<p>per actual incurred by the Contractor."</p> <p>1. Bidder requests the Authority to obtain the permits for felling of trees falling within the ROW and causing hindrance to the construction and maintenance of the Project prior to signing of Agreement. Please Confirm.</p> <p>2. Bidder understands that any delay in procurement of approval for felling of trees shall be considered for the compensation in terms of time and cost at actuals. Please confirm.</p> <p>Bidder request to provide the following details:</p> <p>a) No. of trees present in RoW.</p> <p>b) Status of permission for felling of revenue trees/forest trees.</p> <p>c) Status of estimate for felling of trees and its approval from the competent authority.</p> <p>d) Mode of reimbursement of the amount that will be incurred by the Contractor for felling trees.</p>	<p>1. As per RFP</p> <p>2. As per RFP</p> <p>a) As per report of DPR Consultant about 2554 trees have been identified for felling, however actual number of trees to be felled will be as per the forest clearance.</p> <p>b) &amp; c) Please refer above</p> <p>d) Clause is clear in this regard</p>
41	10.1 (i) - Obligations prior to commencement of	"Within 20 (twenty) days of the Appointed Date, the Contractor shall: (a) ..... (b) ....."	Though the Environment Clearance is provided by the Ministry of Environment for the highway projects, the actual mining	Procurement of material for construction of the project highway is included in the obligations of the Contractor



Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAJ\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
	Works & Schedule F (Applicable Permits)	(c) ..... (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."	at the project site can't commence unless the clearance from the respective State Governments is procured. This is quite a time-consuming exercise and vital time is lost in the same.  Therefore, the Bidder requests the Authority (i.e. NHAJ) to directly procure mining rights in advance at the bidding stage itself, which can be leased out to the Contractor for execution and completion of the Works.	
	10.1 (ii) - Obligations prior to commencement of Works	"The Authority shall, appoint an engineer (the "Authority's 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's Engineer forthwith.	Bidder requests to modify the clause as under: The Authority shall, appoint an engineer (the "Authority's Engineer") before the signing of Agreement 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's Engineer forthwith.	As per RFP
43	10.2.(i) - Design and Drawings	"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	Bidder understands that such works pursuant to alternative design shall be valued as per entitled for additional time & cost.	No

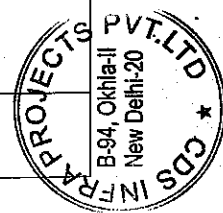


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Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAL\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
44	10.2 (iv) (c) - Design and Drawings	standards due to restricted Right of Way in any section, the alternative design criteria for such section shall be provided for review of the Authority's Engineer." "within 15 (fifteen) days of the receipt of the Drawings, the Authority's 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;	Clause 13 [Change of Scope]. Please confirm.  Bidder requests to modify the Clause 10.2.4(c) as follows:  within 15 (fifteen) days of the receipt of the Drawings, the Authority's 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.  The Contractor shall not be obliged to await the observations of the Authority's Engineer on the Drawings submitted pursuant hereto beyond the said period of 15 (fifteen) days and if no such observation is conveyed within the said period the drawings are deemed acceptable to the Authority's Engineer and Contractor shall begin or continue Works.	As per RFP

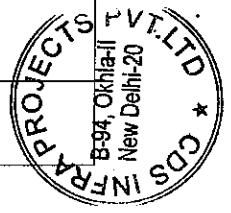


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
45	10.2 (iv) (h)- Design and Drawings	"the Contractor shall ensure that all the designs and drawings shall be approved from the Authority's Engineer within 90 days (ninety) from the Appointed Date."	Bidder requests the Authority to add the following at the end of the clause.  In the event of any delay in approval of designs and drawings by the Authority's Engineer within 90 days (ninety) from the Appointed Date will entitle the Bidder additional time & cost.	As per RFP
46	10.2 (v) - Design and Drawings  10.3 (i) - Construction of the Project Highway	"Any cost or delay in construction arising from review/ approval by the Authority's Engineer shall be borne by the Contractor."  "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 730th (Seven Hundred and Thirtieth) 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."	The Bidder requests the Authority to delete such unilateral provision.  Time period of 730 days for construction of Project Highway is less. Bidder request to provide at least 910 days for completion of the Project and amend the Clause as under:  "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 910th (Nine Hundred and Tenth) day from the Appointed Date shall be the scheduled completion date (the	As per RFP  As per RFP



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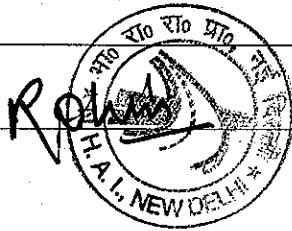


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
48	10.3 (ii) Construction of the Project Works	<p>"The Contractor shall construct the Project Highway in accordance with the Project Completion Schedule set 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 0.05% (zero point zero five percent) of the Contract Price for delay in each day reckoned from the date specified in Schedule -J and until such Project Milestone is achieved or the Works are 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</p> <p>....."</p>	<p>"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."</p> <p>1. Bidder requests the Authority to modify the clause restricting applicability of Damages only in case of non-achievement of the Scheduled Completion Date by the Contractor for reasons solely attributable to the Contractor. Please confirm.</p> <p>2. Further, the Bidder request the Authority to modify the clause as follows:</p> <p>"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 the Scheduled Completion Date within a period of 90 (ninety) days from the date set forth in Schedule-J, for the reasons solely attributable to the Contractor, it shall pay Damages to the Authority of a sum calculated at the rate of 0.02% (zero point zero two percent) of the Contract Price for delay of each day reckoned from the Scheduled Completion Date till actual</p>	As per RFP



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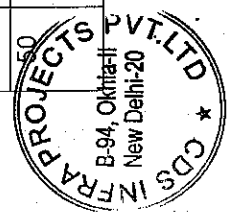


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
49	(iv)- 10.3 Construction of the Project Works	<i>In the event that the Contractor fails to achieve the Project Completion within a period of 90 (ninety) 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 contractor shall be deemed to be ineligible for bidding any future projects of the Authority, both as the sole party or as one of the parties of Joint Venture/ Consortium during the period from Scheduled Completion Date to issuance of Completion Certificate. This restriction is applicable if the contract value of the delayed project is not less than Rs. 300 Crore.</i>	completion of the Works is achieved or the Works are 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 date set forth in Schedule-J shall be deemed to be modified accordingly .....	As per RFP
50	10.5(i) - Extension of time for completion	"Without prejudice to any other provision of this Agreement for and in respect of extension of time, the Contractor shall be entitled to extension	Bidder requests to add the following delay event to be considered for extension of time:	As per RFP

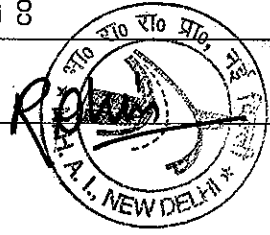


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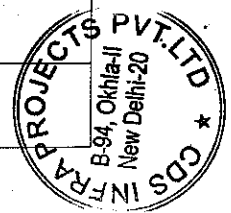


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
51	10.5 (v) (b) - Extension of time for completion	<p>of time in the Project Completion Schedule (the "Time Extension") to the extent that completion of any Project Milestone is or will be delayed by any of the following, namely:</p> <p>(a).....</p> <p>(b).....</p> <p>(c).....</p> <p>(d).....;and</p> <p>(e)....."</p> <p>"(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's Engineer may reasonably require; and"</p>	<p>"(f) any delay, impediment or prevention caused by other authorities/ public or private entities, it's personnel or any other third parties for the reasons not at all attributable to the Contractor."</p> <p>The Bidder request the Authority to modify the sub Clause 10.5.5(b) as follows. It shall help the prospective Contractor to submit a realistic Extension of Time application as well as to ascertain the delay with more details.</p> <p>"(b) the Contractor shall, no later than 10 (ten) days after the close of each quarter, send further interim claims specifying the accumulated delay, the extension of time claimed, and such further particulars as the Authority's Engineer may reasonably require; and"</p>	As per RFP
52	11.13 (i) - Remedial work	<p>"Notwithstanding any previous test or certification, the Authority's Engineer may instruct the Contractor to:</p> <p>(a) remove from the Site and replace any Plant or Materials which are not in accordance with the provisions of this Agreement;</p> <p>(b) remove and re-execute any work which is not in accordance with the provisions of this</p>	<p>The Bidder requests to modify the Clause 11.13.1 as follows:</p> <p>"Notwithstanding any previous test or certification, the Authority's Engineer may instruct the Contractor in writing specifying the reasons to:</p> <p>(a) remove from the Site and replace any Plant or Materials</p>	As per RFP



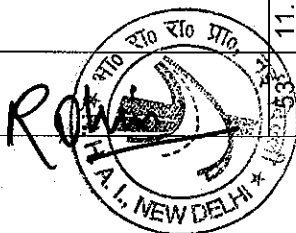
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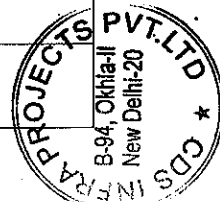
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
		Agreement and the Specification and Standards; and (c) execute any work which is urgently required for the safety of the Project Highway, whether because 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."	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, 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."	
	11.17 (iv) - Suspension of unsafe Construction Works	"If suspension of Works is for reasons not attributable to the Contractor, the Authority's Engineer shall determine any Time Extension to which the Contractor is reasonably entitled."	The Bidder requests to modify the Clause 11.17.4 as follows:  "If suspension of Works is for reasons not attributable to the Contractor, the Authority's Engineer shall determine as per good industry practice any Time Extension and also adjustment to the Contract Price to which the Contractor is reasonably entitled."	As per RFP
53 (b)	12.1 (ii) - Tests on completion	".....For the avoidance of doubt, it is expressly agreed that the Authority's 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."	The bidder understands that the Contract Price will be adjusted on account of additional costs incurred due to such additional tests. Further, the bidder understands that the Contractor shall be entitled to Time Extension and also	Cost for additional tests shall be borne by the Contractor and no Time Extension and also adjustment to Contract Price in case of delay arising out of such event shall be allowed.

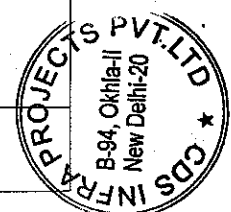
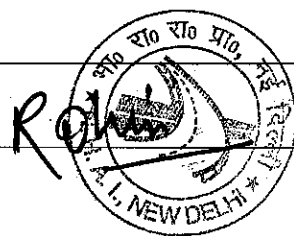


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
54	12.2 (ii) - Completion Certificate	"Upon receiving the Completion Certificate, the Contractor shall remove its equipment, materials, debris and temporary 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 from the Contractor an amount equal to 120% (one hundred and twenty per cent) of the actual cost of removal incurred by the Authority."	adjustment to Contract Price in case of delay arising out of such event. Please confirm.  Bidder requests the Authority to modify the Clause 12.4.2 as follows:  "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 the actual cost of removal incurred by the Authority."	As per RFP
55	13.1 (iii) - Change of Scope	"Change of Scope shall mean the following:  (a) change in specifications of any item of Works;  (b) omission of any work from the Scope of the Project except under Clause 8.3.3; provided that, subject to Clause 13.5, the Authority shall not omit any work under this Clause in order to get it executed by any other authority; 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."	Bidder requests the Authority to add the following event under this categories of Clause 13.1.2:  "d. changes to the levels, positions and/or dimensions of any part of the Works.  e. changes to the sequence or timing of the execution of the Works.  f. executes additional work of any kind necessary for the completion of the Works; and/or  g. any change in Authority's requirement including the	As per RFP

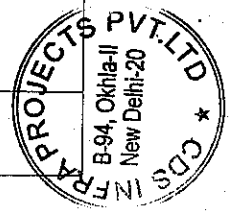


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
56			<p>provisions stated under applicable Schedules forming the Scope of Works."</p> <p>Bidder understands that, the Authority shall not require the contractor to undertake any changes after 50% financial progress w.r.t Contract Price have been achieved.</p> <p>If the situation warrants, the COS Order can be issued thereafter also subject to the condition that the works forming part of or affected by such Order shall not be reckoned for purposes of determining completion of the Works and issuing of the Provisional Certificate. A similar provision is also there in the concession agreement wherein the Authority shall not require the contractor to undertake changes if such changes are likely to delay the works. Secondly, the Authority must issue COS Order within 15 days of receipt of requisite information from the Contractor. Please confirm.</p>	<p>Clause 13.1 is clear in this regard</p>
57	13.2 (i) - Procedure for Change of Scope	<p>"In the event of the Authority determining that a Change of Scope is necessary, it may direct the Authority's Engineer to issue to the Contractor a notice specifying in reasonable detail the Works and services contemplated thereunder (the "Change of Scope Notice"). .....</p>	<p>Bidder requests to issue Change of Scope Order within 15 days from the date of submission of cost estimate of the same. Further, Authority is requested to pay 25% of total value of such Change of</p>	<p>As per RFP</p>



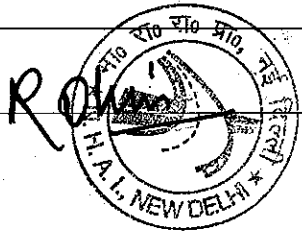
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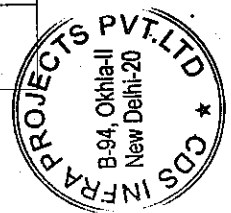
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
58	13.2 (iv) (b) - Procedure for Change of Scope	"For item of Works not included in Schedule of Rates as mentioned in sub-para (a) of Clause 13.2.(iv) above, the cost of same shall be derived on the basis of MORTH Standard Data Book and the Authority's Engineer shall determine the prevailing market rates and discount the same considering WPI to achieve the prevailing rate at the Base Date, and for any item in respect of which MORTH Standard Data Book does not provide the requisite details, the Authority's Engineer shall determine the rate in accordance with Good Industry Practice.	Scope Order as an advance payment along with the Change of Scope Order to take up such works. Please confirm.  In case of any COS, the design and drawings have to be developed by the Contractor by incurring additional costs, which the Contractor could not get compensated by the cost arrived at by using the MORTH Standard Data Book. Further, the contract contemplates that the Contract Price includes all duties, taxes, royalty, and fee levied in accordance with the laws and regulations in force, however, there is no provision for payment of such duties, taxes, royalty, and fee under calculation as per MoRTH Standard Data Book.  Therefore, the Bidder request that, the procedure for deriving the cost of COS under Sub-Clause 13.2 of the EPC Agreement should be amended duly taking into account the design charges and also all duties, taxes, royalty, and fee levied in accordance with the laws and regulations in force at the time of COS. Please confirm.	As per RFP

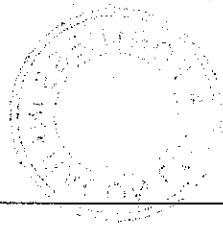


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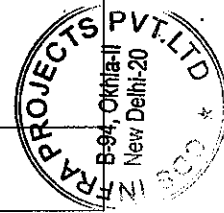
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
59	13.3 - Payment for Change of Scope	<p>"Payment for Change of Scope shall be made in accordance with the payment schedule specified in the Change of Scope Order."</p> 	<p>1. The payment of such Change of Scope works shall be released progressively and shall be settled completely within 30 days of completion of such works. Any delay in payment shall carry interest at the rate Base Rate plus 2%. Please confirm.</p> <p>2. The bidder understands that the Change of Scope works shall be adjusted for price escalation of various components as per clause 19.10 and the Base date for this purpose shall be the date of preparation of estimate for Change of Scope Order or any other suitable date as fairly determined by the Authority's Engineer. Please confirm.</p>	As per RFP
60	13.4 - Restrictions on Change of Scope	<p>(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.</p> <p>(ii) The total value of all Change of Scope Orders shall not exceed 10% (ten per cent) of the Contract Price.</p> <p>(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</p>	<p>Bidder requests for addition of the following point in Clause 13.4:  <b>"13.4 (iv) No change of Scope Order shall be issued after 50% financial progress w.r.t Contract Price have been achieved"</b></p>	As per RFP



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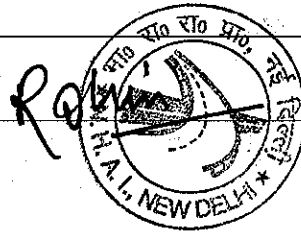


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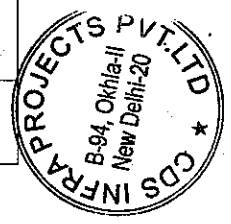


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
61	14.1 (i)- Maintenance Obligation of the Contractor	adjustment of the Contract Price or the Project Completion Schedule. The Contractor shall maintain the Project Highway for a period of 10 (ten) years, corresponding to the Defects Liability Period, commencing from the date of the Completion Certificate (the "Maintenance Period").	Bidder request to reduce the Maintenance period to 2 Years from the date of the Completion Certificate.	As per RFP
62	14.5 (ii)- Lane Closure	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 the rights of the Authority under this Agreement including Termination thereof.	Bidder requests that the said provision of lane closure should not be made applicable in the event of any delay in re-opening of the lane for the reason beyond the responsibility & control of the Bidder.	As per RFP
63	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,	Bidder requests the Authority to modify the Clause 14.7 as follows:  "In the event the Contractor does not maintain and/or repair the	As per RFP



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Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAJ\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
		<p>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's 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."</p>	<p>Project 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 or have established such reasons for not being able to commence remedial work within 15 (fifteen) days but not later than 30 (Thirty) days of receipt of the Maintenance Inspection Report under Clause 15.2 or a notice in this behalf from the Authority or the Authority's 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 10% (ten per cent) of such cost shall be paid by the Contractor to the Authority as Damages." Please confirm.</p>	
64	15.2 (iv) - Inspection and payments	<p>"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 made every month until the compliance is procured."</p>	<p>The Bidder requests the Authority to modify the Sub-Clauses as follows:</p> <p>"Any deduction made on account of non-compliance will not be paid</p>	As per RFP



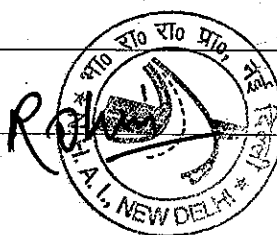
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
65	17.1 (i)- Defects Liability Period	<p>The Contractor shall be responsible for all the Defects and deficiencies, except usual wear and tear in the Project Highway or any Section thereof, till the expiry of a period of commencing from the date of Completion Certificate (the "Defects Liability Period") as specified below:</p> <p>(a) 5 (five) years from the date of completion in case of a road being constructed with flexible pavement;</p> <p>(b) 10 (ten) years from the date of completion in case of road being constructed with rigid pavement;</p> <p>(c) 10 (ten) years from the date of completion in case of road being constructed with flexible pavement using perpetual design;</p> <p>(d) 10 (ten) years from the date of completion in case of all stand-alone structures, e.g. Major Bridges/ and Tunnels;</p> <p>(e) 10 (ten) years from the date of completion for the stretches where new technology/ material has been/ is proposed to be used.</p> <p>.....</p>	<p>subsequently provided the Contractor establish the compliance thereof within 30 days of such deduction with valid reasons for delay in compliance and agreed by the Authority's Engineer. Such deductions will continue to be made every month until the compliance is procured."</p> <p>Bidder requests to reduce the Defects Liability Period to 2 years from the date of Completion period.</p>	As per RFP



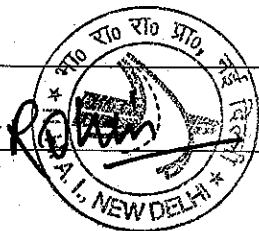
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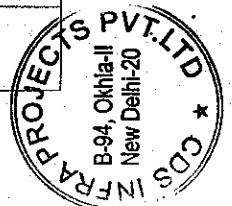
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
66	17.4 - Contractor's failure to rectify Defects	" If the Contractor fails to repair or rectify such Defect or deficiency within the period specified in 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's 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."	The Bidder requests the Authority to modify the Clause 17.4 as follows:  "If the Contractor fails to repair or rectify such Defect or deficiency within the period specified in Clause 17.2, or have established such reasons for not being able to commence defect rectification in 15 days but not later than 30 days which is agreed by the Authority's Engineer, the Authority shall be entitled to get the same repaired, rectified or remedied at the Contractor's cost so as to make the Project 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's Engineer. The cost so determined and an amount equal to 10% (ten 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."	As per RFP
67	18.1 (iii) - Appointment of the Authority's Engineer	"The Authority's Engineer should be appointed within 10 days from the date of this Agreement or before declaration of Appointed Date,	Bidder understands that, Appointment of the Authority's Engineer will be made before the	As per RFP

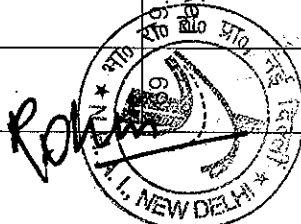


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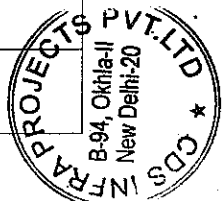


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
68	19.2(i) – Advance Payment	<p>whichever is earlier. The Authority shall notify the appointment or replacement of the Authority's Engineer to the Contractor."</p> <p>The Authority shall make an interest-bearing advance payment (the "Advance Payment") @ "Bank Rate + 3%", equal to 10 % (ten percent) of the Contract Price, exclusively for mobilisation expenses. The Advance Payment for mobilization 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.</p>	<p>Appointed Date and the Contractor shall be entitled for additional time &amp; cost for delay in Appointment of the Authority's Engineer.</p> <p>Bidder requests to make advance payment an interest free advance. Please confirm.</p>	As per RFP
	19.2 (iii) - Advance Payment	<p>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 guarantee 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.</p>	<p>If Authority will make interest bearing advance payment, Bidder requests to modify the Clause 19.2.2 as follows: "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 guarantee from a Bank for an amount equivalent to 100% (one hundred 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."</p>	As per RFP

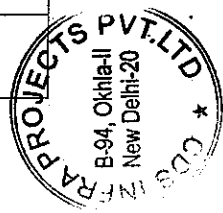
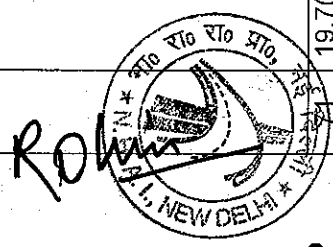


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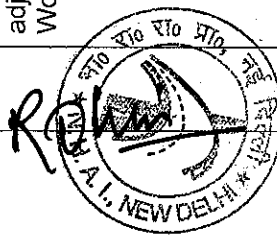
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
70	19.2(vii) - Advance Payment	<p>"If the Advance Payment has not been fully repaid prior to Termination under Clause 21.7 or Article 23, as the case may 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 at @ "Bank Rate +5%" per annum from the date of Advance Payment to the date of recovery by encashment of the Bank Guarantee for the Advance Payment. For the avoidance of doubt, the aforesaid interest shall be payable on each instalment of the Advance Payment, regardless of whether the instalment or any part thereof has been repaid to the Authority prior to Termination."</p> <p>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.</p>	<p>The Bidder also requests to modify the Clause 19.2(iv) in line with the Clause 19.2(iii)</p> <p>Bidder request that interest shall be levied only on part of the Advance Payment balance to be re-paid at the time of Termination. Please confirm.</p>	As per RFP
72	19.7(iv) - Payment for Maintenance of the Project Works  19.9(i) - Time of payment and interest	<p>"....."</p> <p>(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's Engineer for certification in</p>	<p>Bidder requests release of maintenance payment on monthly basis in line with Clause 19.4 and 19.5 to maintain the steady cash flow for carrying out Maintenance Works.</p> <p>Bidder understands that, period of 30 days mentioned under Clause 19.9(i) (a) for releasing payment is specifically with respect to the payment of balance 10% of the</p>	As per RFP  Yes

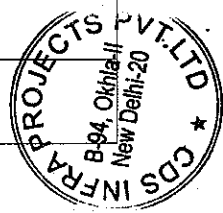


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
73	19.10 (iv) (d) - Price adjustment for the Works	<p>accordance with the provisions of Clause 19.4 for an IPC; provided that, in the event the IPC is not issued by the Authority's 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</p> <p>(b) .....</p> <p>"AI = The WPI for construction machinery for the month three months prior to the month to which the IPC relates."</p>	<p>Stage Payment Works under Clause 19.5 (ii).</p>	<p>Shall be read as: "AI = The WPI for "Manufacture of machinery for mining, quarrying and construction" for the month three months prior to the month to which the IPC relates"</p>
74	19.10(iv) (d) - Price adjustment for the Works	<p>"The consumer price index for industrial workers for the Gurgaon in the State of Haryana, published by Labour Bureau, Ministry of Labour, Government of India, (hereinafter called "CPI") for the month of the Base Date..</p> <p>LI = The CPI for the month three months prior to the month to which the IPC relates."</p>	<p>Bidder requests to modify this clause as follows: "LO = Minimum rates of Wages published by the Chief Labour Commissioner, Ministry of Labour &amp; Employment, Govt. of India or Labour Commissioner of State, whichever higher, for the month of the Base Date.</p> <p>LI = Minimum rates of Wages published by the Chief Labour Commissioner, Ministry of Labour</p>	<p>As per RFP</p>



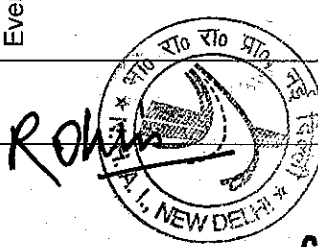
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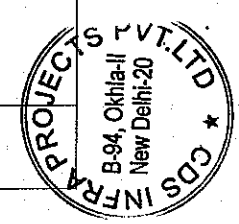
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
75	19.17(iii) - Change in laws	"The Authority's Engineer shall, within 15 (fifteen) days from the date of receipt of the notice from the Contractor or the Authority, determine any addition or reduction to the Contract Price, as the case may be, due to the Change in Law."	& Employment, Govt. of India or Labour Commissioner of State, whichever higher, for the month to which the IPC relates."	As per RFP
76	21.2 - Non-Political Event	"(a) ..... (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) ..... (d) any judgment 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 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) enforcement of this Agreement,	Bidder requests to remove Clauses 21.2 (b) & (d) from the list of Non Political Events and instead make part of Indirect Political Events under Sub-Clause 21.3. Please confirm.	As per RFP



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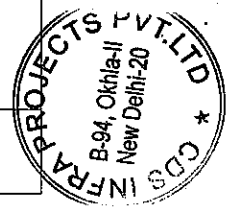


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
77	21.8 (i) - Termination Payment for Force Majeure Event	<p>or (iv) exercise of any of its rights under this Agreement by the Authority;</p> <p>(e)....."</p> <p>(f)....."</p> <p>"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....."</p>		
78	21.8 (ii) - Termination Payment for Force Majeure Event	<p>"If Termination is on account of an Indirect Political Event, the Termination Payment shall include:</p> <p>(a) - any sums due and payable under Clause 23.5; and</p> <p>(b) the reasonable cost, as determined by the Authority's 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;....."</p>	<p>Bidder requests to compensate the Contractor for losses due to idling/retention of resources on the Site during such period of Force Majeure causing Termination as Termination shall occur only upon the occurrence of such event for a period of 60 days or more within a continuous period of 120 days causing idling/ retention of selected bidder's resources for such period. Please confirm the same.</p>	As per RFP
79	21.8 (iii) - Termination Payment for Force Majeure Event	<p>"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."</p>		
80	23.5 (i) - Valuation of Unpaid Works	<p>"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's Engineer shall proceed in accordance with Clause 18.5 to determine as follows the valuation of unpaid Works (the "Valuation of Unpaid Works");</p>		

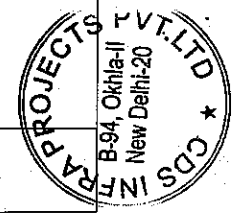


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
81	23.1 (i) - Termination for Contractor Default	<p>(a) value of the completed stage of the Works, less payments already made;</p> <p>(b) reasonable value of the partially completed stages of works as on the date of Termination, only if such works conform with the Specifications and Standards; and</p> <p>(c) value of Maintenance, if any, for completed months, less payments already made.</p> <p>"....."</p> <p>(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) days;</p> <p>(d) .....</p> <p>(e) .....</p> <p>(f) the Project Completion Date does not occur within the period specified in Schedule-J for the Scheduled Completion Date, or any extension thereof.</p> <p>....."</p>	<p>Bidder requests to modify this clause as follows:</p> <p>"(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) days for reasons solely attributable to the Contractor;</p> <p>(f) the Project Completion Date does not occur within the period specified in Schedule-J for the Scheduled Completion Date, or any extension thereof, for reasons solely attributable to the Contractor.</p>	As per RFP
82	23.2 (i) - Termination for Authority Default	<p>"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</p>	<p>Bidder request the Authority to include the following provision:</p> <p>"h) the Authority fails to provide, within a period of 365 (three hundred and sixty five days) from the Appointed Date, the Right of Way and other statutory clearances</p>	As per RFP

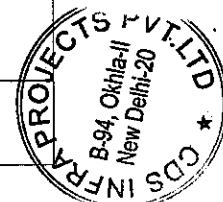


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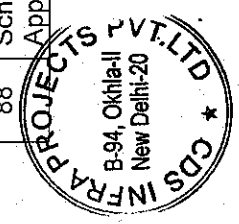
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
83	26.2 – Conciliation	<p>this Agreement by the Contractor or due to Force Majeure. The defaults referred to herein shall include:</p> <p>.....</p> <p>..... but before resorting to such arbitration, the parties agree to explore conciliation by the Conciliation Committees of Independent Experts set up by the Authority in accordance with the procedure decided by the panel of such experts and notified by the Authority on its website including its subsequent amendments. In the event of the conciliation proceedings being successful, the parties to the dispute would sign the written settlement agreement and the conciliators would authenticate the same. Such settlement agreement would then be binding on the parties in terms of Section 73 of the Arbitration Act. In case of failure of the conciliation process even at the level of the Conciliation Committee, either party may refer the Dispute to arbitration in accordance with the provisions of Clause 26.3.</p>	<p>required for construction of the Project; "</p> <p>The said Clause does not provide a timeline for completion of conciliation before Independent Experts. Therefore, the Bidder requests to fix a timeline of 45 days for completion of conciliation before Independent Experts. Alternatively, the Bidder proposes to undertake the conciliation before Independent Experts in parallel to Arbitration Proceedings. In the event of such conciliation proceedings being successful, and signing of settlement agreement in terms of Section 73 of Arbitration Act, the parties would thereafter mutually close the Arbitration Proceedings. Please confirm.</p>	<p>As per RFP</p>
84	26.3 (ii) – Arbitration	<p>The Parties expressly agree as under in case of arbitration of disputes:</p> <p>(a) .....</p> <p>(b) .....</p> <p>(c) .....</p>	<p>Bidder requests the Employer to replace the following provisions of the said Clause:</p> <p>(a) Any dispute, irrespective of any claim value which has not been agreed upon/reached settlement by the parties as per the provisions of Conciliation will be referred to Arbitral Tribunal</p>	<p>As per RFP</p>



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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
85	26.3 (ii) (f) – Arbitration	Neither Party shall be entitled for any pre-reference or pendent lite interest, i.e., interest from date of cause of action till date of Award by Arbitral Tribunal. The parties specifically agree that claim for any such interest shall not be considered and shall be void. The Arbitrator or Arbitral Tribunal shall have no power/jurisdiction to award pre-reference or pendent lite interest in case of disputes. [Specify all the relevant documents]	(b) Such Arbitral Tribunal will consist of 03 Arbitrators from the panel of SAROD. (C) The Dispute shall be settled in accordance with the rules of Arbitration of the Society for Affordable Redressal of Disputes (SAROD)..... Bidder requests to delete such unilateral clause.	As per RFP
86	1 (iii), Schedule – Maintenance requirements		Bidder requests to clarify as to which relevant documents the Authority wants to specify? Please confirm.	The words "[Specify all the relevant documents]" stands deleted
87	Schedule F - 1 - Applicable Permits	The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits: (a) Permission of the State Government for extraction of boulders from quarry; (h) Permission of Village Panchayats and State Government for borrow earth;	Bidder requests the Authority to procure the environmental clearance required to be obtained before commencing extraction of minor minerals as it is in the better position to do so or else bidder shall be compensated in terms of both time and costs in case of delay in obtaining the same beyond reasonable time. Please confirm.	Procurement of material for the construction of the project highway is the obligation and responsibility of the Contractor.
88	Schedule F - 1 - Applicable Permits	"The Contractor shall obtain, as required under the Applicable Laws, the following Applicable	Bidder understands that any delay and impediment on account of	Shall be dealt as per the relevant provisions of the Contractor related

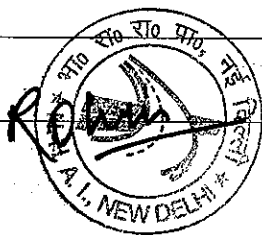


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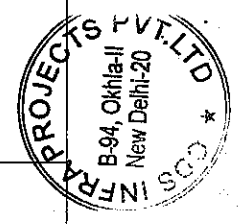
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
89	Annex-II, Schedule – G Point B	Permits: (a)..... To (f).....  In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @Bank Rate + 3% 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.	government instrumentalities/ authorities in procuring various permits and approvals shall entitle the Contractor for appropriate Time Extension and related costs, if any. Please confirm.  Bidder requests to make advance payment an interest free advance. Please confirm.	to delays in fulfillment of obligations of the Contractor  As per RFP
90	Schedule M 1 (ii) - Payment reduction for non-compliance with the Maintenance Requirements	"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."	Bidder requests to modify the clause as follows: "Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid subsequently provided the Contractor establish the compliance thereof within 30 days of such deduction with valid reasons for delay in compliance	As per RFP



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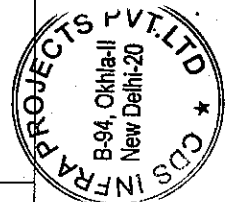
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Sl. No.	Cl. No. / Section / Page No.	Description	Query and agreed by the Authority's Engineer."	Authority's reply to the pre-bid query
91	Schedule N - 4 (xvii) - Terms of Reference for Authority's Engineer	"The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate or Provisional Certificate, as the case may be....."	1. The Bidder understands that Authority's Engineer shall be the authorized person to issue Provisional/ Completion Certificate and shall issue the same as per the terms of this Agreement. Please confirm.	As per RFP
92	Schedule N - 6 - Terms of Reference for Authority's Engineer	"6.1 The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement. 6.2 The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement."	2. Further, bidder understands that any determination of Time Extension and/ or additional costs shall be carried out within reasonable time and shall not be delayed beyond 60 days from the date of Contractor's notice in this regard. Please confirm. 3. The Bidder understands that the Authority's Engineer shall forward all the correspondences exchanged between the Authority's Engineer & Authority related to Project to the Contractor. Please confirm.	
93	Cl. 4 Schedule - P	The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority.	The bidder requests to modify the Clause as follows: "The insurance under paragraphs 1 to 3 except the resources mobilized by the Contractor shall be in the joint names of the Contractor and the Authority." Please confirm.	As per RFP



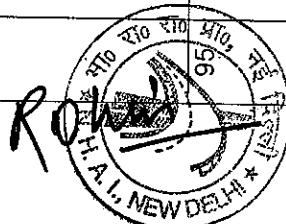
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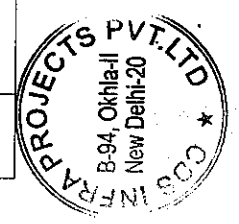
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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
94	General	Enquiry	Bidder requests the Authority to provide the current status of ROW possesses by the Authority and status of balance ROW (in 3D,3G,3H)	<ul style="list-style-type: none"> <li>3A notification including interchanges, wayside amenities and toll plaza has been published.</li> <li>3D for the main carriageway of the project highway has been notified and determination of award under section 3G is under progress.</li> <li>For the balance land required for missing survey numbers, wayside amenities, interchanges and toll plaza, publication of 3D notification is under progress and expected to be published by 30.12.2018</li> </ul>
	Notice Inviting Bid Dated 17.09.2018	The National Highways Authority of India represented by its Chairman now invites bids from eligible contractors for the following project: ..... Maintenance Period – 10 years ..... The assumptions, assessments, statements and information contained in the Bidding Documents, especially the [Feasibility Report], may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources. .....	Maintenance Period of 10 years is extremely high; Bidder requests the Authority to reduce the Maintenance Period to 2 years. Please confirm.	As per RFP
96	DISCLAIMER		As it is not possible for any prudent Bidder to check the accuracy, adequacy, correctness, reliability in such a short time period; Bidder requests the Authority to delete such unilateral provision wherever available under the RFP or under the EPC Agreement.	As per RFP

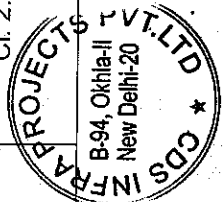
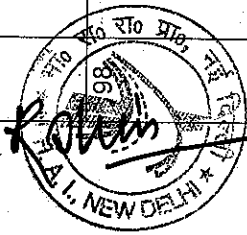


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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
97	RFP Cl. 1.1.2 Section – 1: Introduction - Background	<p>..... The scope of work will broadly include Construction of Eight Lane divided carriageway ..... during the Defect Liability Period, which shall be 10 years<sup>s</sup>.</p> <p>§ The categorization whether the project highway is constructed with flexible pavement shall depend on the basis of major length of the project highway to be covered with that type of pavement</p>	Defect Liability Period of 10 years is extremely high; Bidder requests the Authority to reduce the Defect Liability Period to 2 years. Please confirm.	As per RFP
	RFP Instructions to Bidders Cl. 2.1.3	<p>..... Further, the statements and explanations contained in this RFP are intended to provide a better understanding to the Bidders about the subject matter of this RFP and should not be construed or interpreted as limiting in any way or manner the scope of services and obligations of the Contractor set forth in the Agreement or the Authority's rights to amend, alter, change, supplement or clarify the scope of work, the work to be awarded pursuant to this RFP or the terms thereof or herein contained. Consequently, any omissions, conflicts or contradictions in the Bidding Documents including this RFP are to be noted, interpreted and applied appropriately to give effect to this intent, and no claims on that account shall be entertained by the Authority</p>	As it is not possible for any prudent Bidder to verify such vast documents provided by the Authority and also the condition of the Site in such short period of time, Bidder requests to delete such unilateral provision, wherever available under the RFP or under the EPC Agreement.	As per RFP
99	RFP Instructions to Bidders Cl. 2.1.14	<p>..... The Bidder, including any Joint Venture Member, shall be deemed to be a non-performing party (not applicable to the project whose contract is terminated by the Authority) if it attracts any or more of the following parameters:</p>	Bidder requests to delete such unilateral provision, wherever available under the RFP or under the EPC Agreement. Notwithstanding the above, the Bidder requests the following	As per RFP

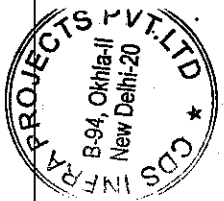


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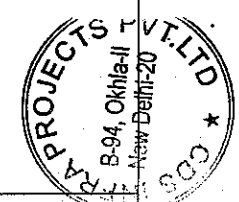
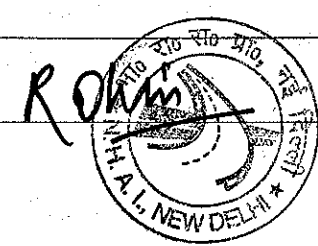
Sl. No.	CI. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
		<p>(i) Fails to complete or has missed more than two milestones in already awarded two or more projects, even after lapse of 6 months from the scheduled completion date, unless Extension of Time has been allowed on the recommendations of the Independent Engineer due to Authority's default;</p> <p>(ii) Fails to complete a project, as per revised schedule, for which One Time Fund Infusion (OTFI) has been sanctioned by the Authority;</p> <p>(iii) .....</p> <p>(iv) Punch List Items in respect of any project are pending due to Bidder's default in two or more Projects even after lapse of the prescribed time for completion of such items;</p> <p>(v) Fails to fulfill its obligations to maintain a highway in a satisfactory condition inspite of two rectification notices issued in this behalf;</p>	<p>modifications in the parameters of non-performing party:</p> <p>(i) Fails to complete or has missed more than two milestones in already awarded two or more projects, even after lapse of 6 months from the scheduled completion date, unless Extension of Time has been allowed on the recommendations of the Independent Engineer due to Authority's default; or the Bidder's/ contractor's Extension of Time applications are pending with the Authority's Engineer or the Authority or have been referred to the dispute resolution mechanism which has not yet reached finality.</p> <p>(ii) Fails to complete a project, as per revised schedule, for which One Time Fund Infusion (OTFI) has been sanctioned by the Authority; unless such failure to complete a project is on account of the reason beyond the control &amp; responsibility of the Bidder.</p> <p>(iv) Punch List Items in respect of any project are pending solely due to Bidder's default in two or more Projects in last Six months even after lapse of the prescribed time for completion of such items;</p>	



*Roopal*

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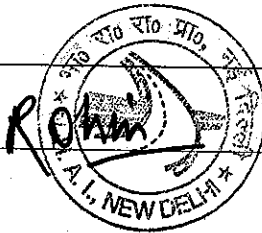
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
		<p>(vi) Fails to attend to Non Conformity Reports (NCRs) issued by the Independent/Authority's Engineer on the designs/ works constructed by the Bidder pending for more than one year in two or more projects.</p> <p>(vii).....</p> <p>(viii) Damages/ Penalties recommended by the Independent/ Authority's Engineer on the Bidder during O&amp;M period and the remedial works are not taken up in two or more projects.</p> <p>(ix) Fails to achieve financial closure in two or more projects within the given or extended period (which shall not be more than six months in any case).</p> <p>.....</p>	<p>(v) Fails to fulfil its obligations to maintain a highway in a satisfactory condition in spite of two rectification notices issued in this behalf, unless such failure to maintain a highway is on account of the reason beyond the control &amp; responsibility of the Bidder.</p> <p>(vi) Fails to attend to Non Conformity Reports (NCRs) issued by the Independent/Authority's Engineer on the designs/ works constructed by the Bidder pending for more than one year in two or more projects. <b>Unless such failure to attend NCRs is on account of the reason beyond the control &amp; responsibility of the Bidder.</b></p> <p>(vii) Damages/ Penalties levied by the Authority on the Bidder during O&amp;M period solely on account of Bidder's default, unless levying of such Damages/Penalties have been referred to dispute resolution mechanism which has not yet reached finality and the remedial works are not taken up for more than 6(six) months period in two or more projects.</p> <p>(ix) Fails to achieve financial closure in two or more projects in last six months within the given or extended period (which shall not be</p>	



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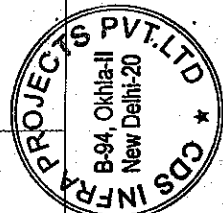
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
100	RFP Instructions to Bidders Cl. 2.5.2	<p>It shall be deemed that by submitting a BID, the Bidder has:</p> <p>(a) made a complete and careful examination of the Bidding Documents, Schedules annexed to EPC agreement Document;</p> <p>(b) received all relevant information requested from the Authority;</p> <p>(c) accepted the risk of inadequacy, error or mistake in the information provided in the Bidding Documents or furnished by or on behalf of the Authority relating to any of the matters referred to in Clause 2.5.1 above. No claim shall be admissible at any stage on this account.</p> <p>(d) satisfied itself about all matters, things and information including matters referred to in Clause 2.5.1 hereinabove necessary and required for submitting an informed BID, execution of the Project in accordance with the Bidding Documents and performance of all of its obligations thereunder;</p> <p>(e) acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any of the matters referred to in Clause 2.5.1 hereinabove shall not be a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from the Authority, or a ground for termination of the Agreement by the Contractor.</p>	<p>more than six months in any case); unless such failure is on account of the reason beyond the control &amp; responsibility of the Bidder.</p> <p>As it is not possible for any prudent Bidder to verify such vast documents provided by the Authority and also the condition of the Site in such short period of time, Bidder requests to delete such unilateral provision wherever available under the RFP or under the EPC Agreement.</p>	As per RFP



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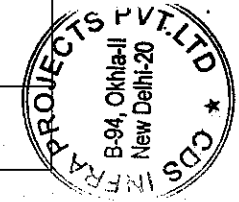
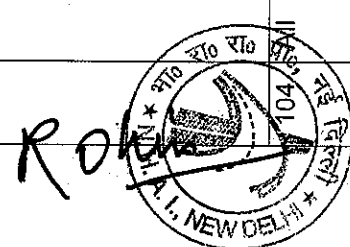
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
101	APPENDIX -IA LETTER COMPRISING THE TECHNICAL BID	<p>(f) acknowledged that it does not have a Conflict of Interest; and (g) agreed to be bound by the undertakings provided by it under and in terms hereof.</p> <p>..... 19. I/ We have studied all the Bidding Documents carefully and also surveyed the [project highway and the traffic]. We understand that except to the extent as expressly set for thin the Agreement, we shall have no claim, right or title arising out of any documents or information provided to us by the Authority or in respect of any matter arising out of or relating to the Bidding Process including the award of Agreement.</p>	<p>As it is not possible for any prudent Bidder to verify such vast documents provided by the Authority and also the condition of the Site in such short period of time, Bidder requests to delete such unilateral provision wherever available under the RFP or under the EPC Agreement.</p>	<p>As per RFP</p>
102		<p>RFP 1.1.2 Sub cl.14.1.(ii) of Article 14 Draft EPC Agreement The selected Bidder (the "Contractor") shall be responsible for designing, engineering, procurement and construction of the Project under and in accordance with the provisions of an engineering, procurement and construction contract (the "EPC Contract") to be entered into between the Contractor and the Authority in the form provided by the Authority as part of the Bidding Documents pursuant hereto. The Contractor shall also be responsible for the maintenance of the project during the Defect Liability Period.</p>	<p>Please clarify, what all comes under Scope of work of the contractor, does procuring electricity connection and paying bills for electricity during maintenance period will be borne by the Contractor or Authority will take the connection in their name at its own and pay the bills of the electricity during Maintenance Period directly to Electricity Department.</p>	<p>Please refer Article 2 in this regard. However, as already clarified in the 1<sup>st</sup> pre-bid meeting, deposit with electricity department for procuring bills for electricity during maintenance period shall be borne by the Authority.</p>
103	All	<p>Cl.1.2.3 of RFP The complete Bidding Documents including the draft Agreement for the Project is enclosed for the Bidders. The Feasibility Report / Detailed Project Report prepared by the Authority/ consultants of the</p>	<p>What shall be done when there is a variation between the Feasibility report provided / Survey Done at the time of Bidding and the actual site provided after Appointed date.</p>	<p>There is no variation in the coordinates of the project highway indicated in the Schedules and RoW acquired by the Authority. Development of the project highway</p>



*Signature*

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Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
		Authority (the "Feasibility Report/Detailed Project Report") is also enclosed. The Feasibility Report / Detailed Project Report of the Project is being provided only as a preliminary reference document by way of assistance to the Bidders who are expected to carry out their own surveys, investigations and other detailed examination of the Project before submitting their Bids. Nothing contained in the Feasibility Report/Detailed Project Report shall be binding on the Authority nor confer any right on the Bidders, and the Authority shall have no liability whatsoever in relation to or arising out of any or all contents of the Feasibility Report/Detailed Project Report. The aforesaid documents and any addenda issued subsequent to this RFP Document, will be deemed to form part of the Bidding Documents.		shall be within the acquired RoW as per the requirement specified in Schedules to the Draft Contract Agreement.
		Cl. 7.5.(i) Draft EPC Agreement 7.5 (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.	It is requested that if the contractor furnishes an irrevocable and unconditional bank guarantee upfront in lieu of, then the deduction pursuant to this Clause 7.5.(i) shall be limited to cumulative amount not covered by the aforesaid bank guarantee(s) at the rate of 6% (six percent) from every payment for Works due to the contractor.	As per RFP
105	All	Cl. 7.5.(i) and (ii) Draft EPC Agreement 7.5 (ii) 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	To maintain liquidity and cash flow the Contractor should be given option for (a) Submission of Retention Money Bank Guarantee	As per RFP



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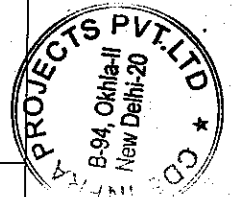
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
106	All	<p>from the Retention Money as Damages for such Contractor's Default.</p> <p>7.5 (iii) Within 15 (fifteen) days of the date of issue of the Completion Certificate, the Authority shall refund the balance of Retention Money remaining with the Authority after adjusting the amounts appropriated under the provisions of Clause 7.5 (ii).</p> <p>Cl. 8.4 of Draft EPC Agreement <b>Site to be free from Encumbrances</b></p> <p>Subject to the provisions of Clause 8.2, the Site shall be 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 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.</p>	<p>upfront, so that no deduction is made release against bank guarantee provided by the contractor at any time after deducted retention amount reaches to certain limit.</p> <p>(b) Retention money should be released against bank guarantee provided by the contractor at any time after deducted retention amount reaches to certain limit.</p> <p>The site to be provided by the authority before the Appointed date should be free from all Encumbrances as well as free from all hindrances. In this clause only Encumbrance free site is mentioned where as to start the work the site should be free from all Hindrances as well. Accordingly the clause should be amended.</p>	As per RFP
107	All	<p>Cl. 9.2 Draft EPC Agreement, Shifting of obstructing utilities</p> <p>The Contractor shall, in accordance with Applicable Laws and with assistance of the Authority, undertake the work of shifting of any</p>	<p>It has been experienced that the shifting work not executed as per provision of Clause 9.2 i.e. "The cost of such shifting, as per estimates prepared by the entity</p>	As per RFP



*Signature*

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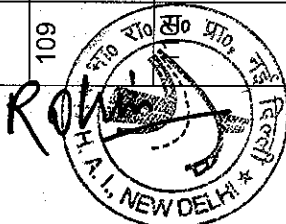
Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
108	All	<p>utility (including electric lines, water pipes, gas pipelines and telephone cables) to an appropriate location or alignment; if such utility or obstruction adversely affects the execution of Works or Maintenance of the Project Highway in accordance with this Agreement. The cost of such shifting, as per estimates prepared by the entity owning the utility and approved by the Authority, shall be reimbursed by the Authority to the Contractor. The scope of work of such shifting of Utilities shall be as indicated in Schedule-B.</p> <p>In the event of any delay of such shifting on the part of the contractor, no extension of time for completion of the project and no claims, in any manner, shall be admissible on this account against the Authority.</p>	<p>owning the utility and approved by the Authority, shall be reimbursed by the Authority to the Contractor". On the Other hand estimates are sanctioned by the Authority that supervision charges are deposited with entity department then Contractor execute shifting work under supervision of entity department and whole process get delayed in sanctioning and depositing supervision charges with the entity department, therefore, it would be better if entity department execute shifting work and Authority may deposit the shifting charges with entity department directly. Accordingly the clause should be amended. Also the clause should be added for damage to be paid by the Authority and time extension for delay on account of the Authority / Entity owning the Utility</p>	<p>As per amended Schedule H uploaded alongwith replies to queries raised in the 1<sup>st</sup> pre-bid meeting</p>
		<p>Cl.10.1.(iv) Draft EPC Agreement The Contractor shall compute, on the basis of the Drawings prepared in accordance with Clause 10.2 (iv), and provide to the Authority's 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.</p>	<p>We presume that the Authority Engineer is Authorized to finalized the Schedule-H based on Actual scope of work &amp; payment against others/Misc works payment should be made proportionally with the progress of work on prorata basis.</p>	



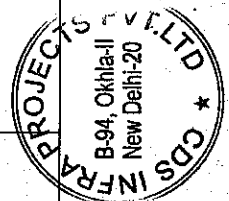
*Rohini*

Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018\_NHAI\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
109	All	<p>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.</p> <p>Cl. 10.2 (v) Draft EPC Agreement 10.2 (v) Any cost or delay in construction arising from review/approval by the Authority's Engineer shall be borne by the Contractor.</p> <p>Article 1 of Draft EPC Agreement <b>1.1-Definitions</b> "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.</p>	<p>Request to remove such condition as consequences for delay caused by actions of one party cannot be imposed on other party.</p> <p>Appointed Date shall not be declared on (A) Onset of or during the monsoon season. (B) Until 90% Project Length free from hindrances is not available.</p>	<p>As per RFP</p> <p>Appointed date shall be date on which condition as stipulated in Clause 3.1 (iii) (a) is met with</p>
111	All	<p>Annexure B – Clause 5.3.2 Design Traffic Amendment in Technical Schedules vide corrigendum-I dated 12.11.2018</p> <p>In order to meet the intended functional requirement of respective pavement layers as well as compaction of heavy bituminous layers on main carriageway, the minimum thickness of respective pavement layers for main carriageway and connecting/ service/slip road shall, however, in no case be less than as given below:</p> <p><b>Main carriageway and ramps/loops/ connecting/service road for interchanges</b></p>	<p>Please specify type of binder bitumen to be used for Stone Matrix Asphalt (SMA).</p>	<p>As per MoRT&amp;H specifications.</p>



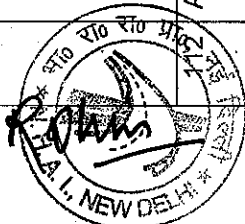
649



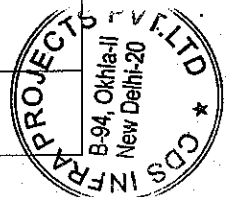


Reply to queries raised by the bidders in the 2<sup>nd</sup> pre-bid meeting for the Project for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi – Vadodara Green Field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana [Tender id: 2018 NHA\_14381\_1]

Sl. No.	Cl. No. / Section / Page No.	Description	Query	Authority's reply to the pre-bid query
		<p><b>Pavement Composition</b></p> <p>(a) Stone Matrix Asphalt (SMA) as wearing course 50mm</p> <p>(b) Bituminous base course 250mm</p> <p>(c) Non-bituminous base course 150mm</p> <p>(d) Sub-base course 200mm</p> <p><b>Cross-roads/Connecting/Service/Slip road at SVUP/LVUP/VUP/Fly-overs</b></p> <p><b>Pavement Composition</b></p> <p>(a) Bituminous Concrete (BC) as wearing course 40 mm</p> <p>(b) Bituminous base course 50mm</p> <p>(c) Non-bituminous base course 250mm</p> <p>(d) Sub-base course 200mm</p>		
	All	<p>Article 14 of Draft EPC Agreement</p> <p>14.1 (i) (c) For flexible perpetual pavement with 10 years maintenance period including structures: 0.25% of the Contract Price each for the first, second and third year; 0.5% of the Contract Price each for the fourth, fifth and sixth year. The Contractor shall provide a renewal layer over the existing carriageway in the seventh year from issue of completion certificate. The requirement for this renewal layer shall be worked out based on the survey and investigation of the existing pavement and the cost of such renewal works shall be determined based on the principles defined under clause 13.2(iii). After the laying of the renewal layer in the 7th year, the Contractor shall be paid @ 0.25% of the original Contract Price each for the seventh, eighth, ninth and tenth year.</p>	<p>The requirement for this renewal layer shall be worked out based on the survey and investigation of the existing pavement and the cost of such renewal works shall be determined based on the principles defined under clause 13.2(iii)</p> <p>Please clarify that the renewal layer to be provided will be same as mentioned B i e Stone Matrix Asphalt (SMA)</p> <p>(a) Please confirm that type of Renewal layer to be provided will be same as mentioned B i e Stone Matrix Asphalt (SMA)</p> <p>(b) Please confirm that if renewal layer is not required as per survey and investigation the maintenance payments for 8<sup>th</sup> 9<sup>th</sup> and 10<sup>th</sup> year of maintenance will unchanged.</p>	<p>The requirement and specification of the renewal layer shall be as per survey and investigation of the existing pavement. This may also include providing any alternative or new technology treatment for enhancing the life of the wearing coat and arresting any damage to the bituminous base layers. There will be no change in the payments for maintenance period as defined in Clause 14.1.</p>



650



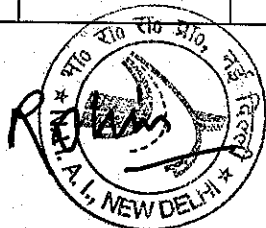
## Status of Utility- Package -III [47+000 to 78+800]

### Transmission lines of Haryana Vidyut Prasaran Nigam Ltd.

S.No.	Chainage at Centre Line of Proposed Expressway	Wattage/Power of Line	Name of Line crossing by ROW	Remarks
1	58+999	66KV D/C Line	Rangala Rajpur-Punhana Line	Payment of demand notice amounting to RS 1.48 LACKS have been paid to HVPN. Matter for framing estimate is being pursued with SDO / XEN T/S Palwal.

### DHBVN lines (06.12.2018)

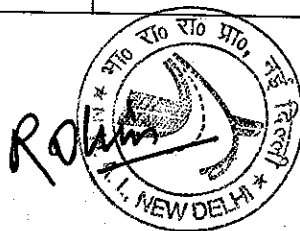
S.No.	Chainage at Centre Line of Proposed Expressway	Wattage/Power of Line	Name of Line crossing by ROW	Remarks
1	49+050	11 KV/ LT Line	11 KV Sikrawa feeder Ch. 49+050	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
2	49+550	33 KV	33 KV Pinungwan line from 220 KV S/Stn. Rangala Rajpur	
3	50+000	11 KV/ LT Line	11 KV Seikpur feeder Ch. 50+000	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
4	50+050	11 KV/ LT Line	11 KV Marora feeder Ch. 50+050	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
5	50+680	11 KV/ LT Line	11 KV Jhimrawat feeder Ch. 50+680	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
6	51+400	11 KV/ LT Line	11 KV feeder 51+400	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
7	52+270	11 KV/ LT Line	11 KV feeder 52+270	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
8	52+270	11 KV/ LT Line	11 KV feeder 52+270	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
9	52+500	11 KV/ LT Line	11 KV feeder 52+500	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
10	53+300	11 KV/ LT Line	11 KV Siekpur feeder Ch. 53+300	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
11	54+400	11 KV/ LT Line	11 KV feeder Ch. 54+400	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
12	54+670	11 KV/ LT Line	11 KV Khedli Kalan Ch. 54+670	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
13	55+100	11 KV/ LT Line	11 KV feeder Ch. 55+100	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.



*Loopal*



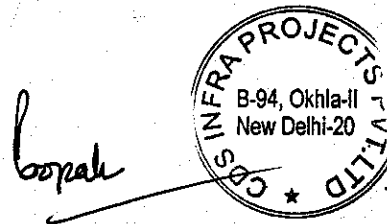
14	57+360	33 KV	33 KV Bubalheri line from 220 KV S/Stn. Rangala, rajpur	
15	57+430	11 KV/ LT Line	11 KV Mahoom feeder Ch. 57+430	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
16	58+000	11 KV/ LT Line	11 KV line emanating from 33 KV S/stn. Ch. 58+000	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
17	58+000	11 KV/ LT Line	11 KV line emanating from 33 KV S/stn. sukras Ch. 58+000	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
18	59+300	11 KV/ LT Line	11 KV line Ch. 59+300	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
19	59+400	33 KV	33 KV Dhondal line from 220 KV S/Stn. Rangala, rajpur	
20	60+000	11 KV/ LT Line	11 KV line Ch. 60+000	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
21	60+670	11 KV/ LT Line	11 KV line Ch. 60+670	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
22	61+500	11 KV/ LT Line	11 KV line D.S feeder Ch. 61+500	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
23	61+910	11 KV/ LT Line	11 KV line A.P feeder Ch. 61+910	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
24	62+150	11 KV/ LT Line	11 KV line A.P feeder Ch. 62+150	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
25	63+010	11 KV/ LT Line	11 KV line A.P feeder Ch. 63+010	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
26	36+050	11 KV/ LT Line	11 KV line D.S feeder Ch. 36+050	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
27	65+000	11 KV/ LT Line	11 KV line D.S feeder Ch. 65+000	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
28	65+600	11 KV/ LT Line	11 KV line A.P feeder Ch. 65+600	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
29	65+950	11 KV/ LT Line	11 KV line A.P feeder Ch. 65+950	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
30	66+020	11 KV/ LT Line	11 KV line A.P feeder Ch. 66+020	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.



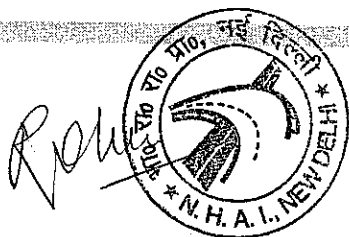
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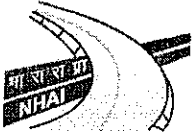


31	66+580	33 KV	33 KV Basai meo line from 220 KV S/Stn. Rangala, Rajpur	
32	66+590	11 KV/ LT Line	line D.S feeder Ch. 66+590	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
33	67+650	11 KV/ LT Line	11 KV line D.S feeder Ch. 67+650	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
34	68+800	11 KV/ LT Line	11 KV line D.S feeder Ch. 68+800	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
35	69+000	11 KV/ LT Line	11 KV line D.S feeder Ch. 69+000	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
36	70+800	11 KV/ LT Line	11 KV line A.P feeder Ch. 70+800	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
37	72+260	11 KV/ LT Line	11 KV line A.P feeder Ch. 72+260	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
38	75+090	11 KV/ LT Line	11 KV line A.P feeder Ch. 75+090	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
39	75+330	11 KV/ LT Line	11 KV line A.P feeder Ch. 75+330	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
40	75+990	11 KV/ LT Line	11 KV line A.P feeder Ch. 75+990	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.
41	78+510	11 KV/ LT Line	11 KV line A.P feeder Ch. 78+510	Estimate got approved by SE(OP) Palwal & submitted to CE Delhi drawing office to his approval.



# CORRIGENDUM





भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
**National Highways Authority of India**

(Ministry of Road Transport and Highways)

जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075

G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200

फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/BM/Delhi/Vadodara/2018/Pkg 3

Dated: 19.12.2018

Corrigendum

To

All applicants

Sub: Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC under Bharatmala Pariyojana in the State of Haryana - Reg.

Following amendments have been made in the RFP uploaded at Annex-A of Corrigendum dated 28.11.2018 for the subject project -

1. Following sub-clause (iv) stands added to Clause 2.2.2.2 related to Technical capacity

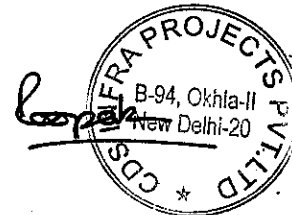
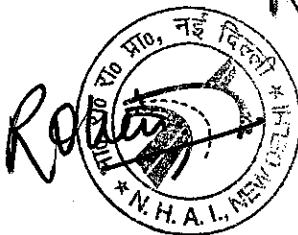
2.2.2.2 (iv) The technical capacity as assessed under sub-clause 2.2.2.2 (i), clause 2.2.2.2 (ii) and clause 2.2.2.2 (iii) above shall be updated to the price level of the year based on factors for the year indicated in table below:

Year	Year-1	Year-2	Year-3	Year-4	Year-5
Updation factor	1.00	1.05	1.10	1.15	1.20

2. Clause 2.2.2.5 (i) stands amended and shall be read as under:

Subject to the provisions of Clause 2.2.2 the following categories of experience would qualify as Technical Capacity and eligible experience (the "Eligible Experience") in relation to eligible projects as stipulated in Clauses 2.2.2.6 (i) & (ii) (the "Eligible Projects"). In case the Bidder has experience across different categories, the experience for each category would be computed as per weight of following factors to arrive at its aggregated Eligible Experience:

Category	Project / Construction experience on Eligible Projects	Factors
1	Project in highways sector that qualify under Clause 2.2.2.6 (i)	1
2	Project in core sector that qualify under Clause 2.2.2.6 (i)	<u>0.70</u>



3	Construction in highways sector that qualify under Clause 2.2.2.6 (ii)	1
4	Construction in core sector that qualify under Clause 2.2.2.6 (ii)	<u>0.70</u>

3. Clause 2.2.2.5 (iii) (a) and 2.2.2.5 (iii) (b) stands amended and shall be read as under:

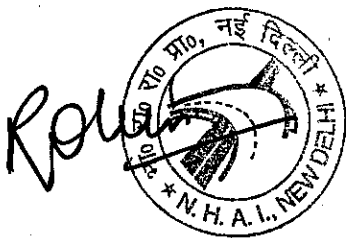
2.2.2.5 (iii) (a) highways sector would be deemed to include highways, expressways, bridges, tunnels, metro rail and airfields; and

2.2.2.5 (iii) (b) core sector would be deemed to include civil construction cost of ports (including construction/re-construction of Jetties, etc.), power sector, commercial setups (SEZs etc.), airports, railways (construction/re-construction of railway tracks, yards for keeping containers etc.), industrial parks/estates, logistic parks, pipelines, irrigation, water supply, sewerage and real estate development.

4. It has been brought to notice of the Authority that bidders are facing difficulty in updating their technical bid on the BIMS portal. Till the issues related to technical errors on the BIMS portal are sorted out, it has been decided that the bidders shall also have the option of submitting the technical bids on BIMS portal as well CPPP website of Authority i.e., [<http://etenders.gov.in>]. Bids submitted on the BIMS as well as CPPP website shall be evaluated as per the evaluation criteria defined in the RFP to check their technical responsiveness. Therefore, for reference of the bidders Annex-II and Annex-III to Appendix-IA of the RFP are inserted and are enclosed.

2) All other terms and condition will remain same.

*Rohin*  
19/12/18  
(Rohin Kumar Gupta)  
General Manager (T)  
Bharatmala



ANNEX-II

**Technical Capacity of the Bidder<sup>@</sup>**

(Refer to Clauses 2.2.2.2, 2.2.2.5 and 2.2.2.7 of the RFP)

Applicant type	Project Code*	Category <sup>§</sup>	Experience** (Equivalent Rs. crore) <sup>§§</sup>		Technical Experience <sup>£</sup>
			Payments received for construction of Eligible Projects in Categories 3 & 4	Value of self-construction in Eligible Projects in Categories 1 and 2	
(1)	(2)	(3)	(4)	(5)	(6)
Single entity Bidder or Lead Member including other members of the Joint Venture	a				
	b				
	c				
	d				
	e				
	f				
<b>Aggregate Technical Experience =</b>					

<sup>@</sup> Provide details of only those projects that have been undertaken by the Applicant, or its Lead member including members in case of joint venture, under its own name separately and/ or by a project company eligible under Clause 2.2.2.6(i)(b). In case of Categories 1 and 2, include only those projects which have an estimated capital cost exceeding the amount specified in Clause 2.2.2.6(i)(c) and for Categories 3 and 4, include only those projects where the payments received exceed the amount specified in Clause 2.2.2.6(ii). In case the Bid Due Date falls within 3 (three) months of the close of the latest financial year, refer to Clause 2.1.13.

\* Refer Annex-IV of this Appendix-I. Add more rows if necessary.

<sup>§</sup> Refer Clause 2.2.2.5(i)

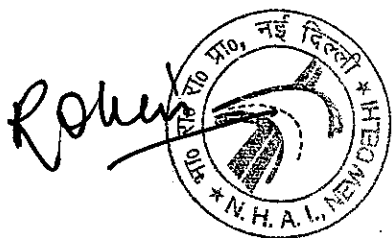
\*\* Construction shall not include supply of goods or equipment except when such goods or equipment form part of a turn-key construction contract/ EPC contract for the project. In no case shall the cost of maintenance and repair, operation of Highways and land be included while computing the Experience Score of an Eligible Project.

<sup>§§</sup> For conversion of US Dollars to Rupees, the rate of conversion shall be Rupees  $^{**} (**)^1$  to a US Dollar.

<sup>£</sup> In the case of an Eligible Project situated in an OECD country, the Experience Score so arrived at shall be further multiplied by 0.5, in accordance with the provisions of Clause 2.2.2.5(ii) and the product thereof shall be the Experience Score for such Eligible Projects.

NOTE: In case of a Joint Venture, information in Annex-II and Annex-IV of Appendix-I shall be provided separately for other Members so as to establish that each such Member has 20 percent or more of the Threshold Technical Capacity. Such information may be provided as Annex-IIA, Annex-IIB, Annex-IVA and Annex-IVB respectively. (Refer Clause 2.2.2.4).

<sup>1</sup>The conversion rate of USD into Rupees shall be the daily representative exchange rates published by the Reserve Bank of India for the relevant date. Where relevant date should be as on the date 28 (twenty eight) days prior to the Application Due Date.



Rohini  
19/12/18





ANNEX-III

**Financial Capacity of the Bidder**

(Refer to Clauses 2.2.2.3, 2.2.2.9(i), 2.2.2.8(iii) of the RFP)

(In Rs. crore<sup>s</sup>)

Bidder type	Net Cash Accruals					Net Worth <sup>§</sup>
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1
Single entity Bidder or Lead Member including other members of the Joint Venture						
TOTAL						

Bidder type	Annual Turnover										Average Annual Turnover (In Rs. crore <sup>s</sup> )
	Year 1		Year 2		Year 3		Year 4		Year 5		
	(Rs.)	Update n factor	(Rs.)	Update n factor	(Rs.)	Update n factor	(Rs.)	Update n factor	(Rs.)	Update n factor	
1	2	3	4	5	6	7	8	9	10	11	(2x3+4x5+6x7+8x9+10x11)/5
Single entity Bidder or Lead Member including other members of the Joint Venture		1.00		1.05		1.10		1.15		1.20	

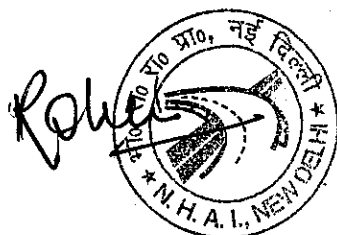
Name & address of Bidder's Bankers:

<sup>§</sup> For conversion of other currencies into rupees, see note below Annex-II of Appendix-I.

<sup>¶</sup>The Bidder should provide details of its own Financial Capacity.

**Instructions:**

- The Bidder shall attach copies of the balance sheets, financial statements and Annual Reports for 5 (five) years preceding the Bid Due Date. The financial statements shall:
  - reflect the financial situation of the Bidder;
  - be audited by a statutory auditor;
  - be complete, including all notes to the financial statements; and
  - correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).
- Net Cash Accruals shall mean Profit After Tax + Depreciation.

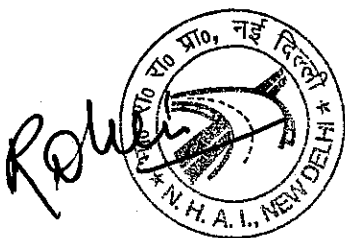


Rohini  
19/12/12

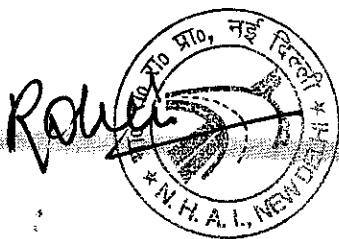


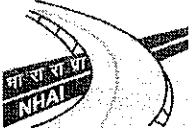
3. Net Worth (the "Net worth") shall mean the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.
4. Year 1 will be the latest completed financial year, preceding the bidding. Year 2 shall be the year immediately preceding Year 1 and so on. In case the Bid Due Date falls within 3 (three) months of the close of the latest financial year, refer to Clause 2.1.13.
5. In the case of a Joint Venture, a copy of the Jt. Bidding Agreement shall be submitted in accordance with Clause 2.1.11 of the RFP document.
6. The Bidder shall also provide the name and address of the Bankers to the Bidder.
7. The Bidder shall provide an Auditor's Certificate specifying the net worth of the Bidder and also specifying the methodology adopted for calculating such net worth in accordance with Clause 2.2.2.9 (ii) of the RFP document.

*Rohit*  
19/12/18



# CORRIGENDUM





# भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन और राजमार्ग मंत्रालय)

## National Highways Authority of India

(Ministry of Road Transport and Highways)

जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075

G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200

फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/BM/ Delhi-Vadodara/2018/Pkg3

27.12.2018

To

All Bidders

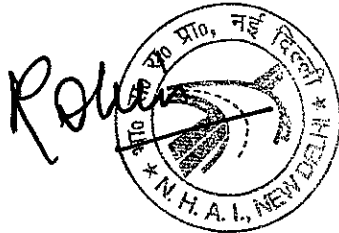
Sub: Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana - *Extension of Bid due date - Reg.*

Bid due date for the subject project has been extended from 27.12.2018 to 31.12.2018 (up to 1500 hrs) with following schedule:-

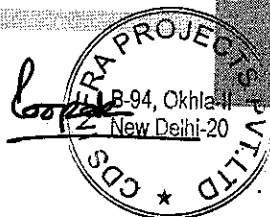
- |   |                         |
|---|-------------------------|
| (i). Deadline for downloading of bid            | - 31.12.2018 (1500 hrs) |
| (ii). Deadline for online submission of bids    | - 31.12.2018 (1500 hrs) |
| (iii). Deadline for physical submission of bids | - 01.01.2019 (1500 hrs) |
| (iv). Opening of bids                           | - 01.01.2019 (1530 hrs) |

All other terms and conditions will remain same.

*Rohin*  
27/12/18  
(Rohin Kumar Gupta)  
General Manager (T)  
Bharatmala



# REVISED RFP



# Request For Proposal

For

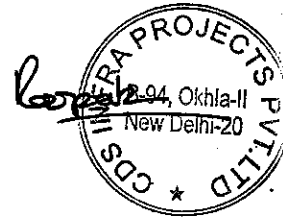
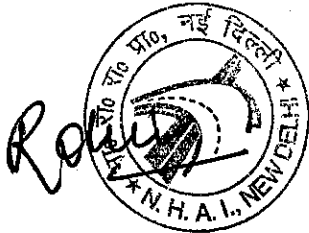
Construction of Eight Lane Expressway  
Starting At Ch. 47+000 Near Khanpur Ghati  
and Ends at Haryana-Rajasthan Border (Km  
47+000 To Km 78+800) Section of Delhi –  
Vadodara Green Field Alignment (NH-  
148N) Under Bharatmala Pariyojana In The  
State Of Haryana

on

**Engineering, Procurement & Construction  
(EPC) Mode**

**National Highways Authority of India  
(NHAI)**

November, 2018

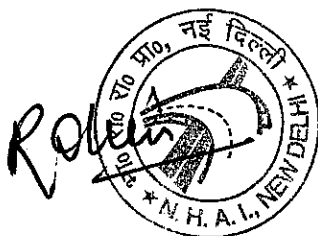


Construction of Eight Lane Expressway Starting at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi – Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode

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**NATIONAL HIGHWAYS AUTHORITY OF INDIA,  
G-5 & 6, SECTOR-10, DWARKA, NEW DELHI-110075**

**Notice Inviting Bid**

NHAI/BM/ Delhi-Vadodara/2018/Pkg3

Dated -23.08.2018

**RFP for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode**

The Ministry of Road Transport & Highways through National Highways Authority of India is engaged in the development of National Highways and as part of this endeavour, it has been decided to undertake Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana through an Engineering, Procurement and Construction (EPC) Contract.

National Highways Authority of India represented by its Chairman now invites bids from eligible contractors for the following project:

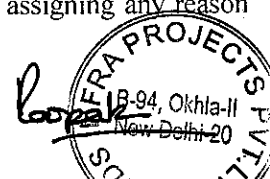
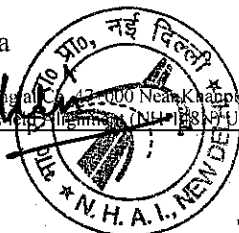
State	NH No.	ICB No.	Name of work	Estimated cost	Completion period	Maintenance period
Haryana	148-N	NHAI/BM/ Delhi-Vadodara/2018/Pkg3	Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode	Rs. 798.55 Crore	2 Years	10 Years

The complete BID document can be viewed / downloaded from official portal of NHAI <http://www.nhai.gov.in> or e-procurement portal of NHAI <http://etenders.gov.in> from 23.08.2018 to 27.12.2018 (upto 1100 Hrs. IST). Bidder must submit its Financial bid at <http://etenders.gov.in> and also on BIMS portal ([www.bims.gov.in](http://www.bims.gov.in)) and Technical Bid at <https://bims.gov.in> on or before 27.12..2018 (upto 1100 hours IST). Bids received online shall be opened on 28.12.2018 (at 1130hours IST).

Bid through any other mode shall not be entertained. However, Bid Security, document fee, Power of Attorney Joint Bidding Agreement etc. shall be submitted physically by the Bidder on or before 28.12.12.2018 (at 1100 hours IST), Please note that the Authority reserves the right to accept or reject all or any of the BIDs without assigning any reason whatsoever.

Officer In-charge  
Mr. Rohin Kumar Gupta

Construction of Eight Lane Expressway Starting at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km.47+000 To Km. 78+800) Section of Delhi – Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode



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General Manager (T)-Bharatmala Division  
National Highways Authority of India,  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075  
Phone:+91-11-25074100/200 (Extn.: 1111)  
E-mail: [rohingupta@nhai.org](mailto:rohingupta@nhai.org)



Construction of Eight Lane Expressway Starting at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi - Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode

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**DISCLAIMER**

The information contained in this Request for Proposal document (the "RFP") or subsequently provided to Bidder(s), whether verbally or in documentary or any other form by or on behalf of the Authority or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an Agreement and is neither an offer nor invitation by the Authority to the prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in making their financial offers (BIDs) pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the Authority in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for the Authority, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in the Bidding Documents, especially the Feasibility Report, may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Authority accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

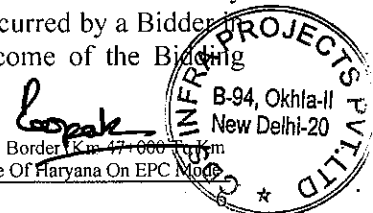
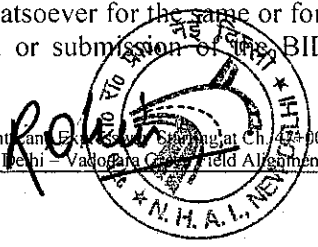
The Authority, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Applicant or Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way for participation in this BID Stage.

The Authority also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP. The Authority may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

The issue of this RFP does not imply that the Authority is bound to select a Bidder or to appoint the Selected Bidder JV or Contractor, as the case may be, for the Project and the Authority reserves the right to reject all or any of the Bidders or BIDs without assigning any reason whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its BID including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Authority or any other costs incurred in connection with or relating to its BID. All such costs and expenses will remain with the Bidder and the Authority shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of its BID, regardless of the conduct or outcome of the Bidding Process.

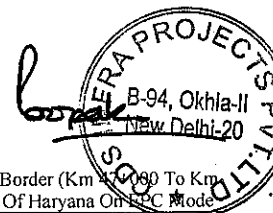
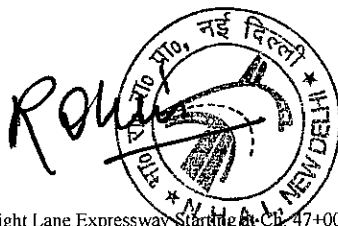
Construction of Eight Lane Expressway at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border Km. 77+000 (Rajm 78+800) Section of Delhi - Vadodra Expressway Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode



## GLOSSARY

<b>Agreement</b>	As defined in Clause 1.1.4
<b>Authority</b>	As defined in Clause 1.1.1
<b>Bank Guarantee</b>	As defined in Clause 2.20.1
<b>BID(s)</b>	As defined in Clause 1.2.2
<b>Bidders</b>	As defined in Clause 1.2.1
<b>Bidding Documents</b>	As defined in Clause 1.1.5
<b>BID Due Date</b>	As defined in Clause 1.1.5
<b>Bidding Process</b>	As defined in Clause 1.2.1
<b>BID Security</b>	As defined in Clause 1.2.4
<b>BID Price or BID</b>	As defined in Clause 1.2.6
<b>Contractor</b>	As defined in Clause 1.1.2
<b>Construction Period</b>	As defined in Clause 1.2.6
<b>Conflict of Interest</b>	As defined in Clause 2.2.1(c)
<b>Defect Liability Period</b>	As defined in Clause 1.2.6
<b>Eligible Experience</b>	As defined in Clause 2.2.2.5 (i)
<b>Eligible Projects</b>	As defined in Clause 2.2.2.5 (i)
<b>EPC</b>	As defined in Clause 1.1.1
<b>EPC Contract</b>	As defined in Clause 1.1.2
<b>Estimated Project Cost</b>	As defined in Clause 1.1.3
<b>Feasibility Report</b>	As defined in Clause 1.2.3
<b>Financial Capacity</b>	As defined in Clause 2.2.2.3 (i)
<b>Government</b>	Government of India
<b>Joint Venture</b>	As defined in Clause 2.2.1
<b>Jt. Bidding Agreement</b>	As defined in Clause 2.1.11(f)
<b>Lead Member</b>	As defined in Clause 2.1.11 (c)
<b>Lowest Bidder</b>	As defined in Clause 1.2.6
<b>LOA</b>	As defined in Clause 3.3.4
<b>Net Worth</b>	As defined in Clause 2.2.2.9 (ii)
<b>Performance Security</b>	As defined in Clause 2.21.1
<b>Additional Performance Security</b>	As defined in Clause 2.21.1
<b>Project</b>	As defined in Clause 1.1.1
<b>Re. or Rs. or INR</b>	Indian Rupee
<b>RFP or Request for Proposals</b>	As defined in the Disclaimer
<b>Selected Bidder</b>	As defined in Clause 3.3.1
<b>Technical Capacity</b>	As defined in Clause 2.2.2.2 (i)
<b>Tie BIDs</b>	As defined in Clause 3.3.2
<b>Threshold Technical Capacity</b>	As defined in Clause 2.2.2.2 (i)

The words and expressions beginning with capital letters and defined in this document shall, unless repugnant to the context, have the meaning ascribed thereto herein.



Construction of Eight Lane Expressway Starting At Ch-47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 78+800 To Km 78+800) Section of Delhi – Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode

**NATIONAL  
HIGHWAYS AUTHORITY OF INDIA**

**SECTION I**

**INTRODUCTION**

**1.1 Background**

1.1.1 National Highways Authority of India represented by Chairman (the “**Authority**”) is engaged in the development of National Highways and as part of this endeavour, the Authority has decided to undertake Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana (the “**Project**”) through an Engineering, Procurement and Construction (the “**EPC**”) Contract, and has decided to carry out the bidding process for selection of a Bidder to whom the Project may be awarded. A brief description of the project may be seen in the Information Memorandum of the Project at the CPPP website [https:// www.eprocure.gov.in](https://www.eprocure.gov.in) & Authority’s Website [www.nhai.gov.in](http://www.nhai.gov.in) and <https://bims.gov.in>. Brief particulars of the Project are as follows:

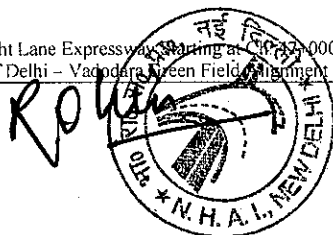
Name of the National Highway	Length in Km	Estimated Project Cost (In Rs. cr.)	No of Years for completion of work
Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana	31.800	798.55	2 years

1.1.2 The selected Bidder (the “**Contractor**”) shall be responsible for designing, engineering, procurement and construction of the Project under and in accordance with the provisions of an engineering, procurement and construction contract (the “**EPC Contract**”) to be entered into between the Contractor and the Authority in the form provided by the Authority as part of the Bidding Documents pursuant hereto. The Contractor shall also be responsible for the maintenance of the project during the Defect Liability Period. The scope of work will broadly include Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana and maintenance of the Project during the Defect Liability Period, which shall be 10 years.

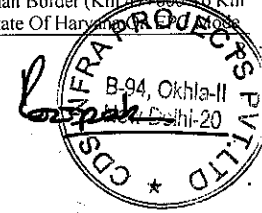
1.1.3 The estimated cost of the Project (the “**Estimated Project Cost**”) has been specified in the clause 1.1.1 above. The assessment of actual costs, however, will have to be made by the Bidders.

1.1.4 The Agreement sets forth the detailed terms and conditions for award of the project to the Contractor, including the scope of the Contractor’s services and obligations.

Construction of Eight Lane Expressway Starting at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi – Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana



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1.1.5 The Authority shall receive BIDs pursuant to this RFP in accordance with the terms set forth in this RFP and other documents to be provided by the Authority pursuant to this RFP (collectively the "**Bidding Documents**"), and all BIDs shall be prepared and submitted in accordance with such terms on or before the BID due date specified in Clause 1.3 for submission of BIDs (the "**BID Due Date**").

1.2 **Brief description of Bidding Process**

1.2.1 The Authority has adopted a single stage two part system (referred to as the "**Bidding Process**") for selection of the Bidder for award of the Project. Under this process, the bid shall be invited under two parts. Eligibility and qualification of the Bidder will be first examined based on the details submitted under first part (Technical Bid) with respect to eligibility and qualifications criteria prescribed in this RFP (the "**Bidder**", which expression shall, unless repugnant to the context, include the members of the Joint Venture). The Financial Bid under the second part shall be opened of only those Bidders whose Technical Bids are responsive to eligibility and qualifications requirements as per this RFP.

GOI has issued guidelines (see Annexure VII of Appendix-1A of RFP) for qualification of Bidders seeking to acquire stakes in any public sector enterprise through the process of disinvestment. These guidelines shall apply mutatis mutandis to this Bidding Process. The Authority shall be entitled to disqualify any Bidder in accordance with the aforesaid guidelines at any stage of the Bidding Process. Bidders must satisfy themselves that they are qualified to bid, and should give an undertaking to this effect in the form at Appendix-1A .

1.2.2 The Bid shall be valid for a period of 120 days from the date specified in Clause 1.3 for submission of BIDs.

1.2.3 The complete Bidding Documents including the draft Agreement for the Project is enclosed for the Bidders. The Feasibility Report / Detailed Project Report prepared by the Authority/ consultants of the Authority (the "**Feasibility Report/Detailed Project Report**") is also enclosed. The Feasibility Report / Detailed Project Report of the Project is being provided only as a preliminary reference document by way of assistance to the Bidders who are expected to carry out their own surveys, investigations and other detailed examination of the Project before submitting their Bids. Nothing contained in the Feasibility Report/Detailed Project Report shall be binding on the Authority nor confer any right on the Bidders, and the Authority shall have no liability whatsoever in relation to or arising out of any or all contents of the Feasibility Report/Detailed Project Report. The aforesaid documents and any addenda issued subsequent to this RFP Document, will be deemed to form part of the Bidding Documents.

1.2.4 A Bidder is required to submit, along with its BID, a BID Security of Rs. **7.99 Crore (Rupees Seven Crore and Ninety Nine Lakh only)** (the "**BID Security**"), refundable not later than 150 (One hundred & fifty) days from the BID Due Date, except in the case of the Selected Bidder whose BID Security shall be retained till it has provided a Performance Security and Additional Performance Security (if any) as per the provision of this RFP and LOA. The Bidders shall also submit Demand Draft for Rs. 80,000/- (Rupees eighty thousand only) issued from a scheduled Bank in India in favour of National Highways Authority of India" payable at

Construction of Eight Lane Expressway Starting at Km 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi - Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode



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New Delhi.

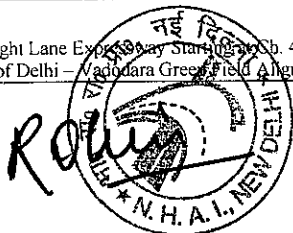
- 1.2.5 Bidders are advised to examine the Project in greater detail, and to carry out, at their cost, such studies as may be required for submitting their respective BIDs for award of the contract including implementation of the Project.
- 1.2.6 BIDs will be evaluated for the Project on the basis of the lowest cost required by a Bidder for implementing the Project (the "**BID Price**"). The total time allowed for completion of construction under the Agreement (the "**Construction Period**") and the period during which the Contractor shall be liable for maintenance and rectification of any defect or deficiency in the Project after completion of the Construction Period (the "**Defect Liability Period**") shall be pre-determined, and are specified in the draft Agreement forming part of the Bidding Documents.
- In this RFP, the term "**Lowest Bidder**" shall mean the Bidder who is quoting the lowest BID price.
- 1.2.7 Generally, the Lowest Bidder shall be the selected Bidder. In case such Lowest Bidder withdraws or is not selected for whatsoever reason except the reason mentioned in Clause 2.1.12 (b) (4), the Authority shall annul the Bidding Process and invite fresh BIDs.
- 1.2.8 Other details of the process to be followed under this bidding process and the terms thereof are spelt out in this RFP.
- 1.2.9 Any queries or request for additional information concerning this RFP shall be submitted by e-mail to the officer designated in Clause 2.11.4 below with identification/ title: "Queries / Request for Additional Information: RFP for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode Project".

### 1.3 Schedule of Bidding Process

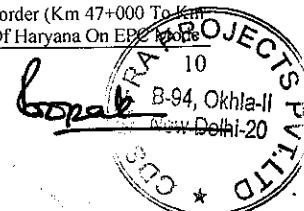
The Authority shall endeavour to adhere to the following schedule:

Sl. No.	Event Description	Date
1.	Invitation of RFP (NIT)	23.08.2018
2.	Last date for receiving queries	18.09.2018 (at 1100 Hrs)
3.	Pre-BID meeting (I) at venue 2.11.4 (i)	18.09.2018 (at 1100 Hrs)
4.	Authority response to queries (I)	05.11.2018
5.	Pre-BID meeting (II) at venue 2.11.4 (i)	05.12.2018 (at 1100 Hrs)
6.	Authority response to queries (II) latest by	12.12.2018
7.	Last date of Request for BID Document	27.12.2018, up to 1100 Hrs IST

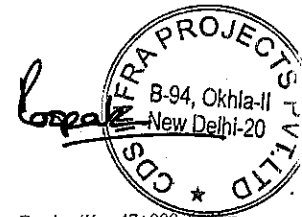
Construction of Eight Lane Expressway Starting at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi – Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode



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8.	BID Due Date	27.12.2018, up to 1100 Hrs IST
9.	Physical Submission of Bid Security/POA etc	28.12.2018, up to 1100 Hrs IST
10.	Opening of Technical BIDs at venue 2.11.4 (i)	28.12.2018, up to 1130 Hrs IST
11.	Declaration of eligible / qualified Bidders	to be notified
12.	Opening of Financial BID	to be notified
13.	Letter of Acceptance(LOA)	to be notified
14.	Return of signed duplicate copy of LOA	to be notified
15.	Validity of BID	120 days from BID Due Date
16.	Submission of Performance Security (PS) and Additional Performance Security (APS), if any	Within 30 days of receipt of LOA. (The bidder has the option to provide 50% of PS and APS, if any within 30 days of receipt of LOA and the remaining PS and APS, if any to be provided within 30 days of signing of agreement)
15.	Signing of Agreement	Within 10 days from the receipt of 50% of Performance Security and 50% of Additional Performance Security, if any



Construction of Eight Lane Expressway Starting at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi – Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode



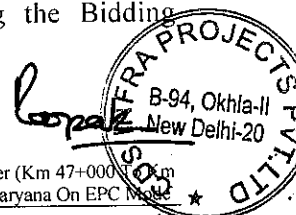
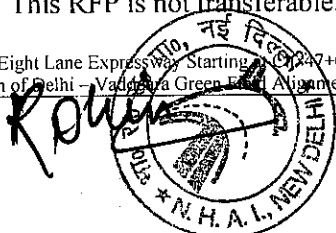
**SECTION-2**  
**INSTRUCTIONS TO BIDDERS**

**A. GENERAL**

**2.1. General terms of Bidding**

- 2.1.1 No Bidder shall submit more than one BID for the Project. A Bidder bidding individually or as a member of a Joint Venture shall not be entitled to submit another BID either individually or as a member of any Joint Venture, as the case may be.
- 2.1.2 An International Bidder bidding individually or as a member of a Joint Venture shall ensure that Power of Attorney is apostilled by appropriate authority and requirement of Indian Stamp Act is duly fulfilled.
- 2.1.3 Notwithstanding anything to the contrary contained in this RFP, the detailed terms specified in the draft Agreement shall have overriding effect; provided, however, that any conditions or obligations imposed on the Bidder hereunder shall continue to have effect in addition to its obligations under the Agreement. Further, the statements and explanations contained in this RFP are intended to provide a better understanding to the Bidders about the subject matter of this RFP and should not be construed or interpreted as limiting in any way or manner the scope of services and obligations of the Contractor set forth in the Agreement or the Authority's rights to amend, alter, change, supplement or clarify the scope of work, the work to be awarded pursuant to this RFP or the terms thereof or herein contained. Consequently, any omissions, conflicts or contradictions in the Bidding Documents including this RFP are to be noted, interpreted and applied appropriately to give effect to this intent, and no claims on that account shall be entertained by the Authority
- 2.1.4 The BID shall be furnished in the format exactly as per Appendix-I i.e. Technical Bid as per Appendix IA and Financial Bid as per Appendix IB. BID amount shall be indicated clearly in both figures and words, in Indian Rupees in prescribed format of Financial Bid and it will be signed by the Bidder's authorised signatory. In the event of any difference between figures and words, the amount indicated in words shall be taken into account.
- 2.1.5 The Bidder should submit a Power of Attorney as per the format at Appendix-III, authorising the signatory of the BID to commit the Bidder.
- 2.1.6 In case the Bidder is a Joint Venture, the Members thereof should furnish a Power of Attorney in favour of the Lead Member in the format at Appendix-IV and Joint Bidding Agreement in the format at Appendix V.
- 2.1.7 Any condition or qualification or any other stipulation contained in the BID shall render the BID liable to rejection as a non-responsive BID.
- 2.1.8 The BID and all communications in relation to or concerning the Bidding Documents and the BID shall be in English language.
- 2.1.9 This RFP is not transferable.

Construction of Eight Lane Expressway Starting At Km 27+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000) on  
78+800) Section of Delhi - Vaddawa Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode



2.1.10 Any award of Project pursuant to this RFP shall be subject to the terms of Bidding Documents and also fulfilling the criterion as mentioned in clause 2.2.

2.1.11 In case the Bidder is a Joint Venture, it shall comply with the following additional requirements:

- (a) Number of members in a Joint Venture shall not exceed 3 (Three);
- (b) subject to the provisions of clause (a) above, the Bid should contain the information required for each Member of the Joint Venture;
- (c) Members of the Joint Venture shall nominate one member as the lead member (the "Lead Member"). Lead Member shall meet at least 60% requirement of Bid Capacity, Technical and Financial Capacity, required as per Clause 2.2.2.1, 2.2.2.2(i) & 2.2.2.3. The nomination(s) shall be supported by a Power of Attorney, as per the format at Appendix-III, signed by all the other Members of the Joint Venture. Other Member(s) shall meet at least 20% requirement of Bid Capacity, Technical and Financial Capacity required as per Clause 2.2.2.1, 2.2.2.2(i) & 2.2.2.3 and the JV as a whole shall cumulatively/collectively fulfil the 100% requirement;
- (d) the Bid should include a brief description of the roles and responsibilities of individual members, particularly with reference to financial, technical and defect liability obligations;
- (e) the Lead Member shall itself undertake and perform at least 51(fifty one) per cent of the total length of the Project Highway,
- (f) members of the Joint Venture shall have entered into a binding Joint Bidding Agreement, substantially in the form specified at Appendix V (the "Jt. Bidding Agreement"), for the purpose of making the Application and submitting a Bid in the event of being pre-qualified. The Jt. Bidding Agreement, to be submitted along with the Application, shall, *inter alia*:
  - (i) convey the commitment(s) of the Lead Member in accordance with this RFP, in case the contract to undertake the Project is awarded to the Joint Venture; and clearly outline the proposed roles & responsibilities, if any, of each member;
  - (ii) commit the approximate share of work to be undertaken by each member conforming to sub-clause 2.1.11 (e) mentioned above;
  - (iii) include a statement to the effect that all members of the Joint Venture shall be liable jointly and severally for all obligations of the Contractor in relation to the Project until the Defect Liability Period is achieved in accordance with the EPC Contract; and
- (g) except as provided under this RFP, there shall not be any amendment to the Jt. Bidding Agreement.
- (h) No Joint Venture up to Estimate Project Cost of Rs. 100 crores (One Hundred Crores).

2.1.12 While bidding is open to persons from any country, the following provisions shall apply:

(a) Where, on the date of the Application, not less than 50% (fifty percent) of the aggregate issued, subscribed and paid up equity share capital in the L-1 Bidder or its Member is held by persons resident outside India or where a Bidder or its Member is controlled by persons resident outside India, then the eligibility and award of the project to such L-1 Bidder shall be subject to approval of the competent authority from national security and public interest perspective as per the instructions of the Government of India applicable at such time. The decision of the authority in this behalf shall be final and conclusive and binding on the Bidder.

(b) Further, where the LoA of a project has been issued to an agency, not covered under the category mentioned above, and it subsequently wishes to transfer its share capital in favour of another entity who is a resident outside India or where a Bidder or its Member is controlled by persons resident outside India and thereby the equity capital of the transferee entity exceeds 50% or above, any such transfer of equity capital shall be with the prior approval of the competent authority from national security and public interest perspective as per the instructions of the Government of India applicable at such point in time.

(2) The holding or acquisition of equity control, as above shall include direct or indirect holding, acquisition, including by transfer of the direct or indirect legal or beneficial ownership or control, by persons acting for themselves or in concert and in determining such holding or acquisition, the Authority shall be guided by the principles, precedents and definitions contained in the Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers) Regulations, 2011, or any substitute thereof, as in force on the date of such acquisition.

(3) The Bidder shall promptly inform the authority of any change in the shareholding, as above, and failure to do so shall render the Bidder liable for disqualification from the Bidding process.

(4) In case the L-1 Applicant under (a) above is denied the security clearance, for whatsoever reasons, then the applicants emerging as L-2, L-3 eligible Bidders (in that order) may be given a counter-offer (one by one sequentially) to match the bid of L-1 applicant/preferred Bidder. In the event of acceptance of the counter-offer by another eligible Bidder, the project may be awarded to such Bidder. In case no applicant matches the bid of the L-1 applicant, the bid process shall be annulled and fresh bids invited.

2.1.13 Notwithstanding anything to the contrary contained herein, in the event that the Bid Due Date falls within three months of the closing of the latest financial year of a Bidder, it shall ignore such financial year for the purposes of its Bid and furnish all its information and certification with reference to the 5 (five) years or 1 (one) year, as the case may be, preceding its latest financial year. For the avoidance of doubt, financial year shall, for the purposes of a Bid hereunder, mean the accounting year followed by the Bidder in the course of its normal business.

2.1.14 The Bidder, including an individual or any of its Joint Venture member, should not be a non-performing party on the bid submission date. The Bidder, including any Joint Venture Member, shall be deemed to be a non-performing party (not applicable to the project whose contract is terminated by the Authority) if it attracts any or more of the following parameters:

- (i) Fails to complete or has missed more than two milestones in already awarded two or more projects, even after lapse of 6 months from the scheduled completion date, unless Extension of Time has been allowed on the recommendations of the Independent Engineer due to Authority's default;
- (ii) Fails to complete a project, as per revised schedule, for which One Time Fund Infusion (OTFI) has been sanctioned by the Authority;
- (iii) Physical progress on any project is not commensurate with the funds released (equity+debt+grant) from the escrow account and such variation is more than 25% in last one year as observed by the Independent Engineer in one or more projects;
- (iv) Punch List Items in respect of any project are pending due to Bidder's default in two or more Projects even after lapse of the prescribed time for completion of such items;
- (v) Fails to fulfil its obligations to maintain a highway in a satisfactory condition inspite of two rectification notices issued in this behalf;
- (vi) Fails to attend to Non Conformity Reports (NCRs) issued by the Independent/ Authority's Engineer on the designs/ works constructed by the Bidder pending for more than one year in two or more projects.
- (vii) Fails to make premium payments excluding the current instalment in one or more projects.
- (viii) Damages/ Penalties recommended by the Independent/ Authority's Engineer on the Bidder during O&M period and the remedial works are not taken up in two or more projects.
- (ix) Fails to achieve financial closure in two or more projects within the given or extended period (which shall not be more than six months in any case).
- (x) Fails to submit the Performance Security within the permissible period in more than one project(s).
- (xi) Rated as an unsatisfactory performing entity/ non-performing entity by an independent third party agency and so notified on the website of the Authority.

(xii) Has Failed to perform for the works of Expressways, National Highways, ISC & EI works in the last 2(two) years, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitral award against the Bidder, including individual or any of its Joint Venture Member, as the case may be.

- (xiii) Has been expelled or the contract terminated by the Ministry of Road Transport & Highways or its implementing agencies for breach by such Bidder, including individual or any of its Joint Venture Member; Provided that any such decision of expulsion or termination of contract leading to debarring of the Bidder from further participation in bids for the prescribed period should have been ordered after affording an opportunity of hearing to such party.

The Bidder, including individual or each member of Joint Venture, shall give the list of the projects of Expressways, National Highways, ISC and EI works of Ministry of Road Transport & Highways or its implementing agencies (NHAI/ NHIDCL/State PWDs) and the status of above issues in each project as on the bid submission date and undertake that they do not attract any of the above categories (Ref. Sr. No.6, Annex-I of Appendix – IA).

The Bidder including individual or any of its Joint Venture Member may provide

- (i) details of all their on-going projects alongwith updated stage of litigation, if so, against the Authority / Governments;
- (ii) details of updated on-going process of blacklisting if so, under any contract with Authority / Government; and
- (iii) details of all their on-going projects in the format at Annexure-VIII of Appendix IA (Ref Clause 10.3 (iv) of Draft EPC Agreement).

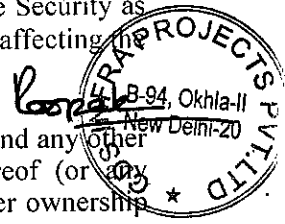
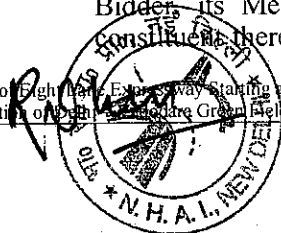
The Authority reserves the right to reject an otherwise eligible Bidder on the basis of the information provided under this clause 2.1.14. The decision of the Authority in this case shall be final

## 2.2. Eligibility and qualification requirements of Bidder

2.2.1 For determining the eligibility of Bidder the following shall apply:

- (a) The Bidder may be a single entity or a group of entities (the “**Joint Venture**”), coming together to implement the Project. The term Bidder used herein would apply to both a single entity and a Joint Venture. However, in case the estimated cost of the project for which bid is invited is upto Rs. 100 Crore, then Joint Venture shall not be allowed.
- (b) Bidder may be a natural person, private entity, or any combination of them with a formal intent to enter into a Joint Venture agreement or under an existing agreement to form a Joint Venture. A Joint Venture shall be eligible for consideration subject to the conditions set out in Clause 2.1.11 above.
- (c) A Bidder shall not have a conflict of interest (“**Conflict of Interest**”) that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified and liable for forfeiture of the BID Security or Performance Security as the case may be. A Bidder shall be deemed to have a Conflict of Interest affecting the Bidding Process, if:
  - (i) the Bidder, its Joint Venture Member (or any constituent thereof) and any other Bidder, its Member or any Member of its Joint Venture thereof (or any constituent thereof) have common controlling shareholders or other ownership

Construction of Eight Lane Expressway starting at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Bharatmala Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode



interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding of a Bidder, or its Joint Venture Member thereof (or any shareholder thereof having a shareholding of more than 5% (five percent) of the paid up and subscribed share capital of such Bidder, or its Joint Venture Member, as the case may be), in the other Bidder, its Joint Venture Member is less than 5% (five percent) of the subscribed and paid up equity share capital thereof; provided further that this disqualification shall not apply to any ownership by a bank, insurance company, pension fund or a public financial institution referred to in section 4A of the Companies Act 1956. For the purposes of this Clause 2.2.1(c), indirect shareholding held through one or more intermediate persons shall be computed as follows: (aa) where any intermediary is controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the "Subject Person") shall be taken into account for computing the shareholding of such controlling person in the Subject Person; and (bb) subject always to sub-clause (aa) above, where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on a proportionate basis; provided, however, that no such shareholding shall be reckoned under this sub-clause (bb) if the shareholding of such person in the intermediary is less than 26% of the subscribed and paid up equity shareholding of such intermediary; or

- (ii) a constituent of such Bidder is also a constituent of another Bidder; or
- (iii) such Bidder, or any of its Joint Venture Member thereof receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder, or any of its Joint Venture Member thereof or has provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder, its Member or any of its Joint Venture Member thereof; or
- (iv) such Bidder has the same legal representative for purposes of this Application as any other Bidder; or
- (v) such Bidder, or any of its Joint Venture Member thereof has a relationship with another Bidder, or any of its Joint Venture Member thereof, directly or through common third party/ parties, that puts either or both of them in a position to have access to each others' information about, or to influence the Application of either or each other; or
- (vi) such Bidder, or any of its Joint Venture Member thereof has participated as a consultant to the Authority in the preparation of any documents, design or technical specifications of the Project.

## 2.2.2 Qualification requirements of Bidders:

### 2.2.2.1 BID Capacity

Bidders who *interalia* meet the minimum qualification criteria will be qualified only if their available BID capacity is more than the total BID value (value as per Clause 1.1.1). The available BID capacity will be calculated as per following, based on information mentioned at Annexure-VI of Appendix-IA:

Assessed Available BID capacity = (A\*N\*2.5 – B + C), Where

N= Number of years prescribed for completion of work for which Bid is invited.

A = Maximum value of civil engineering works excluding the amount of bonus received, if any, in respect of EPC Projects executed in any one year during the last five years (updated to the price level of the year indicated in table at Note-3 below) taking into account the completed as well as works in progress. The **EPC projects** include turnkey project/ Item rate contract/ Construction works.

B = Value (updated to the price level of the year indicated in table at Note-3 below) of existing commitments, works for which Appointed Date/ Commencement Date has been declared or on-going works to be completed during the period of completion of the works for which BID is invited. For the sake of clarification, it is mentioned that works for which LOA has been issued but Appointed Date/ Commencement Date not declared as on Bid Due Date shall not be considered while calculating value of B.

C = The amount of bonus received, if any, in EPC Projects during the last 5 years (updated to the price level of the year indicated in table at Note-3 below).

Note:

1. The Statement showing the value of all existing commitments, works for which Appointed Date/ Commencement Date has been declared and ongoing works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Client or its Engineer-in-charge not below the rank of Executive Engineer or equivalent in respect of EPC Projects or Concessionaire / Authorised Signatory of SPV in respect of BOT Projects and verified by Statutory Auditor.

2. The amount of bonus received, if any, in EPC Projects should be countersigned by the Client or its Engineer-in-charge not below the rank of Executive Engineer or equivalent in respect of EPC Projects.

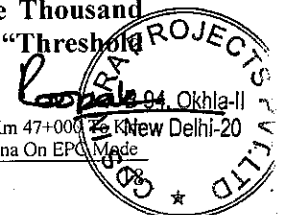
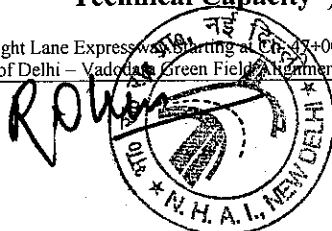
3. The factor for the year for updation to the price level is indicated as under:

Year	Year-1	Year-2	Year-3	Year-4	Year-5
Up-dation factor	1.00	1.05	1.10	1.15	1.20

### 2.2.2.2 Technical Capacity

(i) For demonstrating technical capacity and experience (the “**Technical Capacity**”), the Bidder shall, over the past 5 (five) financial years preceding the Bid Due Date, have received payments for construction of Eligible Project(s), or has undertaken construction works by itself in a PPP project, such that the sum total thereof, as further adjusted in accordance with clause 2.2.2.5 (i) & (ii), is more than **Rs. 1597.10 crore (Rupees One Thousand Five Hundred Ninety Seven Crore and Ten Lakh only)** (the “**Threshold Technical Capacity**”).

Construction of Eight Lane Expressway Starting at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 to New Delhi-20  
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(ii) For normal Highway projects (including Major Bridges/ROB/Flyovers/Tunnels):

Provided that at least one similar work of 25% of Estimated Project Cost Rs. **199.64 crore (Rupees One Hundred Ninety Nine crore and Sixty Four Lakh only)** shall have been completed from the Eligible Projects in Category 1 and/or Category 3 specified in Clause 2.2.2.5. For this purpose, a project shall be considered to be completed, if more than 90% of the value of work has been completed and such completed value of work is equal to or more than 25% of the estimated project cost.

The sole Bidder or in case the Bidder being a Joint Venture, any member of Joint Venture shall necessarily demonstrate additional experience in construction of Major Bridge/ROBs/Flyovers in the last 5 (Five) financial years preceding the Bid Due Date i.e. shall have completed atleast one similar Major Bridge/ROB/Flyover having span equal to or greater than 22.5 meter (i.e. 50% of the longest span of the structure proposed in this project).

2.2.2.3 **Financial Capacity:**

(i) The Bidder shall have a minimum Net Worth (the "Financial Capacity") of **Rs. 39.93 crore (Rs. Thirty Nine crore and Ninety Three Lakh only)** at the close of the preceding financial year.

(ii) The Bidder shall have a minimum Average Annual Turnover (updated to the price level of the year based on factors indicated in table below) of **Rs. 159.71 crore (Rs One Hundred Fifty Nine Crore and Seventy One Lakh only)** for the last 5 (five) financial years.

Year	Year-1	Year-2	Year-3	Year-4	Year-5
Up-dation factor	1.00	1.05	1.10	1.15	1.20

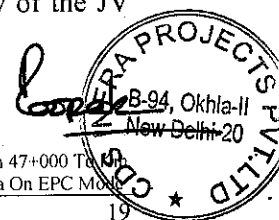
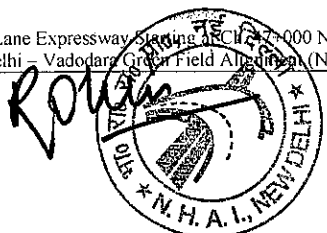
2.2.2.4 In case of a Joint Venture:

(i) The Bid Capacity, Technical Capacity and Financial Capacity of all the Members of Joint Venture would be taken into account for satisfying the above conditions of eligibility. Further, Lead Member shall meet at least 60% requirement of Bid Capacity, Technical and Financial Capacity as per Clause 2.2.2.1, 2.2.2.2(i) and 2.2.2.3 and each of other JV members shall meet at least 20% requirement of Bid Capacity, Technical and Financial Capacity individually as per Clause 2.2.2.1, 2.2.2.2(i) and 2.2.2.3. For avoidance of doubt it is further clarified that the Joint Venture must collectively and individually satisfy the above qualification criteria i.e. JV shall cumulatively/collectively fulfill the 100% requirement.

(ii) For requirement of 2.2.2.2 (ii), one similar work of 25% of Estimated Project Cost should have been completed from the Eligible Projects in Category 1 and/or Category 3 specified in Clause 2.2.2.5 individually by any of the JV members as a single work.

2.2.2.5 Categories and factors for evaluation of Technical Capacity:

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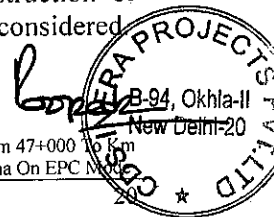
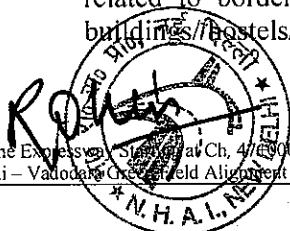


- (i) Subject to the provisions of Clause 2.2.2 the following categories of experience would qualify as Technical Capacity and eligible experience (the "**Eligible Experience**") in relation to eligible projects as stipulated in Clauses 2.2.2.6 (i) & (ii) (the "**Eligible Projects**"). In case the Bidder has experience across different categories, the experience for each category would be computed as per weight of following factors to arrive at its aggregated Eligible Experience:

Category	Project / Construction experience on Eligible Projects	Factors
1	Project in highways sector that qualify under Clause 2.2.2.6 (i)	1
2	Project in core sector that qualify under Clause 2.2.2.6 (i)	0.50
3	Construction in highways sector that qualify under Clause 2.2.2.6 (ii)	1
4	Construction in core sector that qualify under Clause 2.2.2.6 (ii)	0.50

- (ii) The Technical capacity in respect of an Eligible Project situated in a developed country which is a member of OECD shall be further multiplied by a factor of 0.5 (zero point five) and the product thereof shall be the Experience Score for such Eligible Project.
- (iii) For the purpose of this RFP:
- highways sector would be deemed to include highways, expressways, bridges, tunnels and airfields; and
  - core sector would be deemed to include civil construction cost of ports, power sector, commercial setups (SEZs etc.), airports, railways, metro rail, industrial parks/ estates, logistic parks, pipelines, irrigation, water supply, sewerage and real estate development.
- (I) In case of projects executed by applicant under category 3 and 4 as a member of Joint Venture, the project cost should be restricted to the share of the applicant in the joint venture for determining eligibility as per provision under clause 2.2.2.2 (ii). In case Statutory Auditor certifies that, the work of other member(s) is also executed by the applicant, then the total share executed by applicant can be considered for determining eligibility as per provision under clause 2.2.2.2 (ii).
- (II) Maintenance works are not considered as eligible project for evaluation as per Instruction No.6 to Annex-IV. As such works with nomenclature like PR, OR, FDR,SR, site/micro grading, surface renewal, resurfacing work, Tarring, B.T. surface work, temporary restoration, urgent works, periodic maintenance, repair & rehabilitation, one time maintenance, permanent protection work of bank, external pre stressing, repair of central hinge, short term OMT contract of NHAI, any type of work related to border fencing, work of earthwork alone, construction of buildings/hostels/hospitals, etc, or not specified, shall not be considered.

Construction of Eight Lane Expressway, Sl. No. 47/2000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 to Km 78+800) Section of Delhi - Vadodra Greenfield Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode

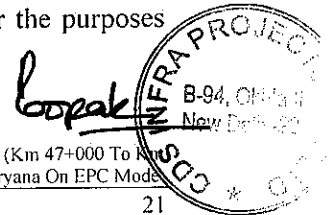
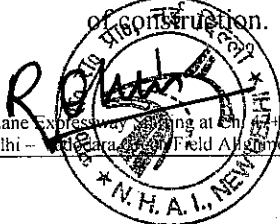


- (III) The works such as Improvement in Riding Quality work (IRQP/IRQ), shall be considered for Technical Capacity 2.2.2.2 (i) but not for single completed works 2.2.2.2 (ii)
- (IV) Project in Highway sector shall constitute the following for the purpose of consideration under category 1 or 3 as applicable, if:
- (i) Widening / reconstruction / up-gradation works on NH / SH or on any category of road taken up under CRF, ISC/ EI, SARDP, LWE
  - (ii) Widening/ re-construction/up-gradation works on MDRs with loan assistance from multilateral agencies or on BOT basis,
  - (iii) Widening/ reconstruction / up-gradation work of roads in Municipal corporation limits, construction of Bypasses,
  - (iv) Construction of stand- alone bridges, ROBs, tunnels w.r.t roads.
  - (v) Long term OMT works of NHAI/MoRT&H.
- (V) The projects with the title of RIDF, PMGSY road, link road, city roads, rural road, sector/ municipality road, Bridges for railway line, work of metro rails (bridges/ tunnel), real estate projects which demonstrate road development/construction bridges or culverts may be considered under category — 4.
- (VI) In case both the estimated cost of project and revised cost of project are provided, the revised cost of project shall be considered for evaluation.

2.2.2.6 Eligible Experience on Eligible Projects in respect of each category:

- (i) For a project to qualify as an Eligible Project under Categories 1 and 2:
- (a) It should have been undertaken as a PPP project on BOT, BOLT, BOO, BOOT or other similar basis for providing its output or services to a public sector entity or for providing non-discriminatory access to users in pursuance of its charter, concession or contract, as the case may be. For the avoidance of doubt, a project which constitutes a natural monopoly such as an airport or port should normally be included in this category even if it is not based on a long-term agreement with a public entity;
  - (b) the entity claiming experience should have held, in the company owning the Eligible Project, a minimum of 26% (twenty six per cent) equity during the entire year for which Eligible Experience is being claimed;
  - (c) the capital cost of the project should be more than 10% of the amount specified as the Estimated Project Cost; and
  - (d) the entity claiming experience shall, during the last 5 (five) financial years preceding the Bid Due Date, have itself undertaken the construction of the project for an amount equal to at least one half of the Project Cost of eligible projects, excluding any part of the project for which any contractor, sub-contractor or other agent was appointed for the purposes

Construction of Eight Lane Expressway starting at Km 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi - Jhansi Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode



- (ii) For a project to qualify as an Eligible Project under Categories 3 and 4, the Bidder should have received payments from its client(s) for construction works executed, fully or partially, or work executed and certified by the Engineer-in-charge/Independent Engineer/Authority's Engineer during the 5 (five) financial years immediately preceding the Bid Due Date, and only the amounts (gross) actually received/ work executed, during such 5 (five) financial years shall qualify for purposes of computing the Experience Score. However, receipts of or work executed amount less than **Rs. 79.86 crore (Rs. Seventy Nine Crore and Eighty Six Lakh only)** shall not be reckoned as receipts for Eligible Projects. For the avoidance of doubt, construction works shall not include supply of goods or equipment except when such goods or equipment form part of a turn-key construction contract / EPC contract for the project. Further, the cost of land and also cost towards pre-construction activities (like shifting of utilities etc.) shall not be included hereunder.
- (iii) The Bidder shall quote experience in respect of a particular Eligible Project under any one category only, even though the Bidder (either individually or along with a member of the Joint Venture) may have played multiple roles in the cited project. Double counting for a particular Eligible Project shall not be permitted in any form.
- (iv) Experience for any activity relating to an Eligible Project shall not be claimed by two or more Members of the Joint Venture. In other words, no double counting by a Joint Venture in respect of the same experience shall be permitted in any manner whatsoever.

2.2.2.7 Submission in support of Technical Capacity

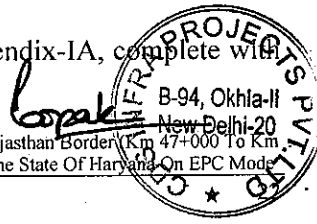
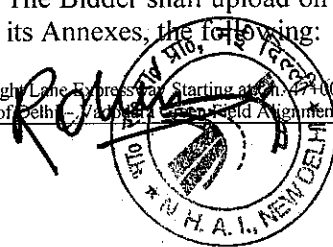
- (i) The Bidder shall update details of Experience (ongoing and completed projects) on the Bidder Information Management System (BIMS) [www.bims.gov.in](http://www.bims.gov.in) on a regular basis. The details of Eligible Experience for the last 5 financial years, necessary information relating to Technical Capacity and Project Specific Information shall be taken from the information uploaded on BIMS.

2.2.2.8 Submission in support of Financial capacity

- (i) The Bidder shall upload financial details along with supporting financial documents (E.g., Audited Annual Reports) on BIMS on a regular basis.
- (ii) In case the annual accounts for the latest financial year are not audited and therefore the Bidder cannot make it available, the Bidder shall upload on BIMS an undertaking to this effect and the statutory auditor shall certify the same. In such a case, the Bidder shall provide the Audited Annual Reports for 5 (five) years preceding the year for which the Audited Annual Report is not being provided.
- (iii) The Bidder must establish the minimum Net Worth specified in Clause 2.2.2.3, and upload the relevant details on BIMS.

2.2.2.9 The Bidder shall upload on BIMS as per the format at Appendix-IA, complete with its Annexes, the following:

Construction of Eight Lane Expressway Starting at Km. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border Km 47+000 To Km. 78+800) Section of Delhi - Jaipur Expressway Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode



- (i) Certificate(s) from its statutory auditors<sup>5</sup> or the concerned client(s) stating the payments received or in case of a PPP project, the construction carried out by itself, during the past 5 years, in respect of the Eligible Projects. In case a particular job/ contract has been jointly executed by the Bidder (as part of a Joint Venture), it should further support its claim for the payments received or construction carried out by itself in PPP Projects as applicable the share in work done for that particular job/ contract by producing a certificate from its statutory auditor or the client; and
- (ii) Certificate(s) from its statutory auditors specifying the net worth of the Bidder, as at the close of the preceding financial year, and also specifying that the methodology adopted for calculating such net worth conforms to the provisions of this Clause 2.2.2.9 (ii). For the purposes of this RFP, net worth (the "Net Worth") shall mean the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.

2.2.2.10 Deleted.

### 2.3 Proprietary data

All documents and other information supplied by the Authority or submitted by a Bidder to the Authority shall remain or become the property of the Authority and are transmitted to the Bidders solely for the purpose of preparation and the submission of a BID in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The provisions of this Clause 2.3 shall also apply *mutatis mutandis* to BIDs and all other documents submitted by the Bidders, and the Authority will not return to the Bidders any BID, document or any information provided along therewith.

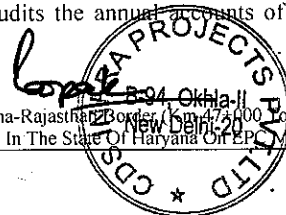
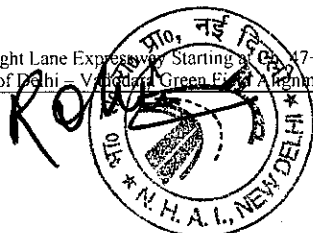
### 2.4 Cost of Bidding

The Bidders shall be responsible for all of the costs associated with the preparation of their BIDs and their participation in the Bidding Process. The Authority will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

### 2.5 Site visit and verification of information

2.5.1 Bidders are encouraged to submit their respective BIDs after visiting the Project site and ascertaining for themselves the site conditions, traffic, location, surroundings, climate, availability of power, water & other utilities for construction, access to site, handling and storage of materials, weather data, applicable laws and regulations, and any other matter considered relevant by them. Bidders are advised to visit the site and familiarise themselves with the Project with in the stipulated time of submission of the Bid. No extension of time is likely to be considered

<sup>5</sup> In case duly certified audited annual financial statements containing explicitly the requisite details are provided, a separate certification by statutory auditors would not be necessary in respect of Clause 2.2.2.9 (i). In jurisdictions that do not have statutory auditors, the firm of auditors which audits the annual accounts of the Applicant may provide the certificates required under this RFP.



for submission of Bids.

2.5.2 It shall be deemed that by submitting a BID, the Bidder has:

- (a) made a complete and careful examination of the Bidding Documents, Schedules annexed to EPC agreement Document;
- (b) received all relevant information requested from the Authority;
- (c) accepted the risk of inadequacy, error or mistake in the information provided in the Bidding Documents or furnished by or on behalf of the Authority relating to any of the matters referred to in Clause 2.5.1 above. No claim shall be admissible at any stage on this account.
- (d) satisfied itself about all matters, things and information including matters referred to in Clause 2.5.1 hereinabove necessary and required for submitting an informed BID, execution of the Project in accordance with the Bidding Documents and performance of all of its obligations thereunder;
- (e) acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any of the matters referred to in Clause 2.5.1 hereinabove shall not be a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from the Authority, or a ground for termination of the Agreement by the Contractor;
- (f) acknowledged that it does not have a Conflict of Interest; and
- (g) agreed to be bound by the undertakings provided by it under and in terms hereof.

2.5.3 The Authority shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to RFP, including any error or mistake therein or in any information or data given by the Authority.

## 2.6 Verification and Disqualification

2.6.1 The Authority reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFP and the Bidder shall, when so required by the Authority, make available all such information, evidence and documents as may be necessary for such verification. Any such verification, or lack of such verification, by the Authority shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of the Authority thereunder.

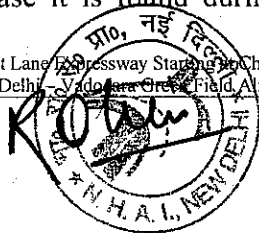
2.6.2 The Authority reserves the right to reject any BID and appropriate the BID Security if:

- (a) at any time, a material misrepresentation is made or uncovered, or
- (b) the Bidder does not provide, within the time specified by the Authority, the supplemental information sought by the Authority for evaluation of the BID.

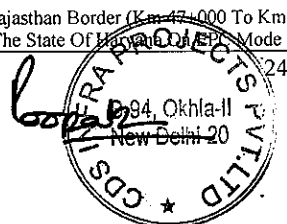
Such misrepresentation/ improper response shall lead to the disqualification of the Bidder. If the Bidder is a Joint Venture, then the entire Joint Venture and each Member of the Joint Venture may be disqualified/ rejected. If such disqualification/rejection occurs after the BIDs have been opened and the lowest Bidder gets disqualified / rejected, then the Authority reserves the right to annul the Bidding Process and invites fresh BIDs.

2.6.3 In case it is found during the evaluation or at any time before signing of the

Construction of Eight Lane Expressway Starting From Ch. 47+000 Near Khatipur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi - Vadodra Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana (DAE) Mode

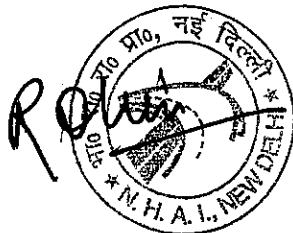


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Agreement or after its execution and during the period of defect liability subsistence thereof, that one or more of the eligibility and /or qualification requirements have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the contractor either by issue of the LOA or entering into of the Agreement, and if the Selected Bidder has already been issued the LOA or has entered into the Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by the Authority to the Selected Bidder or the Contractor, as the case may be, without the Authority being liable in any manner whatsoever to the Selected Bidder or the Contractor. In such an event, the Authority shall be entitled to forfeit and appropriate the BID Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and / or the Agreement, or otherwise.

- 2.6.4. A Bidder shall be liable for disqualification and forfeiture of BID Security, if any legal, financial or technical adviser of the Authority in relation to the Project is engaged by the Bidder, its Member or any Associate thereof, as the case may be, in any manner for matters related to or incidental to such Project during the Bidding Process or subsequent to the (i) issue of the LOA or (ii) execution of the Agreement. In the event any such adviser is engaged by the selected Bidder or Contractor, as the case may be, after issue of the LOA or execution of the Agreement for matters related or incidental to the project, then notwithstanding anything to the contrary contained herein or in the LOA or the Agreement and without Prejudice to any other right or remedy or the Authority, including the forfeiture and appropriation of the BID Security or Performance Security, as the case may be, which the Authority may have there under or otherwise, the LOA or the Agreement, as the case may be, shall be liable to be terminated without the Authority being liable in any manner whatsoever to the Selected Bidder or Contractor for the same. For the avoidance or doubt, this disqualification shall not apply where such adviser was engaged by the Bidder, its Member or Associate in the past but its assignment expired or was terminated 6 (six) months prior to the date of issue of this RFP. Nor will this disqualification apply where such adviser is engaged after a period of 3 (three) years from the date of commercial operation of the Project.



Construction of Eight Lane Expressway Starting at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi – Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode

## B. DOCUMENTS

### 2.7 Contents of the RFP

2.7.1 This RFP comprises the Disclaimer set forth hereinabove, the contents as listed below, and will additionally include any Addenda issued in accordance with Clause 2.9.

#### Part – I

##### Invitation for BIDs

- Section 1. Introduction
- Section 2. Instructions to Bidders
- Section 3. Evaluation of BIDs
- Section 4. Fraud and Corrupt Practices
- Section 5. Pre-BID Conference
- Section 6. Miscellaneous

##### Appendices

- IA. Letter comprising the Technical BID including Annexure I to VII
- IB. Letter comprising the Financial BID
- II. Bank Guarantee for BID Security
- III. Power of Attorney for signing of BID
- IV. Power of Attorney for Lead Member of Joint Venture
- V. Joint Bidding Agreement for Joint Venture
- VI. Integrity Pact Format
- VII. Form of Bank Guarantee (For Performance Security)
- VII. Format of LOA

#### Part – II

Agreement Document with schedules

#### Part – III

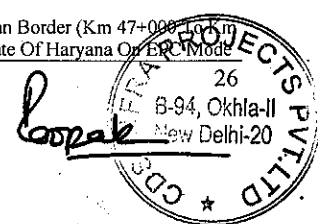
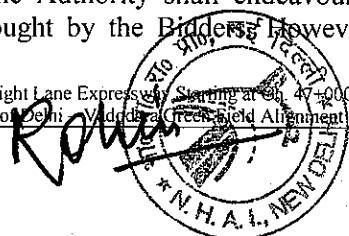
Feasibility Report / Detailed Project Report provided by the authority

2.7.2 The draft Agreement and the Feasibility / Detailed Project Report provided by the Authority as part of the BID Documents shall be deemed to be part of this RFP.

### 2.8 Clarifications

2.8.1 Bidders requiring any clarification on the RFP may notify the Authority in writing by e-mail in accordance with Clause 1.2.9. They should send in their queries on or before the date mentioned in the Schedule of Bidding Process specified in Clause 1.3. The Authority shall endeavour to respond to the queries within the period specified therein, but no later than 15 (fifteen) days prior to the BID Due Date. The responses will be sent by fax or e-mail. The Authority will forward all the queries and its responses thereto, to all Bidders without identifying the source of queries.

2.8.2 The Authority shall endeavour to respond to the questions raised or clarifications sought by the Bidders. However, the Authority reserves the right not to respond to



any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring the Authority to respond to any question or to provide any clarification.

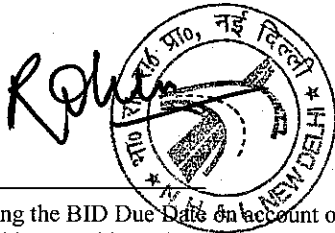
2.8.3 The Authority may also on its own motion, if deemed necessary, issue interpretations & clarifications to all Bidders. All clarifications & interpretations issued by the Authority shall be deemed to be part of the Bidding Documents. Verbal clarifications and information given by Authority or its employees or representatives shall not in any way or manner be binding on the Authority.

## 2.9 Amendment of RFP

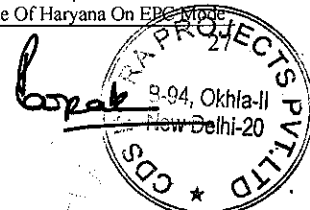
2.9.1 At any time prior to the BID Due Date, the Authority may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the RFP by the issuance of Addenda.

2.9.2 Any Addendum issued hereunder will be hosted on the NHAI's website ([www.nhai.gov.in](http://www.nhai.gov.in)) and NHAI's e-Tendering Portal (<http://etenders.gov.in>) and BIMS website ([www.bims.gov.in](http://www.bims.gov.in)).

2.9.3 In order to afford the Bidders a reasonable time for taking an Addendum into account, or for any other reason, the Authority may, in its sole discretion, extend the BID Due Date<sup>1</sup>.



<sup>1</sup>While extending the BID Due Date on account of an addendum, the Authority shall have due regard for the time required by Bidders to address the amendments specified therein. In the case of significant amendments, at least 15 (fifteen) days shall be provided between the date of amendment and the BID Due Date, and in the case of minor amendments, at least 7 (seven) days shall be provided.





## C. PREPARATION AND SUBMISSION OF BIDS

### 2.10 Format and Signing of BID

2.10.1 The Bidder shall provide all the information sought under this RFP. The Authority will evaluate only those BIDs that are received online in the required formats and have been applied to on BIMS and complete in all respects and Bid Security, Demand Draft towards payment of cost of Bid document, POA Joint Bidding Agreement etc. are received in hard copies.

2.10.2 The BID shall be typed and signed in indelible blue ink by the authorised signatory of the Bidder. All the alterations, omissions, additions or any other amendments made to the BID shall be initialled by the person(s) signing the BID.

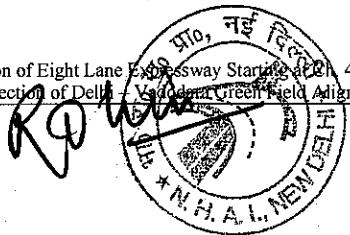
### 2.11 Documents comprising Technical and Financial BID

2.11.1 The Bidder shall first upload all the project details, net worth details, turnover details, bridge and tunnel details and all other details required on the BIMS portal for technical qualification. The Bidder shall ensure that all the details are updated as on the due date of submission of this bid.

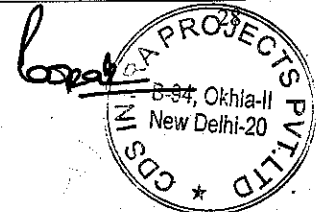
The Bidder shall then apply for the RFP on the BIMS portal [www.bims.gov.in](http://www.bims.gov.in) by submitting the documents mentioned below along with the supporting documents which shall comprise of the Technical BID on the BIMS portal:

#### Technical Bid

- (a) Appendix-IA (Letter comprising the Technical Bid) including Annexure I, IV V and VI and supporting certificates / documents.
- (b) Power of Attorney for signing the BID as per the format at Appendix-III;
- (c) if applicable, Power of Attorney for Lead Member of Joint Venture as per the format at Appendix-IV;
- (d) if applicable, Joint Bidding Agreement for Joint Venture as per the format at Appendix-V;
- (e) Deleted
- (f) BID Security of **Rs. 7.99 Crore (Rupees Seven Crore and Ninety Nine Lakh only)** in the form of Bank Guarantee in the format at Appendix-II from a Scheduled Bank(to be submitted physically as well);
- (g) Copy of Demand Draft towards payment of cost of Bid document of **Rs. 80,000/- (Rupees Eighty Thousand only)** to National Highways Authority of India” payable at New Delhi towards cost of Bid document.;
- (h) Deleted ;
- (i) Bidder shall comply with the provisions of Office Memorandum No. RW/NH-37010/4/2010/PIC-EAP(Printing) dated 22.02.2016 and its subsequent amendments if any, issued by MoRT&H (Appendix-VI) regarding Integrity Pact (IP) and the Integrity Pact (IP) duly signed by Authorised signatory shall be submitted by the Bidder with the RFP Bid & shall be part of the Contract Agreement;
- (j) An undertaking from the person having PoA referred to in Sub. Clause-(b) above that they agree and abide by the Bid documents uploaded by MoRT&H/NHAI and amendments uploaded, if any; and



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- (k) Annexure-VIII of Appendix – IA showing details of all ongoing project works (Ref Clause 10.3 (iv) of Draft EPC Agreement).
- (l) Copy of Memorandum and Articles of Association of the Bidder or of each Member (in case of Joint Venture), if the Bidder is a body corporate, and if a partnership then a copy of its partnership deed; and
- (m) Copies of duly audited complete annual accounts of the Bidder or of each member (in case of Joint Venture) for preceding 5 years.

**Financial Bid**

- (n) Appendix-IB (Letter comprising the Financial Bid) shall be submitted online through e-procurement portal (<http://etenders.gov.in>) on or before .1100. hrs IST on 27.12.2018

2.11.2 The Bidder shall submit the following documents physically:

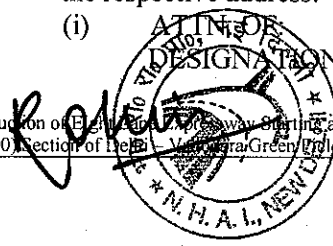
- (a) Original Power of Attorney for signing the BID as per format at Appendix-III;
- (b) if applicable, Original Power of Attorney for Lead Member of Joint Venture as per the format at Appendix-IV;
- (c) if applicable, Original Joint Bidding Agreement for Joint Venture as per the format at Appendix-V;
- (d) BID Security of Rs. 7.99 Crore (Rupees Seven Crore and Ninety Nine Lakh only) in the form of Original Bank Guarantee in the format at Appendix-II from a Scheduled Bank;
- (e) Demand Draft towards payment of cost of Bid document of Rs. 80,000/- (Rupees Eighty Thousand only) in favour of National Highways Authority of India” payable at New Delhi towards cost of Bid document.;
- (f) Deleted ;
- (g) Bidder shall comply with the provisions of Office Memorandum No. RW/NH-37010/4/2010/PIC-EAP(Printing) dated 22.02.2016 and its subsequent amendments if any issued by MoRT&H (Appendix-VI) regarding Integrity Pact (IP) and the Integrity Pact (IP) duly signed by Authorised signatory shall be submitted by the Bidder with the RFP Bid & shall be part of the Contract Agreement; and
- (h) An undertaking from the person having PoA referred to in Sub. Clause-(a) above that they agree and abide by the Bid documents uploaded by NHA and amendments uploaded, if any..

2.11.3 The documents listed at clause 2.11.2 shall be placed in an envelope, which shall be sealed. The envelope shall clearly bear the identification “**BID for the Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode Project**” and shall clearly indicate the name and address of the Bidder. In addition, the BID Due Date should be indicated on the right hand top corner of the envelope.

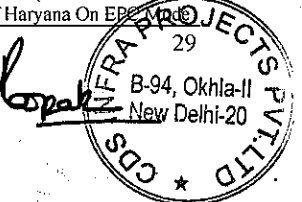
2.11.4 The envelope shall be addressed to one of the following officer and shall be submitted at the respective address:

- (i) **Mr. Rohin Kumar Gupta**  
General Manager (T)-Bharatmala Division

Construction of Eight Lane Expressway starting at Ch. 47+000 Near Khanpur Ghati and Ends At Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi – Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana On EPC Mode Project



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ADDRESS: National Highways Authority of India,  
G – 5 & 6, Sector-10, Dwarka,  
New Delhi-110075

PHONE NO: +91-11-25074100/200 (Extn. 1111)

E-MAIL ADDRESS rohingupta@nhai.org

2.11.5 If the envelope is not sealed and marked as instructed above, the Authority assumes no responsibility for the misplacement or premature opening of the contents of the BID submitted and consequent losses, if any, suffered by the Bidder.

2.11.6 BIDs submitted by fax, telex, telegram or e-mail shall not be entertained and shall be summarily rejected.

**2.12 BID Due Date**

Financial BID comprising of the documents listed at clause 2.11.1 of the RFP shall be submitted online through e-procurement portal <http://etenders.gov.in> on or before 1100 hrs IST on 27.12.2018. This will also necessitate updating all details in the BIMS portal and generating a certificate with the unique ID before the submission of the Technical & Financial BID. Documents listed at clause 2.11.2 of the RFP shall be physically submitted on or before 1100 hours IST on 28.12.2018 at the address provided in Clause 2.11.4 in the manner and form as detailed in this RFP. A receipt thereof should be obtained from the person specified at Clause 2.11.4. The technical details will be captured from the BIMS portal once the Bidder has applied on it.

**2.13 Late BIDs**

E-procurement portal <http://etenders.gov.in> and BIMS [www.bims.gov.in](http://www.bims.gov.in) shall not allow submission of any Bid after the prescribed date and time at clause 2.12. Physical receipt of documents listed at clause 2.11.2 of the RFP after the prescribed date and time at clause 2.12 shall not be considered and the bid shall be summarily rejected.

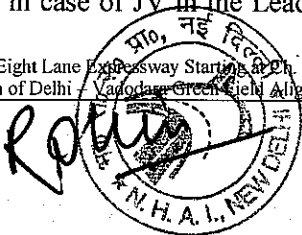
**2.14 Procedure for e-tendering**

**2.14.1 Accessing/ Purchasing of BID documents**

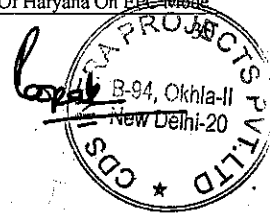
2.14.1.1 It is mandatory for all the Bidders to have class-III Digital Signature Certificate (DSC)(in the name of Authorized Signatory / Firm or Organisation / Owner of the Firm or Organisation) from any of the licensed Certifying Agency (Bidders can see the list of licensed CAs from the link [www.cca.gov.in](http://www.cca.gov.in)) to participate in e-tendering of NHAI.

DSC should be in the name of the authorized signatory as authorized in Appendix III of this RFP or person executing/delegating such Appendix III in favour of Authorized Signatory. It should be in corporate capacity (that is in Bidder capacity / in case of JV in the Lead Member capacity, as applicable). The Bidder shall submit

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document in support of the class III DSC. In other cases, the bid shall be considered Non Responsive.

2.14.1.2 To participate in the bidding, it is mandatory for the Bidders to get registered their firm / Joint Venture with e-procurement portal of NHAI <http://etenders.gov.in> to have user ID & password which has to be obtained free of cost. Following may kindly be noted:

(a) Registration with e-procurement portal of NHAI should be valid at least up to the date of submission of BID.

(b) BIDs can be submitted only during the validity of registration.

It is also mandatory for the Bidders to get their firms registered on BIMS portal at [www.bims.gov.in](http://www.bims.gov.in). The Bidders shall update their project and other details on the portal on a regular basis and apply to the tenders via the portal.

2.14.1.3 If the firm / Joint Venture is already registered with e-tendering service provider of NHAI, and validity of registration is not expired the firm / Joint Venture is not required a fresh registration.

2.14.1.4 The complete BID document can be viewed / downloaded by the Bidder from e-procurement portal of NHAI <http://etenders.gov.in> or from the BIMS portal [www.bims.gov.in](http://www.bims.gov.in) or official portal of NHAI i.e. <http://www.nhai.gov.in> from 23.08.2018 to 27.12.2018 (upto 1100 Hrs. IST)

2.14.1.5 Deleted..

2.14.2 Preparation & Submission of BIDs:

2.14.2.1 The Bidder may be submitted his Bid online following the instruction appearing on the screen. A buyer manual containing the detailed guidelines for e-procurement is also available on e-procurement portal of NHAI. Similarly, a Bidder manual containing the detailed guidelines for registering, updating data and applying for bids is available on the BIMS portal.

2.14.2.2 The documents listed at clause 2.11.1 shall be prepared and scanned in different files (in PDF or RAR format such that file size is not more than 30 MB) and uploaded during the on-line submission of BID.

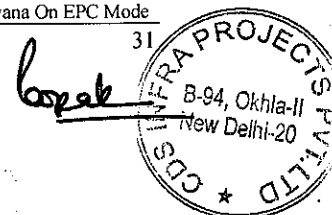
2.14.2.3 Bid must be submitted online only through e-procurement portal of NHAI <http://etenders.gov.in> using the digital signature of authorised representative of the Bidder and the Bidder must apply on the BIMS portal [www.bims.gov.in](http://www.bims.gov.in) on or before 27.12.2018 (upto 1100 hours IST).

2.14.3 Modifications/ Substitution/ withdrawal of BIDs

2.14.3.1 The Bidder may modify, substitute or withdraw its e- BID after submission prior to the BID Due Date. No BID can be modified, substituted or withdrawn by the Bidder on or after the BID Due Date & Time.



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- 2.14.3.2 For modification of e-BID, Bidder has to detach its old BID from e-procurement portal and upload / resubmit digitally signed modified BID. For withdrawal of BID, Bidder has to click on withdrawal icon at e-procurement portal and can withdraw its e-BID. Before withdrawal of a BID, it may specifically be noted that after withdrawal of a BID for any reason, Bidder cannot re-submit e-BID again. For modification of the application mode (sole / JV), Bidder has to switch the mode according to the guidelines provided in the aforementioned Bidder Manual available on the BIMS portal. For withdrawal of bid, the Bidder can click on 'Delete Participation' as mentioned in the guidelines in the Bidder Manual.

## 2.15 Online Opening of BIDs.

2.15.1 Opening of BIDs will be done through online process.

2.15.2 The NHAI shall on-line open Technical BIDs on 28.12.2018 at 1130hours IST, in the presence of the authorized representatives of the Bidders, who choose to attend. Technical BID of only those Bidders shall be online opened whose documents listed at clause 2.11.2 of the RFP have been physically received and the details have been uploaded on BIMS along with application to the tender on BIMS. The NHAI will subsequently examine and evaluate the BIDs in accordance with the provisions of Section 3 of RFP.

Further, any falsification of any data uploaded on BIMS shall attract penalties including complete rejection of the bid by the Authority.

## 2.16 Rejection of BIDs

2.16.1 Notwithstanding anything contained in this RFP, the Authority reserves the right to reject any BID and to annul the Bidding Process and reject all BIDs at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons thereof. In the event that the Authority rejects or annuls all the BIDs, it may, in its discretion, invite all eligible Bidders to submit fresh BIDs hereunder.

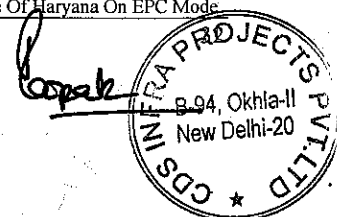
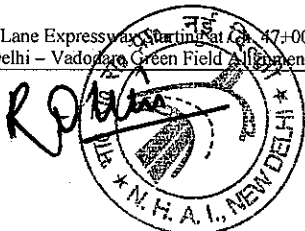
2.16.2 The Authority reserves the right not to proceed with the Bidding Process at any time, without notice or liability, and to reject any BID without assigning any reasons.

## 2.17 Validity of BIDs

The BIDs shall be valid for a period of not less than 120 (one hundred and twenty) days from the BID Due Date. The validity of BIDs may be extended by mutual consent of the respective Bidders and the Authority.

## 2.18 Confidentiality

Information relating to the examination, clarification, evaluation and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising the Authority in relation to, or matters arising out of, or concerning the Bidding Process. The Authority will treat all information, submitted as part of the BID, in confidence and will require all those who have access to such material to treat the



same in confidence. The Authority may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or the Authority or as may be required by law or in connection with any legal process.

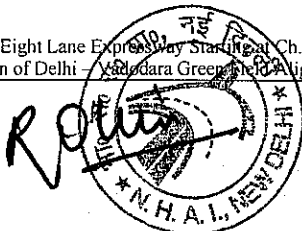
## 2.19 Correspondence with the Bidder

Save and except as provided in this RFP, the Authority shall not entertain any correspondence with any Bidder in relation to acceptance or rejection of any BID. However, the Authority would display the result of technical evaluation on the web portal for 7 days including reasons for non- responsiveness, if any, and the financial bid will be opened thereafter.

## D. BID SECURITY

### 2.20 BID Security

- 2.20.1 The Bidder shall furnish as part of its BID, a BID Security referred to in Clause 1.2.4 hereinabove in the form of a bank guarantee issued by nationalised bank, or a Scheduled Bank in India having a net worth of at least Rs. 1,000 crore (Rs. one thousand crore), in favour of the Authority in the format at Appendix-II (the "**Bank Guarantee**") and having a validity period of not less than 180 (one hundred eighty) days from the BID Due Date, inclusive of a claim period of 60 (sixty) days, and may be extended as may be mutually agreed between the Authority and the Bidder from time to time. In case the Bank Guarantee is issued by a foreign bank outside India, confirmation of the same by any nationalised bank in India is required. This Guarantee shall be transmitted through SFMS gateway to NHAI's Bank. For the avoidance of doubt, Scheduled Bank shall mean a bank as defined under Section 2(e) of the Reserve Bank of India Act, 1934. A scanned copy of the Bank Guarantee shall be uploaded on BIMS while applying to the tender.
- 2.20.2 Any BID not accompanied by the BID Security shall be summarily rejected by the Authority as non-responsive.
- 2.20.3 The Selected Bidder's BID Security will be returned, without any interest, upon the Bidder signing the Contract Agreement and furnishing the Performance Security in accordance with the provisions thereof. The Authority may, at the Selected Bidder's option, adjust the amount of BID Security in the amount of Performance Security to be provided by him in accordance with the provisions of the Agreement.
- 2.20.4 The Authority shall be entitled to forfeit and appropriate the BID Security as Damages inter alia in any of the events specified in Clause 2.20.5 herein below. The Bidder, by submitting its BID pursuant to this RFP, shall be deemed to have acknowledged and confirmed that the Authority will suffer loss and damage on account of withdrawal of its BID or for any other default by the Bidder during the period of BID validity as specified in this RFP. No relaxation of any kind on BID Security shall be given to any Bidder.
- 2.20.5 The BID Security shall be forfeited and appropriated by the Authority as damages payable to the Authority for, inter-alia, time cost and effort of the Authority without



prejudice to any other right or remedy that may be available to the Authority under the bidding documents and / or under the Agreement, or otherwise, under the following conditions:

- (a) Deleted
- (b) If a Bidder engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice as specified in Section 4 of this RFP;
- (c) If a Bidder withdraws its BID during the period of Bid validity as specified in this RFP and as extended by mutual consent of the respective Bidder(s) and the Authority;
- (d) In the case of Selected Bidder, if it fails within the specified/extended time limit by Authority -
  - (i) to sign and return the duplicate copy of LOA;
  - (ii) to furnish the Performance Security /Additional Performance Security (if any) as per Clause 2.21; or
  - (iii) to sign the Agreement; or

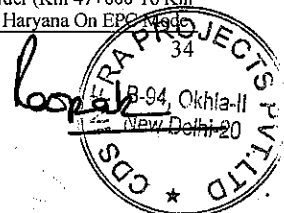
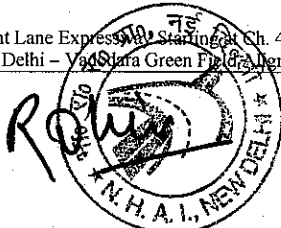
## 2.21 Performance Security

2.21.1 Within 30 (thirty) days of receipt of Letter of Acceptance, the selected Bidder shall furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the form set forth in Appendix-VII (the "Performance Security") for an amount equal to 5% (five percent) of its Bid Price. In case of bids mentioned below, the Selected Bidder, along with the Performance Security, shall also furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the same form given at Appendix-VII towards an Additional Performance Security (the "Additional Performance Security") for an amount calculated as under:

- (i) If the Bid Price offered by the Selected Bidder is lower than 10% but upto 20% of the estimated Project Cost, then the Additional Performance Security shall be calculated @20% of the difference in the (i) Estimated Project Cost (as mentioned in RFP)-10% of the Estimated Project Cost and (ii) the Bid Price offered by the selected Bidder.
- (ii) If the Bid Price offered by the Selected Bidder is lower than 20% of the Estimated Project Cost, then the Additional Performance Security shall be calculated @ 30% of the difference in the (i) Estimated Project Cost (as mentioned in RFP)-10% of the Estimated Project Cost and (ii) the Bid Price offered by the Selected Bidder.
- (iii) This Additional Performance Security shall be treated as part of the Performance Security.

2.21.2 The Performance Security shall be valid until 60(sixty) days after the Defects Liability Period. The Additional Performance Security shall be valid until 28 (twenty eight) days after Project Completion Date.

2.21.3 The Selected Bidder has the option to provide 50% of the Performance Security and 50% of the Additional Performance Security, if any, within 30 (thirty) days of receipt of Letter of Acceptance, in any case before signing of the Contract

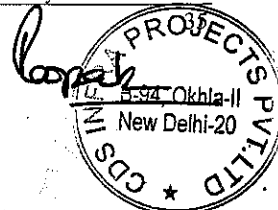
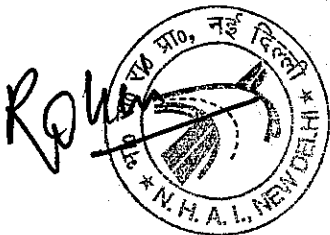


Agreement and the remaining Performance Security and Additional Performance Security, if any, shall be submitted within 30 days of signing of the agreement.

2.21.4 In the event the Selected Bidder fails to provide the remaining 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 Bid 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.

2.21.5 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 period, the award shall be deemed to be cancelled/ withdrawn 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

2.22 The agreement will be executed within 10 days of receipt of 50% Performance Security and 50% of Additional Performance Security, if any, as per sub-clause 2.21 above.

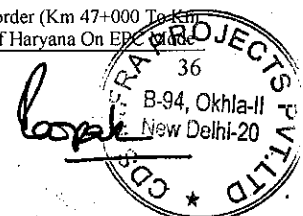
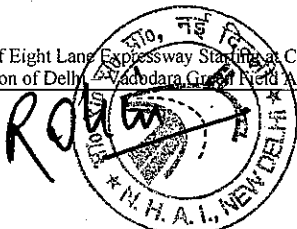




**SECTION-3**  
**EVALUATION OF TECHNICAL BIDS AND OPENING & EVALUATION OF**  
**FINANCIAL BIDS**

**3.1 Evaluation of Technical Bids**

- 3.1.1 The Authority shall open the BIDs received physically & online at 1130 hours IST on 28.12.2018, at the place specified in Clause 2.11.4(i); and in the presence of the Bidders who choose to attend. Technical BID of only those Bidders shall be online opened whose documents listed at clause 2.11.2 of the RFP have been received physically and the details have been uploaded on BIMS along with application to the tender on BIMS. The Authority shall prepare minutes of the BID opening, including information disclosed to those present at the time of BID opening.
- 3.1.2 Technical Bids of those Bidders who have not submitted their Bid online, shall not be considered for opening and evaluation.
- 3.1.3 If any information furnished by the Bidder is found to be incomplete, or contained in formats other than those specified herein, the Authority may, in its sole discretion, exclude the relevant information for consideration of eligibility and qualification of the Bidder.
- 3.1.4 To facilitate evaluation of Technical BIDs, the Authority may, at its sole discretion, seek clarifications in writing from any Bidder regarding its Technical BID. Such clarification(s) shall be provided within the time specified by the Authority for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing. The bids will be examined and evaluated on the BIMS portal in accordance with the provisions set out in this Section 3. The Authority will subsequently flag issues, if any with the data updated by the Bidders.
- 3.1.5 If a Bidder does not provide clarifications sought under Clause 3.1.4 above within the prescribed time, its Bid may be liable to be rejected. In case the Bid is not rejected, the Authority may proceed to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation of the Authority.
- 3.1.6 Tests of responsiveness
- 3.1.6.1 As a first step towards evaluation of Technical BIDs, the Authority shall determine whether each Technical BID is responsive to the requirements of this RFP. A Technical BID shall be considered responsive only if:
- (a) Technical BID is received online as per the format at Appendix-IA including Annexure I, IV, V & VI;
  - (b) Documents listed at clause 2.11.2 are received physically or on BIMS or CPPP as mentioned;
  - (c) Technical Bid is accompanied by the BID Security as specified in Clause 1.2.4 and 2.20.1;
  - (d) The Power of Attorney is uploaded on BIMS as specified in Clauses 2.1.5;
  - (e) Technical Bid is accompanied by Power of Attorney for Lead Member of Joint Venture and the Joint Bidding Agreement as specified in Clause 2.1.6, if so



required;

- (f) Technical Bid contains all the information (complete in all respects);
- (g) Technical Bid does not contain any condition or qualification; and
- (h) Demand Draft towards payment of cost of Bid document of Rs. 80,000/- (Rupees Eighty Thousand only) in favour of National Highways Authority of India" payable at New Delhi is received;

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

3.1.7 In the event that a Bidder claims credit for an Eligible Project, and such claim is determined by the Authority as incorrect or erroneous, the Authority may reject / correct such claim for the purpose of qualification requirements.

3.1.8 The Authority will get the BID security verified from the issuing authority and after due verification, the Authority will evaluate the Technical BIDs for their compliance to the eligibility and qualification requirements pursuant to clause 2.2.1 & 2.2.2 of this RFP.

3.1.9 The Bidders will be automatically evaluated on BIMS by the Authority. After evaluation of Technical Bids, the Authority will publish a list of Technically Responsive Bidders whose financial bids shall be opened. The Authority shall notify other Bidders that they have not been technically responsive. The Authority will not entertain any query or clarification from Applicants who fail to qualify.

### 3.2 Opening and Evaluation of Financial Bids

The Authority shall inform the venue and time of online opening of the Financial Bids to the technically responsive Bidders through e-procurement portal and e-mail. The Authority shall open the online Financial Bids of the technically responsive Bidders only on scheduled date and time in the presence of the authorised representatives of the Bidders who may choose to attend. The Authority shall publicly announce the Bid Prices quoted by the technically responsive Bidder. Thereafter, the Authority shall prepare a record of opening of Financial Bids.

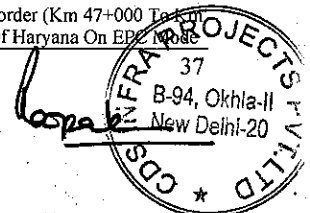
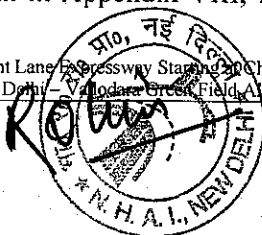
### 3.3 Selection of Bidder

3.3.1 Subject to the provisions of Clause 2.16.1, the Bidder whose BID is adjudged as responsive in terms of Clause 3.1.6 and who quotes lowest price shall be declared as the selected Bidder (the "Selected Bidder").

3.3.2 In the event that two or more Bidders quote the same BID Price (the "Tie BIDs"), the Authority shall identify the Selected Bidder by draw of lots, which shall be conducted, with prior notice, in the presence of the Tie Bidders who choose to attend.

3.3.3 In the event that the Lowest Bidder is not selected for any reason except the reason mentioned in Clause 2.1.12 (b) (4), the Authority shall annul the Bidding Process and invite fresh BIDs. In the event that the Authority rejects or annuls all the BIDs, it may, in its discretion, invite all eligible Bidders to submit fresh BIDs hereunder.

3.3.4 After selection, a Letter of Acceptance (the "LOA") shall be issued in the format set forth in Appendix-VIII, in duplicate, by the Authority to the Selected Bidder and



the Selected Bidder shall, within 7(seven) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In the event the duplicate copy of the LOA duly signed by the Selected Bidder is not received by the stipulated date, the Authority may, unless it consents to extension of time for submission thereof, appropriate the BID Security of such Bidder as Damages on account of failure of the Selected Bidder to acknowledge the LOA.

3.3.5 After acknowledgement of the LOA as aforesaid by the Selected Bidder, it shall cause the Bidder to submit Performance Security and Additional Performance Security (if any) within the period prescribed/extended by Authority and then execute the Agreement within the period prescribed in Clause 1.3. The Selected Bidder shall not be entitled to seek any deviation, modification or amendment in the Agreement.

3.3.6 Authority shall return Bid Security of all bidders except L-1 and L -2 within 7 working days from opening of financial Bid subject to provision of Clause 2.1.12 (4). The bid security of L-2 bidder shall be returned within 7 working days of issue of LOI. The Authority shall be responsible to return the Bid Security, as above, and the bidders shall not be required to ask for the same.

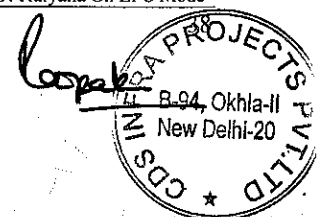
#### 3.4 Contacts during BID Evaluation

BIDs shall be deemed to be under consideration immediately after they are opened and until such time the Authority makes official intimation of award/ rejection to the Bidders. While the BIDs are under consideration, Bidders and/ or their representatives or other interested parties are advised to refrain, save and except as required under the Bidding Documents, from contacting by any means, the Authority and/ or their employees/ representatives on matters related to the BIDs under consideration.

#### 3.5 Correspondence with Bidder

Save and except as provided in this RFP, the Authority shall not entertain any correspondence with any Bidder in relation to the acceptance or rejection of any Bid.

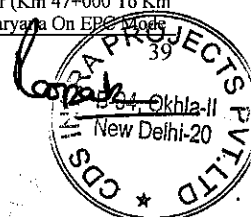
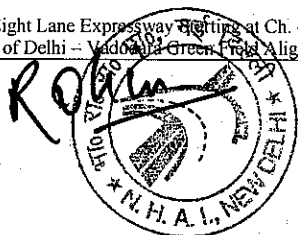
3.6 Any information contained in the Bid shall not in any way be construed as binding on the Authority, its agents, successors or assigns, but shall be binding against the Bidder if the Project is subsequently awarded to it on the basis of such information.



## SECTION-4

### FRAUD AND CORRUPT PRACTICES

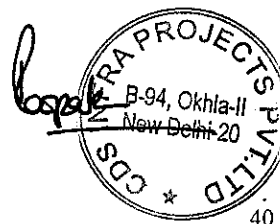
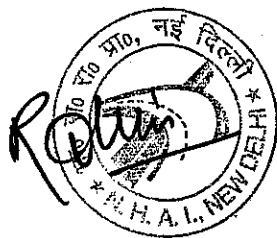
- 4.1 The Bidders and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process and subsequent to the issue of the LOA and during the subsistence of the Agreement. Notwithstanding anything to the contrary contained herein, or in the LOA or the Agreement, the Authority may reject a BID, withdraw the LOA, or terminate the Agreement, as the case may be, without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process. In such an event, the Authority shall be entitled to forfeit and appropriate the BID Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/ or the Agreement, or otherwise.
- 4.2 Without prejudice to the rights of the Authority under Clause 4.1 hereinabove and the rights and remedies which the Authority may have under the LOA or the Agreement, or otherwise if a Bidder or Contractor, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, or after the issue of the LOA or the execution of the Agreement, such Bidder shall not be eligible to participate in any tender or RFP issued by the Authority during a period of 2 (two) years from the date such Bidder, or Contractor, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.
- 4.3 For the purposes of this Section 4, the following terms shall have the meaning hereinafter respectively assigned to them:
- (a) "corrupt practice" means the offering, giving, receiving or soliciting of anything of value, pressurizing to influence the action of a public official in the process of tendering and execution of the project;
  - (b) "fraudulent practice" means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;
  - (c) "coercive practice" means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bidding Process;
  - (d) "undesirable practice" means (i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and
  - (e) "restrictive practice" means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding Process.



## SECTION-5

### PRE-BID CONFERENCE

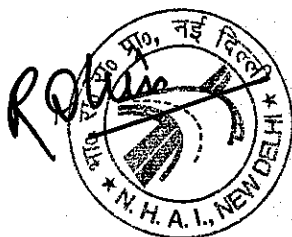
- 5.1 Pre-BID conference of the Bidders shall be convened at the designated date, time and place. A maximum of two representatives of prospective Bidders shall be allowed to participate on production of authority letter from the Bidder.
- 5.2 During the course of Pre-Bid conference(s), the Bidders will be free to seek clarifications and make suggestions for consideration of the Authority. The Authority shall endeavour to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.



## SECTION-6

### MISCELLANEOUS

- 6.1 The Bidding Process shall be governed by, and construed in accordance with, the laws of India and the Courts at New Delhi shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the Bidding Process.
- 6.2 The Authority, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;
- (a) suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;
  - (b) consult with any Bidder in order to receive clarification or further information;
  - (c) retain any information and/ or evidence submitted to the Authority by, on behalf of, and/ or in relation to any Bidder; and/ or
  - (d) independently verify, disqualify, reject and/ or accept any and all submissions or other information and/ or evidence submitted by or on behalf of any Bidder.
- 6.3 It shall be deemed that by submitting the Bid, the Bidder agrees and releases the Authority, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/ or performance of any obligations hereunder, pursuant hereto and/ or in connection with the Bidding Process and waives, to the fullest extent permitted by applicable laws, any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.



**APPENDIX -IA**  
**LETTER COMPRISING THE TECHNICAL BID**

(Refer Clause 2.1.4, 2.11 and 3.1.6)

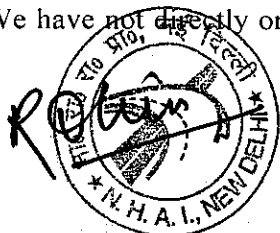
General Manager (T)-Bharatmala Division,  
National Highways Authority of India,  
G-5 & 6, Sector-10, Dwarka,  
New Delhi-110075.

**Sub: BID for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode Project**

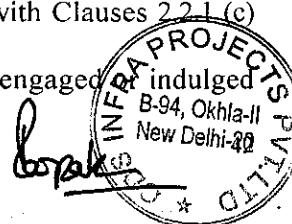
Dear Sir,

With reference to your RFP document dated \*\*\* \*\*\*, I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our BID for the aforesaid Project. The BID is unconditional and unqualified.

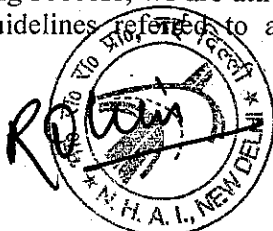
2. I/ We acknowledge that the Authority will be relying on the information provided in the BID and the documents accompanying the BID for selection of the Contractor for the aforesaid Project, and we certify that all information provided in the Bid and its the Annexure I to VI along with the supporting documents are true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the BID are true copies of their respective originals.
3. This statement is made for the express purpose of our selection as EPC Contractor for the development, construction, rehabilitation and augmentation of the aforesaid Project and maintenance of the Project during the Defect Liability Period.
4. I/ We shall make available to the Authority any additional information it may find necessary or require to supplement or authenticate the BID.
5. I/ We acknowledge the right of the Authority to reject our BID without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
6. I/ We certify that in the last two years, we/ any of the JV partners have neither failed to perform for the works of Expressways, National Highways, ISC &EI works,, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against us, nor been expelled or terminated by Ministry of Road Transport & Highways or its implementing agencies for breach on our part.
7. I/ We declare that:
  - (a) I/ We have examined and have no reservations to the Bidding Documents, including any Addendum issued by the Authority; and
  - (b) I/We do not have any conflict of interest in accordance with Clauses 2.2.1 (c) and 2.6.4 of the RFP document; and
  - (c) I/We have not directly or indirectly or through an agent engaged



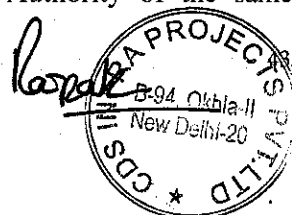
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- in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in Clause 4.3 of the RFP document, in respect of any tender or request for proposal issued by or any Agreement entered into with the Authority or any other public sector enterprise or any government, Central or State; and
- (d) I/ We hereby certify that we have taken steps to ensure that in conformity with the provisions of Section 4 of the RFP, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice; and
- (e) the undertakings given by us along with the Application in response to the RFP for the Project and information mentioned for the evaluation of the BID Capacity in Annexure VI were true and correct as on the date of making the Application and are also true and correct as on the BID Due Date and I/we shall continue to abide by them.
8. I/ We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any BID that you may receive nor to invite the Bidders to BID for the Project, without incurring any liability to the Bidders, in accordance with Clause 2.16.2 of the RFP document.
9. I/We believe that we/our Joint Venture satisfy(s) the Threshold Technical Capacity, Net Worth criteria and meet(s) the requirements as specified in the RFP document.
10. I/ We declare that we/ any Member of the Joint Venture or our/Joint Venture member, are not a Member of any other Joint Venture submitting a BID for the Project.
11. I/ We certify that in regard to matters other than security and integrity of the country, we/ any Member of the Joint Venture or any of our/their Joint venture member have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which could cast a doubt on our ability to undertake the Project or which relates to a grave offence that outrages the moral sense of the community.
12. I/ We further certify that in regard to matters relating to security and integrity of the country, we/ any Member of the Joint Venture or any of our/their Joint venture member have not been charge-sheeted by any agency of the Government or convicted by a Court of Law.
13. I/ We further certify that no investigation by a regulatory authority is pending either against us/any member of Joint Venture or against our CEO or any of our directors/ managers/ employees.
14. I/ We further certify that we are not disqualified in terms of the additional criteria specified by the Department of Disinvestment in their OM No. 6/4/2001-DD-II dated 13.7.01, a copy of which forms part of the RFP at Annexure VII of Appendix-IA thereof.
15. I/ We undertake that in case due to any change in facts or circumstances during the Bidding Process, we are attracted by the provisions of disqualification in terms of the guidelines referred to above, we shall intimate the Authority of the same



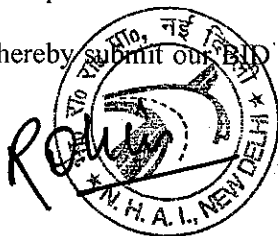
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immediately.

16. I/We further acknowledge and agree that in the event such change in control occurs after signing of the Agreement upto its validity. It would, notwithstanding anything to the contrary contained in the Agreement, be deemed a breach thereof, and the Agreement shall be liable to be terminated without the Authority being liable to us in any manner whatsoever.
17. I/ We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Authority in connection with the selection of the Bidder, or in connection with the Bidding Process itself, in respect of the above mentioned Project and the terms and implementation thereof.
18. In the event of my/ our being declared as the Selected Bidder, I/we agree to enter into a Agreement in accordance with the draft that has been provided to me/us prior to the BID Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.
19. I/ We have studied all the Bidding Documents carefully and also surveyed the project highway and the traffic. We understand that except to the extent as expressly set forth in the Agreement, we shall have no claim, right or title arising out of any documents or information provided to us by the Authority or in respect of any matter arising out of or relating to the Bidding Process including the award of Agreement.
20. I/ We offer a BID Security of **Rs. 7.99 Crore (Rupees Seven Crore and Ninety Nine Lakh only)** to the Authority in accordance with the RFP Document.
21. The BID Security in the form of a Bank Guarantee is attached.
22. The documents accompanying the Technical BID, as specified in Clause 2.11.1 of the RFP, have been submitted in separate files.
23. I/ We agree and understand that the BID is subject to the provisions of the Bidding Documents. In no case, I/we shall have any claim or right of whatsoever nature if the Project / Contract is not awarded to me/us or our BID is not opened or rejected.
24. The BID Price has been quoted by me/us after taking into consideration all the terms and conditions stated in the RFP, draft Agreement, our own estimates of costs and after a careful assessment of the site and all the conditions that may affect the project cost and implementation of the project.
25. I/ We agree and undertake to abide by all the terms and conditions of the RFP document.
26. {We, the Joint Venture agree and undertake to be jointly and severally liable for. all the obligations of the EPC Contractor under the Contract Agreement}.
27. I/ We shall keep this offer valid for 120 (one hundred and twenty) days from the BID Due Date specified in the RFP.
28. I/ We hereby submit our BID and offer a BID Price as indicated in Financial Bid for



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undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement.

In witness thereof, I/we submit this BID under and in accordance with the terms of the RFP document.

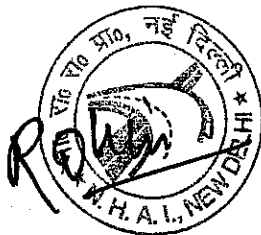
Yours faithfully,

Date:  
designations  
Place:

(Signature, name and  
of the Authorised signatory)

Name & seal of Bidder/Lead Member

Note: Paragraphs in curly parenthesis may be omitted by the Bidder, if not applicable to it, and 'Deleted' may be indicated there



**APPENDIX - IB**  
**Letter comprising the Financial BID**  
(Refer Clauses 2.1.4, 2.11 and 3.1.6)

Dated:

General Manager (T) –Bharatmala Division,  
National Highways Authority of India,  
G-5 & 6, Sector-10, Dwarka,  
New Delhi-110075

**Sub: BID for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode Project**

Dear Sir,

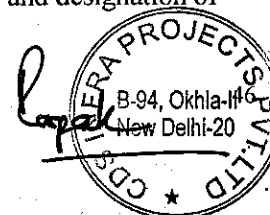
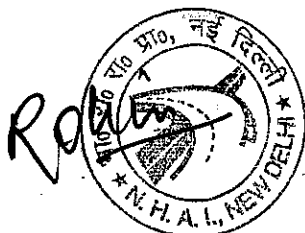
With reference to your RFP document dated \*\*\* \*\*, I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our BID for the aforesaid Project. The BID is unconditional and unqualified.

2. I/ We acknowledge that the Authority will be relying on the information provided in the BID and the documents accompanying the BID for selection of the Contractor for the aforesaid Project, and we certify that all information provided in the Bid are true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the BID are true copies of their respective originals.
3. The BID Price has been quoted by me/us after taking into consideration all the terms and conditions stated in the RFP, draft Agreement, our own estimates of costs and after a careful assessment of the site and all the conditions that may affect the project cost and implementation of the project.
4. I/ We acknowledge the right of the Authority to reject our BID without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
5. In the event of my/ our being declared as the Selected Bidder, I/we agree to enter into a Agreement in accordance with the draft that has been provided to me/us prior to the BID Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.
6. I/ We shall keep this offer valid for 120 (one hundred and twenty) days from the BID Due Date specified in the RFP.
7. I/ We hereby submit our BID and offer a BID Price online for undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement.

Yours faithfully,

(Signature, name and designation of

Date:  
the

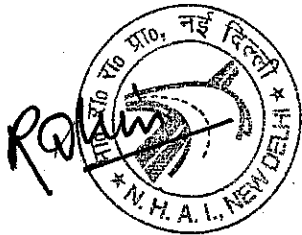


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Place:

Authorized Signatory )  
Name & seal of Bidder/Lead Member:.....  
Class III DSC ID of Authorized Signatory:.....

*[A large, long, thin handwritten signature or scribble, possibly representing the name of the authorized signatory.]*



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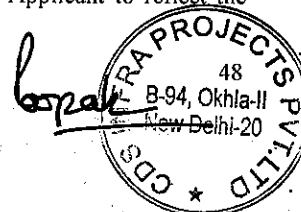
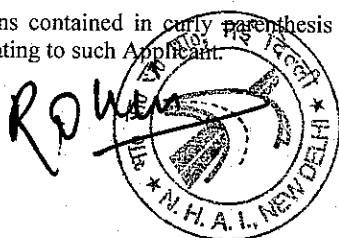
**ANNEX-I**  
**Details of Bidder**

1. (a) Name:  
(b) Country of incorporation:  
(c) Address of the corporate headquarters and its branch office(s), if any, in India:  
(d) Date of incorporation and/ or commencement of business:
2. Brief description of the Bidder including details of its main lines of business and proposed role and responsibilities in this Project:
3. Details of individual(s) who will serve as the point of contact/ communication for the Authority:
  - (a) Name:
  - (b) Designation:
  - (c) Company:
  - (d) Address:
  - (e) Telephone Number:
  - (f) E-Mail Address:
  - (g) Fax Number:
4. Particulars of the Authorised Signatory of the Bidder:
  - (a) Name:
  - (b) Designation:
  - (c) Address:
  - (d) Phone Number:
  - (e) Fax Number:
  - (f) Class III Digital Signature Certificate ID number
5. In case of a Joint Venture:
  - (a) The information above (1-4) should be provided for all the Members of the Joint Venture.
  - (b) A copy of the Jt. Bidding Agreement, as envisaged in Clause 2.1.11(f) should be attached to the Application.
  - (c) Information regarding the role of each Member should be provided as per table below:

Sl.	Name of Member	Role* {Refer Clause 2.1.11(d)} <sup>5</sup>	Share of work in theProject {Refer Clauses 2.1.11(a), (f) & (g)}
1.			
2.			
3.			

\* The role of each Member, as may be determined by the Applicant, should be indicated in accordance with instruction 4 at Annex-IV.

<sup>5</sup> All provisions contained in curly parenthesis shall be suitably modified by the Applicant to reflect the particulars relating to such Applicant.



(d) The following information shall also be provided w.r.t para 2.1.14 for each Member of the Joint Venture:

**Name of Applicant/ member of Joint Venture:**

Sl. No.	Criteria	Yes/No
1.	Has the Bidder/ constituent of the Joint Venture been barred by the Ministry of Road Transport & Highways or its implementing agencies for the works of Expressways, National Highways, ISC and EI works, from participating in bidding.	
2	If the answer to 1 is yes, does the bar subsist as on BID due date.	

6(a) I/ We certify that in the last two years, we/ any of the JV partners have neither failed to perform for the works of Expressways, National Highways, ISC & EI works, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitral award against us, nor been expelled or terminated by Ministry of Road Transport & Highways or its implementing agencies for breach on our part.

(b) I/ We certify that we/ any of the JV partners do not fall in any of the categories of being a Non-Performing entity given at Clause 2.1.14 (Section-2) of Instructions to Bidders in the projects of Expressways, National Highways, ISC and EI works of Ministry of Road Transport & Highways or its implementing agencies and furnished the complete details at Annex-I (Sr. No. 6(b)).

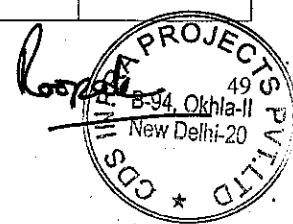
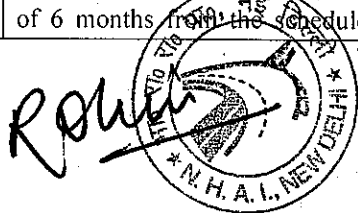
7(a) I/ We further certify that no investigation by a regulatory authority is pending either against us/any member of Joint Venture or our sister concern or against our CEO or any of our directors/managers/employees.

(b) I/ We further certify that no investigation by any investigating agency in India or outside is pending either against us/ any member of Joint Venture or our sister concern or against our CEO or any of our directors/managers/employees.

A statement by the Bidder and each of the Members of its Joint Venture (where applicable) disclosing material non-performance or contractual non-compliance in current projects, as on bid due date is given below (attach extra sheets, if necessary) w.r.t. para 2.1.14.

Name of the Bidder /Member of JV: \_\_\_\_\_

Sr. No.	Categories of Non-Performer	Project 1	Project 2
(i)	Fails to complete or has missed more than two milestones in already awarded two or more projects, even after lapse of 6 months from the scheduled completion date, unless		

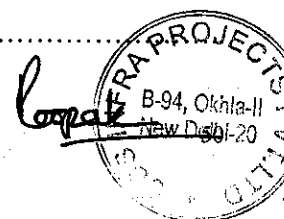
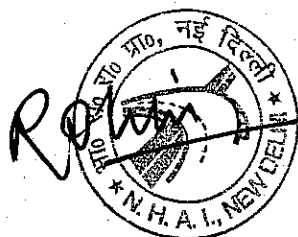


	Extension of Time has been allowed on the recommendations of the Independent Engineer due to Authority's default;		
(ii)	Fails to complete a project, as per revised schedule, for which One Time Fund Infusion (OTFI) has been sanctioned by the Authority;		
(iii)	Physical progress on any project is not commensurate with the funds released (equity+ debt+grant) from the escrow account and such variation is more than 25% in last one year as observed by the Independent Engineer in one or more projects;		
(iv)	Punch List Items in respect of any project are pending due to Bidder's default in two or more Projects even after lapse of the prescribed time for completion of such items;		
(v)	Fails to fulfil its obligations to maintain a highway in a satisfactory condition inspite of two rectification notices issued in this behalf;		
(vi)	Fails to attend to Non Conformity Reports (NCRs) issued by the Independent/ Authority's Engineer on the designs/ works constructed by the Bidder pending for more than one year in two or more projects.		
(vii)	Fails to make premium payments excluding the current instalment in one or more projects.		
(viii)	Damages/Penalties recommended by the Independent/ Authority's Engineer on the Bidder during O&M period and the remedial works are not taken up in two or more projects.		
(ix)	Fails to achieve financial closure in two or more projects within the given or extended period (which shall not be more than six months in any case).		
(x)	Fails to submit the Performance Security within the permissible period in more than one project(s).		
(xi)	Rated as an unsatisfactory performing entity/ non-performing entity by an independent third party agency and so notified on the website of the Authority.		

I/ We certify that the list is complete and covers all the projects of Expressways, National Highways, ISC and EI works of Ministry of Road Transport & Highways or its implementing agencies and that we/ any of the JV partners do not fall in any of the above categories of being a Non-Performing entity.

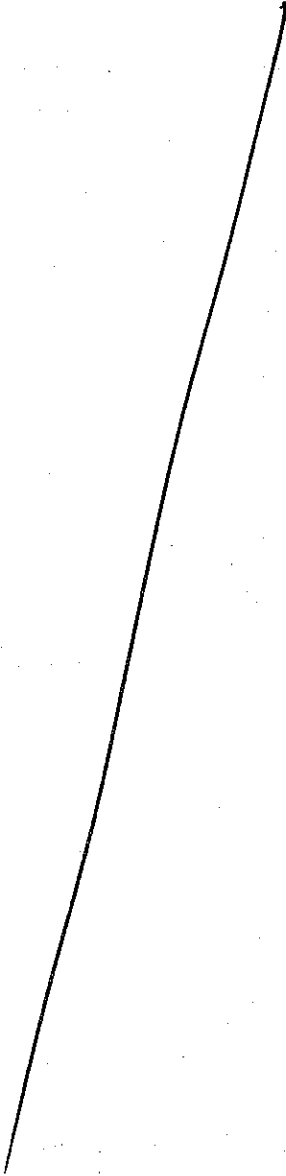
(Signature, name and designation of the authorised signatory)

For and on behalf of.....

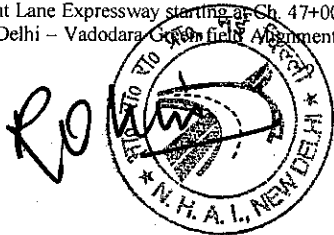


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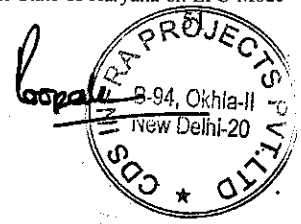
**Annex-II DELETED**



Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode

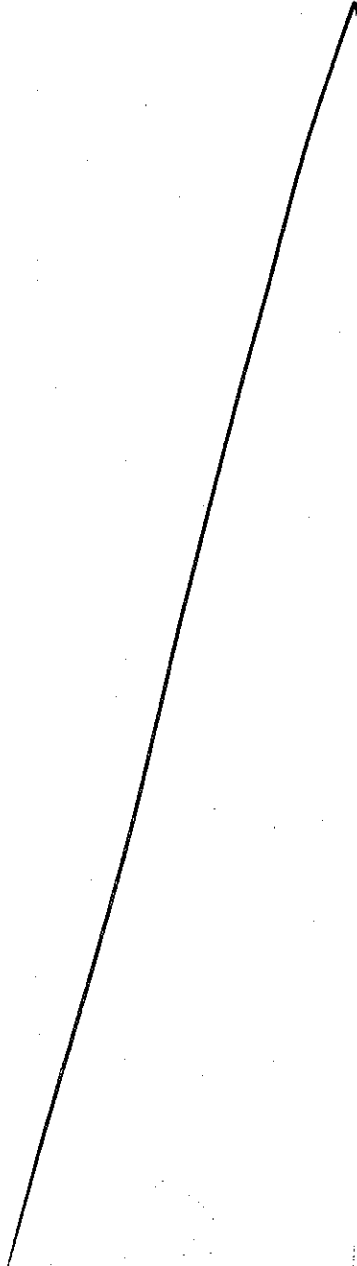


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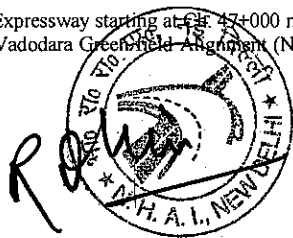




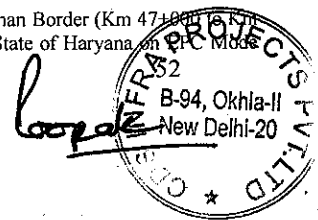
**Annex-III DELETED**



Construction of Eight Lane Expressway starting at Km 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to 78+800) section of Delhi - Vadodra Greenfield Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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ANNEX-IV

Details of Eligible Projects

(Refer to Clauses 2.2.2.2, 2.2.2.5 and 2.2.2.7 of the RFP)

Project Code:

Entity: Self/Members:

1. Certificate from the Bidder's statutory auditor<sup>§</sup> or its respective clients must be furnished as per formats below for each Eligible Project. In jurisdictions that do not have statutory auditors, the auditors who audit the annual accounts of the Bidder may provide the requisite certification.
2. If the Bidder is claiming experience under Categories 1 & 2<sup>£</sup>, it should provide a certificate from its statutory auditor in the format below as per Clause 2.2.2.6 (i) (d):

**Certificate from the Statutory Auditor regarding PPP projects<sup>Φ</sup>**

Based on its books of accounts and other published information authenticated by it, this is to certify that ..... (name of the Bidder) is/ was an equity shareholder in ..... (title of the project company) and holds/held Rs. .... cr. (Rupees ..... crore) of equity (which constitutes .....%<sup>€</sup> of the total paid up and subscribed equity capital) of the project company from ..... (date) to ..... (date)\*The project was/is commenced on .....(date) and likely to be commissioned on ..... (date of commissioning of the project).

We further certify that the total estimated capital cost of the project is Rs. .... cr. (Rupees .....crore), of which the applicant has itself undertaken the construction of project of Rs. ....(Rupees ..... Crores) excluding any part of the project for which any contractor, sub-contractor or other agent was appointed for the purpose of construction by the aforesaid Applicant itself, during the past five financial years as per year-wise details noted below:

.....  
.....

Name of the audit firm:

Seal of the audit firm:

Date:

(Signature, name and designation  
of the authorised signatory)

3. If the Bidder is claiming experience under Category 3 & 4\*, as per Clauses 2.2.2.5 and 2.2.2.6(ii) of the RFP, it should provide a certificate from its Statutory

<sup>§</sup> In case duly certified audited annual financial statements containing the requisite details are provided, a separate certification by statutory auditors would not be necessary.

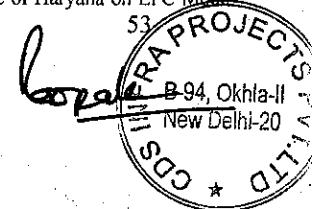
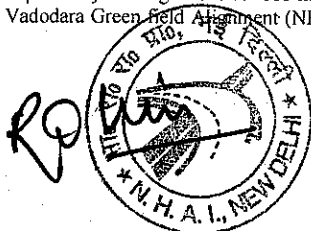
<sup>£</sup> Refer Clause 2.2.2.5 of the RFP.

<sup>Φ</sup> Provide Certificate as per this format only. Attach Explanatory Notes to the Certificate, if necessary. Statutory auditor means the entity that audits and certifies the annual accounts of the company.

<sup>€</sup> Refer instruction no. 10 in this Annex-IV.

\* In case the project is owned by the Applicant company, this language may be suitably modified to read: "It is certified that ..... (name of Applicant) constructed and/ or owned the ..... (name of project) from ..... (date) to ..... (date)." Refer Clauses 2.2.2.5 and 2.2.2.6(ii) of the RFP.

\* Refer Clauses 2.2.2.5 and 2.2.2.6(ii) of the RFP.



Auditor/client/Engineer-in charge/ Independent Engineer/Authority's Engineer in the format below:

**Certificate regarding construction works<sup>Ⓞ</sup>**

Based on its books of accounts and other published information authenticated by it, This is to certify that .....(name of the Bidder) was engaged by .....(title of the project company) to execute ..... (name of project) for ..... (nature of project). The construction of the project commenced on .....(date) and the project was/ is likely to be commissioned on ..... (date, if any). It is certified that Bidder received payments from its Clients for Construction Works executed by them or work executed and certified by the Engineer-in-charge/Independent Engineer/Authority's Engineer, in the aforesaid construction works.

We further certify that the total estimated capital cost of the project is Rs. .... cr. (Rupees .....crore), which the Applicant received or has executed the work as certified by the Engineer-in-charge/Independent Engineer/Authority's Engineer Rs. .... cr. (Rupees ..... crore), during the past five financial years as per year-wise details noted below:

.....  
.....

It is further certified that the receipts indicated above are restricted to the share of the Applicant who undertook these works as a partner or a member of joint venture. ♣

We further certify that applicant has a share of \_\_\_\_\_% in the Joint Venture.

(Authorized Signatory)

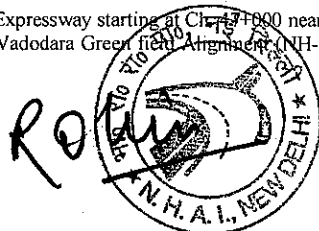
Date:

4. It may be noted that in the absence of any detail in the above certificates, the information would be considered inadequate and could lead to exclusion of the relevant project in computation of Experience.

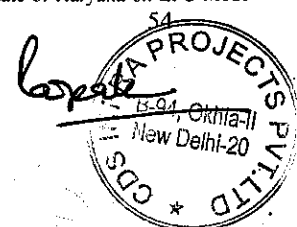
<sup>Ⓞ</sup> Provide Certificate as per this format only. Attach Explanatory Notes to the Certificate, if necessary. Statutory auditor means the entity that audits and certifies the annual accounts of the company. However, in case the work of other member(s) is also executed by the applicant, then this fact should also be certified by the Statutory Auditor and accordingly the language may be suitably modified.

♣ This certification should strike out in case of jobs/ contracts, which are executed a sole firm. The payments indicated in the certificate should be restricted to the share of Applicant in such partnership/ joint venture. This portion may be omitted if the contract did not involve a partnership/ joint venture. In case where work is not executed by partnership/ joint venture, this paragraph may be deleted.

Construction of Eight Lane Expressway starting at Ch-747+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmata Pariyojana in the State of Haryana on EPC Mode



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ANNEX-V  
Statement of Legal Capacity

(To be forwarded on the letterhead of the Applicant/ Lead Member of Joint Venture)

Ref. Date:

To,  
General Manager (T)-Bharatmala Division,  
National Highways Authority of India,  
G-5&6, Sector-10, Dwarka,  
New Delhi-110075  
Dear Sir,

We hereby confirm that we/ our members in the Joint Venture (constitution of which has been described in the application) satisfy the terms and conditions laid out in the RFP document.

We have agreed that ..... (insert member's name) will act as the Lead Member of our Joint Venture.\*

We have agreed that ..... (insert individual's name) will act as our representative/ will act as the representative of the Joint Venture on its behalf\* and has been duly authorized to submit the RFP. Further, the authorised signatory is vested with requisite powers to furnish such letter and authenticate the same.

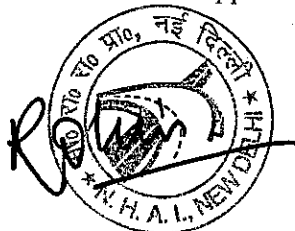
Thanking you,

Yours faithfully,

(Signature, name and designation of the authorised signatory)

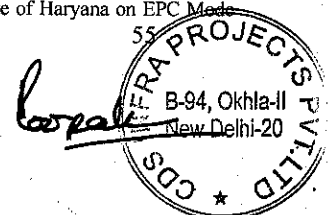
For and on behalf of.....

\*Please strike out whichever is not applicable.



Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mod

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**Information required to evaluate the BID Capacity under clause 2.2.2.1:**

To calculate the value of "A" and "C"

1. A table containing value of Civil Engineering Works in respect of EPC Projects (Turnkey projects / Item rate contract/ Construction works) undertaken by the Bidder during the last 5 years is as follows (the amount of bonus received, if any, shall be indicated separately):

2.

Sl. No.	Year	Value of Civil Engg. Works undertaken w.r.t. EPC Projects including bonus, if any (Rs. in Crores)	Amount of bonus (Rs. in Crores)	Net Value excluding bonus (Rs. in Crores)
1	2017-18/2017			
2	2016-17/2016			
3	2015-16/2015			
4	2014-15/2014			
5	2013-14/2013			

3. Maximum value of projects that have been undertaken during the F.Y. \_\_\_\_\_ out of the last 5 years and value excluding amount of bonus thereof is Rs. \_\_\_\_\_ Crores (Rupees \_\_\_\_\_). Further, value updated to the price level of the year indicated in Appendix is as follows:

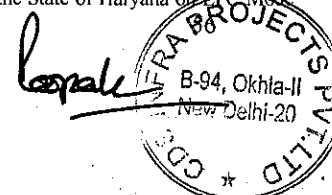
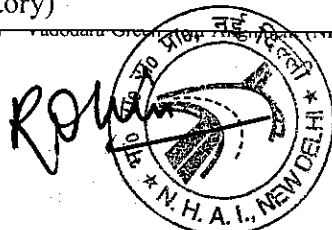
Rs. \_\_\_\_\_ Crores x \_\_\_\_\_ (Updation Factor as per Appendix) = Rs. \_\_\_\_\_ Crores (Rupees \_\_\_\_\_)

4. Amount of bonus received, if any, in EPC Projects during the last 5 years (updated to the price level of the year indicated in Appendix):

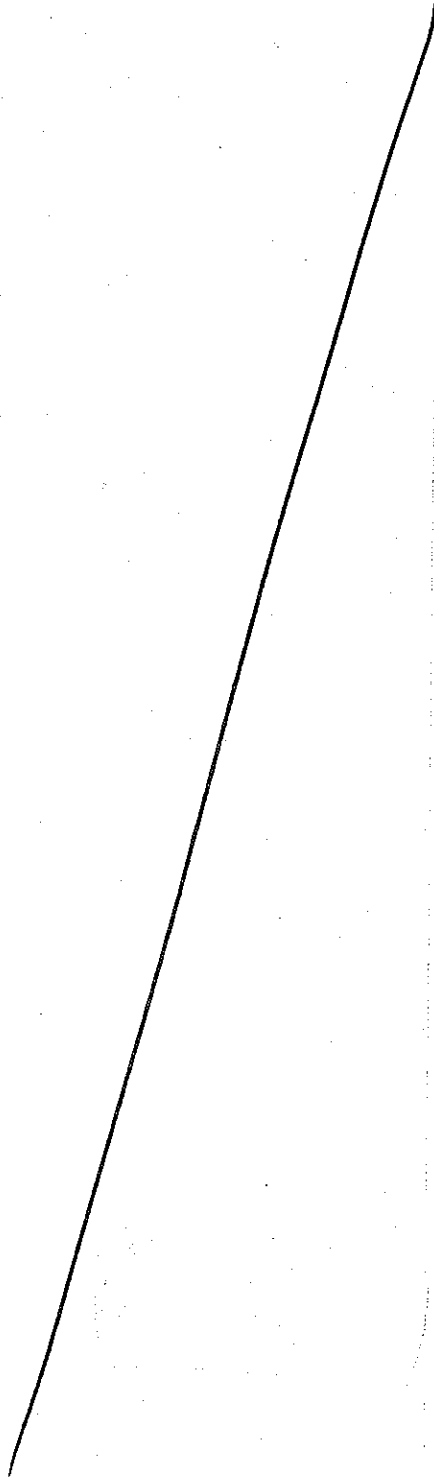
Sl. No.	F.Y. / Calendar Year	Amount of Bonus (Rs. in Crores)	Updation Factor	Updated Amount of Bonus (Rs. in Crores)
1	2017-18/2017		1.00	
2	2016-17/2016		1.05	
3	2015-16/2015		1.10	
4	2014-15/2014		1.15	
5	2013-14/2013		1.20	
			Total (C)=	

.....  
.....  
Name of the Statutory Auditor's firm:  
Seal of the audit firm: (Signature, name and designation and Membership No. of authorised signatory)

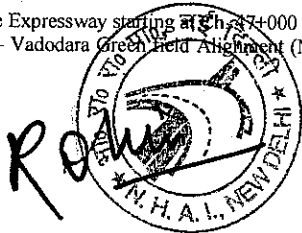
.....  
.....  
Signature, name and designation of Authorised Signatory  
For and on behalf of .....(Name of



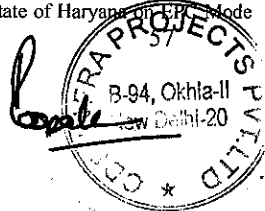
Date:  
Place:



Construction of Eight Lane Expressway starting at Ch. 74+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana. Mode



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## To calculate the value of "B"

A table containing value of all the existing commitments and on-going works to be completed during the next 2 years is as follows:

Sl. No.	Name of Project/ Work	Percentage of participation of Bidder in the project	Dater of start / appointed date of project	Construction period as per Agreement/ LOA	Value of contract as per Agreement /LOA <sup>B</sup>	Value of work completed	Balance value of work to be completed	Anticipated date of completion	Balance value of work at 2017-18/2017 price level
					Rs. in Crore	Rs. in Crore	Rs. in Crore		Rs. in Crore
1	2	3	4	5	6	7	8= (6-7)	9	10(3x 8x #)

# Updation Factor as given below:

For Year	F.Y. / Calendar Year	Updation Factor
1	2017-18/2017	1.00
2	2016-17/2016	1.05
3	2015-16/2015	1.10
4	2014-15/2014	1.15
5	2013-14/2013	1.20

The Statement showing the value of all existing commitments, anticipated value of work to be completed in the period of construction of the project for which bid is invited and ongoing works as well as the stipulated period of completion remaining for each of the works mentioned above is verified from the certificate issued that has been countersigned by the Client or its Engineer-in-charge not below the rank of Executive Engineer or equivalent in respect of EPC Projects or Concessionaire / Authorised Signatory of SPV in respect of BOT Projects. No awarded / ongoing works has been left in the aforesaid statement which has been awarded to M/s.....individually / and other member M/s ..... and M/s ..... as on bid due date of this RFP.

.....  
 .....  
 Signature, name and designation of Authorised Signatory

For and on behalf of .....(Name of the Bidder)

.....  
 .....  
 Name of the Statutory Auditor's firm:  
 Seal of the audit firm: (Signature, name and designation and Membership No. of authorised signatory)

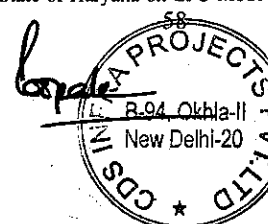
Date:

<sup>B</sup> In case balance period of construction is less than the value of period of construction of the project for which bid is invited, then full value of contract as per Agreement/LOA to be mentioned, else, anticipated value of work to be completed in the period of construction of the project for which bid is invited is to be mentioned. In the absence of the anticipated value of work to be completed, the proportionate value shall be considered while evaluating the Assessed Available Bid Capacity.

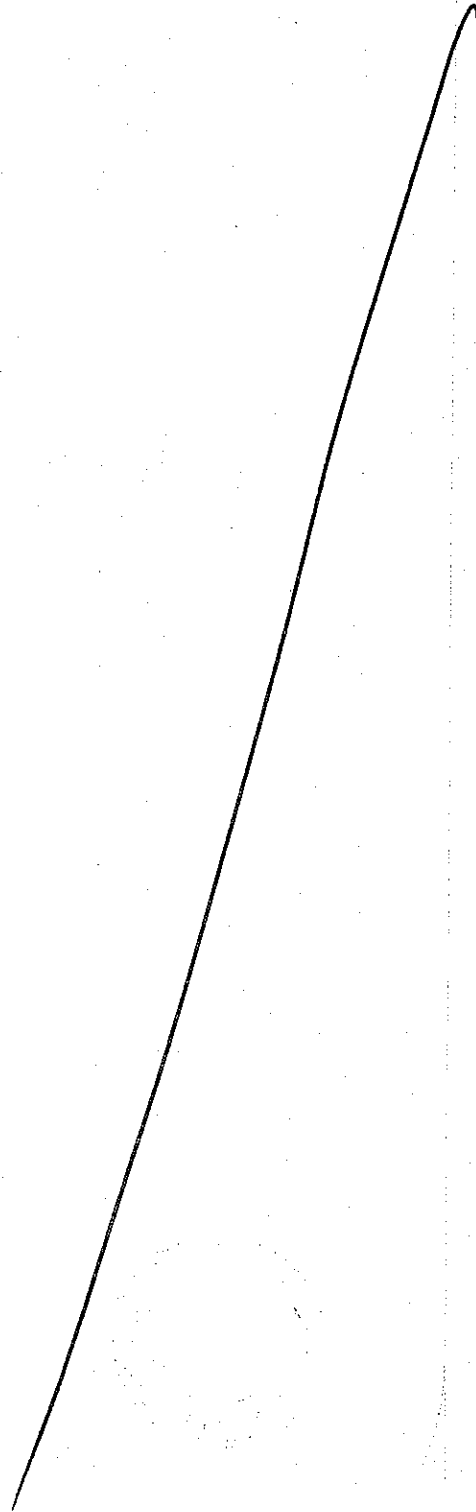
Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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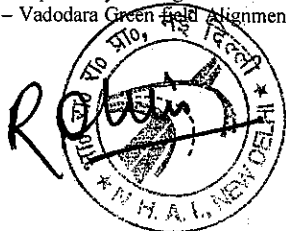


Place:



Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode

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**Guidelines of the Department of Disinvestment**  
(Refer Clause 1.2.1)

No. 6/4/2001-DD-II  
Government of India  
Department of Disinvestment

Block 14, CGO Complex  
New Delhi.  
Dated 13<sup>th</sup> July, 2001.

OFFICE MEMORANDUM

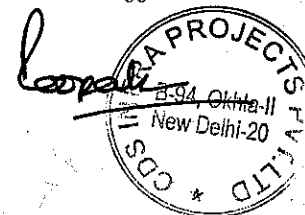
Sub: Guidelines for qualification of Bidders seeking to acquire stakes in Public Sector Enterprises through the process of disinvestment

Government has examined the issue of framing comprehensive and transparent guidelines defining the criteria for Bidders interested in PSE-disinvestment so that the parties selected through competitive bidding could inspire public confidence. Earlier, criteria like net worth, experience etc. used to be prescribed. Based on experience and in consultation with concerned departments, Government has decided to prescribe the following additional criteria for the qualification/ disqualification of the parties seeking to acquire stakes in public sector enterprises through disinvestment:

- (a) In regard to matters other than the security and integrity of the country, any conviction by a Court of Law or indictment/ adverse order by a regulatory authority that casts a doubt on the ability of the Bidder to manage the public sector unit when it is disinvested, or which relates to a grave offence would constitute disqualification. Grave offence is defined to be of such a nature that it outrages the moral sense of the community. The decision in regard to the nature of the offence would be taken on case to case basis after considering the facts of the case and relevant legal principles, by the Government of India.
- (b) In regard to matters relating to the security and integrity of the country, any charge-sheet by an agency of the Government/ conviction by a Court of Law for an offence committed by the bidding party or by any sister concern of the bidding party would result in disqualification. The decision in regard to the relationship between the sister concerns would be taken, based on the relevant facts and after examining whether the two concerns are substantially controlled by the same person/ persons.
- (c) In both (a) and (b), disqualification shall continue for a period that Government deems appropriate.
- (d) Any entity, which is disqualified from participating in the disinvestment process, would not be allowed to remain associated with it or get associated merely because it has preferred an appeal against the order based on which it has been



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disqualified. The mere pendency of appeal will have no effect on the disqualification.

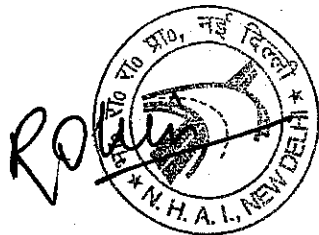
Appendix-IA  
Annexure-VII  
Page-2

- (e) The disqualification criteria would come into effect immediately and would apply to all Bidders for various disinvestment transactions, which have not been completed as yet.
- (f) Before disqualifying a concern, a Show Cause Notice why it should not be disqualified would be issued to it and it would be given an opportunity to explain its position.
- (g) Henceforth, these criteria will be prescribed in the advertisements seeking Expression of Interest (EOI) from the interested parties. The interested parties would be required to provide the information on the above criteria, along with their Expressions of Interest (EOI). The Bidders shall be required to provide with their EOI an undertaking to the effect that no investigation by a regulatory authority is pending against them. In case any investigation is pending against the concern or its sister concern or against its CEO or any of its Directors/ Managers/ employees, full details of such investigation including the name of the investigating agency, the charge/ offence for which the investigation has been launched, name and designation of persons against whom the investigation has been launched and other relevant information should be disclosed, to the satisfaction of the Government. For other criteria also, a similar undertaking shall be obtained along with EOI.

sd/-

(A.K. Tewari)

Under Secretary to the Government of India



Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode

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**Details of ongoing works (Ref Clause 10.3 (iv) of Draft EPC Agreement)**

S. No.	Name of the work	Contract Price (INR Cr)	Appointed Date	Original Scheduled Completion Date	Likely Date of Completion	Reason for Delay <sup>#</sup>
1						
2						
3						
...						

(In the event that the Bidder had failed to achieve the Completion of any project within a period of 90 (ninety) days from the Schedule Completion Date of the project, unless such failure had occurred due to Force Majeure or for reasons solely attributable to the Authority, the Bidder shall be deemed to be ineligible for bidding this project (under bidding), both as the sole party or as one of the parties of Joint Venture/ Consortium, if any, during the period from Scheduled Completion Date to issuance of Completion Certificate for that project. This restriction is applicable if the contract value of the delayed project was not less than Rs. 300 Crore.)

<sup>#</sup>To be supported with valid certificate issued from Independent Engineer / Authority's Engineer / Supervision Consultant / Engineer-in-charge

I / We certify that all the information furnished above is true in all respects.

..... Name of the Bidder

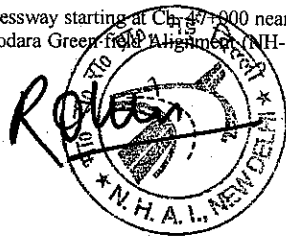
Signature of the authorized signatory: \_\_\_\_\_

Name of the Authorised Signatory: \_\_\_\_\_

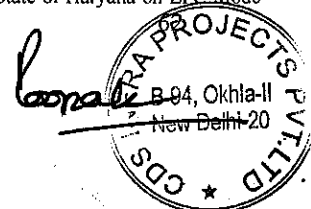
Date: \_\_\_\_\_

Place: \_\_\_\_\_

Construction of Eight Lane Expressway starting at Ch 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment, (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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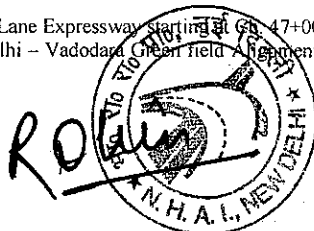
APPENDIX - II  
Bank Guarantee for BID Security  
(Refer Clauses 2.20)

B.G. No.

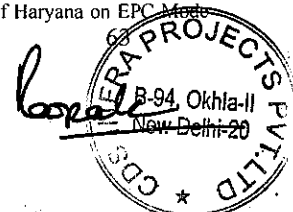
Dated:

1. In consideration of you, National Highways Authority of India, having its office at G-5 & 6, Sector 10, Dwarka, New Delhi - 110075, (hereinafter referred to as the "Authority", which expression shall unless it be repugnant to the subject or context thereof include its successors and assigns) having agreed to receive the BID of ..... and having its registered office at ..... (and acting on behalf of its JV) (hereinafter referred to as the "Bidder" which expression shall unless it be repugnant to the subject or context thereof include its/their executors, administrators, successors and assigns), for the **Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode Project** (hereinafter referred to as "the Project") pursuant to the RFP Document dated ..... issued in respect of the Project and other related documents including without limitation the draft contract Agreement (hereinafter collectively referred to as "Bidding Documents"), we (Name of the Bank) having our registered office at ..... and one of its branches at ..... (hereinafter referred to as the "Bank"), at the request of the Bidder, do hereby in terms of Clause 1.2.4 read with Clause 2.20 of the RFP Document, irrevocably, unconditionally and without reservation guarantee the due and faithful fulfilment and compliance of the terms and conditions of the Bidding Documents (including the RFP Document) by the said Bidder and unconditionally and irrevocably undertake to pay forthwith to the Authority an amount of Rs. 7.99 Crore (Rupees Seven Crore and Ninety Nine Lakh only) (hereinafter referred to as the "Guarantee") as our primary obligation without any demur, reservation, recourse, contest or protest and without reference to the Bidder if the Bidder shall fail to fulfil or comply with all or any of the terms and conditions contained in the said Bidding Documents.
2. Any such written demand made by the Authority stating that the Bidder is in default of the due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents shall be final, conclusive and binding on the Bank.
3. We, the Bank, do hereby unconditionally undertake to pay the amounts due and payable under this Guarantee without any demur, reservation, recourse, contest or protest and without any reference to the Bidder or any other person and irrespective of whether the claim of the Authority is disputed by the Bidder or not, merely on the first demand from the Authority stating that the amount claimed is due to the Authority by reason of failure of the Bidder to fulfil and comply with the terms and conditions contained in the Bidding Documents including failure of the said Bidder to keep its BID open during the BID validity period as set forth in the said Bidding Documents for any reason whatsoever. Any such demand made on the Bank shall be conclusive as regards amount due and payable by the Bank under this Guarantee. However, our liability under this Guarantee shall be

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



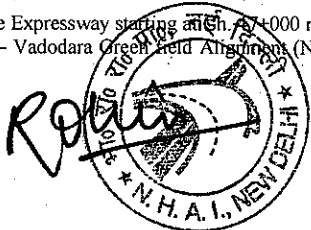
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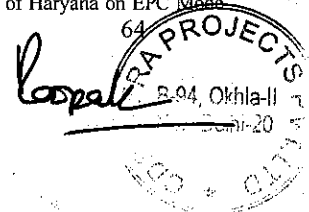
restricted to an amount not exceeding Rs. 7.99 Crore (Rupees Seven Crore and Ninety Nine Lakh only).

4. This Guarantee shall be irrevocable and remain in full force for a period of 180 (one hundred and eighty) days from the BID Due Date inclusive of a claim period of 60 (sixty) days or for such extended period as may be mutually agreed between the Authority and the Bidder, and agreed to by the Bank, and shall continue to be enforceable till all amounts under this Guarantee have been paid.
5. We, the Bank, further agree that the Authority shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Bidder to keep its BID open during the BID validity period set forth in the said Bidding Documents, and the decision of the Authority that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the Authority and the Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other Authority.
6. The Guarantee shall not be affected by any change in the constitution or winding up of the Bidder or the Bank or any absorption, merger or amalgamation of the Bidder or the Bank with any other person.
7. In order to give full effect to this Guarantee, the Authority shall be entitled to treat the Bank as the principal debtor. The Authority shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee from time to time to vary any of the terms and conditions contained in the said Bidding Documents or to extend time for submission of the BIDs or the BID validity period or the period for conveying acceptance of Letter of Award by the Bidder or the period for fulfilment and compliance with all or any of the terms and conditions contained in the said Bidding Documents by the said Bidder or to postpone for any time and from time to time any of the powers exercisable by it against the said Bidder and either to enforce or forbear from enforcing any of the terms and conditions contained in the said Bidding Documents or the securities available to the Authority, and the Bank shall not be released from its liability 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 said Bidder or any other forbearance, act or omission on the part of the Authority or any indulgence by the Authority to the said Bidder or by any change in the constitution of the Authority or its absorption, merger or amalgamation with any other person or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of releasing the Bank from its such liability.
8. Any notice by way of request, demand or otherwise hereunder shall be sufficiently given or made if addressed to the Bank and sent by courier or by registered mail to the Bank at the address set forth herein.
9. We undertake to make the payment on receipt of your notice of claim on us addressed to [name of Bank along with branch address] and delivered at our

Construction of Eight Lane Expressway starting at Ch. A/7+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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above branch which shall be deemed to have been duly authorised to receive the said notice of claim.

10. It shall not be necessary for the Authority to proceed against the said Bidder before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank, notwithstanding any other security which the Authority may have obtained from the said Bidder or any other person and which shall, at the time when proceedings are taken against the Bank hereunder, be outstanding or unrealised.
11. We, the Bank, further undertake not to revoke this Guarantee during its currency except with the previous express consent of the Authority in writing.
12. The Bank declares that it has power to issue this Guarantee and discharge the obligations contemplated herein, the undersigned is duly authorised and has full power to execute this Guarantee for and on behalf of the Bank.
13. For the avoidance of doubt, the Bank's liability under this Guarantee shall be restricted Rs. 7.99 Crore (Rupees Seven Crore and Ninety Nine Lakh only). The Bank shall be liable to pay the said amount or any part thereof only if the Authority serves a written claim on the Bank in accordance with paragraph 9 hereof, on or before [\*\*\* (indicate date falling 180 days after the BID Due Date)].
14. 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.
15. 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 NHAI, the details of which is given as below:

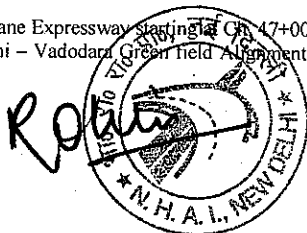
S. No.	Particulars	Details
1.	Name of Beneficiary	National Highways Authority of India
2.	Name of Bank	Canara Bank
3.	Account No.	8598201005819
4.	IFSC Code	CNRB0008598

Signed and Delivered by ..... Bank

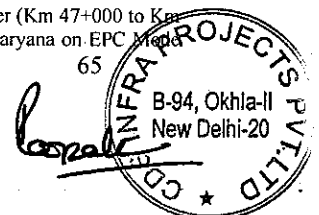
By the hand of Mr./Ms ..... its ..... and authorised official.

(Signature of the Authorised Signatory)  
(Official-Seal)

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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**APPENDIX-III**  
**Format for Power of Attorney for signing of BID**  
*(Refer Clause 2.1.5)*

Know all men by these presents, We..... (name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr./ Ms (name), ..... son/daughter/wife of ..... and presently residing at ....., who is presently employed with us/ the Lead Member of our Joint Venture and holding the position of ....., as our true and lawful attorney (hereinafter referred to as the "Attorney") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our BID for the **Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode** Project proposed or being developed by the National Highways Authority of India (the "Authority") including but not limited to signing and submission of all applications, BIDs and other documents and writings, participate in Pre-BID and other conferences and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts including the agreement and undertakings consequent to acceptance of our BID, and generally dealing with the Authority in all matters in connection with or relating to or arising out of our BID for the said Project and/ upon award thereof to us and/or until the entering into of the EPC Contract with the Authority.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, ....., THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS ..... DAY OF ..... 2.....

For .....  
 (Signature, name, designation and address)  
 of person authorized by Board Resolution  
 (in case of Firm/ Company)/ partner in case of  
 Partnership firm

Witnesses:

- 1.
- 2.

Accepted

.....

(Signature)

(Name, Title and Address of the Attorney)

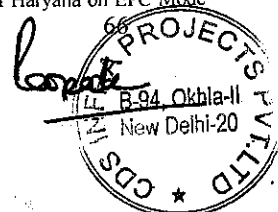
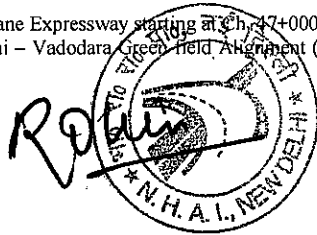
(Notarised)

Person identified by me/ personally appeared before me/  
 Attested/ Authenticated\*

(\*Notary to specify as applicable)

(Signature Name and Address of the Notary)

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



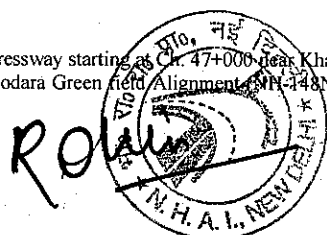
Seal of the Notary  
Registration No. of the Notary  
Date:.....

Notes:

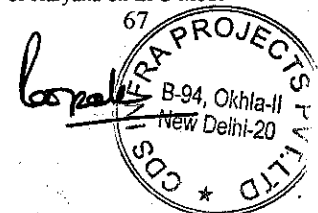
- The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.
- Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.
- For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalised by the Indian Embassy if it carries a conforming Appostille certificate.

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Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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APPENDIX-IV

Format for Power of Attorney for Lead Member of Joint Venture

(Refer Clause 2.1.6)

Whereas the National Highways Authority of India ("the Authority") has invited BIDs for the Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode Project(the "Project").

Whereas, ....., and ..... (collectively the "Joint Venture") being Members of the Joint Venture are interested in bidding for the Project in accordance with the terms and conditions of the Request for Proposal (RFP) and other BID documents including agreement in respect of the Project, and

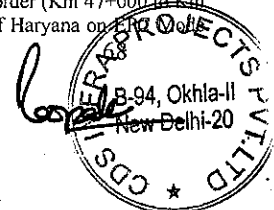
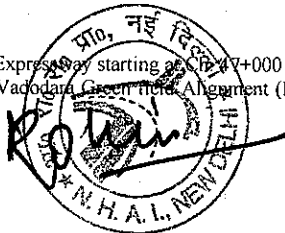
Whereas, it is necessary for the Members of the Joint Venture to designate one of them as the Lead Member with all necessary power and authority to do for and on behalf of the Joint Venture, all acts, deeds and things as may be necessary in connection with the Joint Venture's BID for the Project and its execution.

NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS

We, ..... having our registered office at ....., M/s. .... having our registered office at ..., M/s. ... having our registered office at ....., and ..... having our registered office at ....., (hereinafter collectively referred to as the "Principals") do hereby irrevocably designate, nominate, constitute, appoint and authorize M/S ..... having its registered office at ....., being one of the Members of the Joint Venture, as the Lead Member and true and lawful attorney of the Joint Venture (hereinafter referred to as the "Attorney"). We hereby irrevocably authorize the Attorney (with power to sub-delegate) to conduct all business for and on behalf of the Joint Venture and any one of us during the bidding process and, in the event the Joint Venture is awarded the contract, during the execution of the Project and in this regard, to do on our behalf and on behalf of the Joint Venture, all or any of such acts, deeds or things as are necessary or required or incidental to the pre-qualification of the Joint Venture and submission of its BID for the Project, including but not limited to signing and submission of all applications, BIDs and other documents and writings, participate in pre BID and other conferences, respond to queries, submit information/ documents, sign and execute contracts and undertakings consequent to acceptance of the BID of the Joint Venture and generally to represent the Joint Venture in all its dealings with the Authority, and/ or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the Joint Venture's BID for the in all respect Project and/ or upon award thereof till the EPC Contract is entered into with the Authority & Compelled.

AND hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us/ Joint Venture.

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode Project



IN WITNESS WHEREOF WE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS ..... DAY OF ..... 2.....

For ..... (Signature) ..... (Name & Title)	For ..... (Signature) ..... (Name & Title)	For ..... (Signature) ..... (Name & Title)
---	---	---

(Executants)

(To be executed by all the Members of the Joint Venture)

Witnesses:

- 1.
- 2.

Notes:

- The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.
- Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.
- For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalised by the Indian Embassy if it carries a conforming Appostille certificate.



Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghatj and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode

APPENDIX V

Format for Joint Bidding Agreement for Joint Venture

(Refer Clause 2.1.11)

(To be executed on Stamp paper of appropriate value)

THIS JOINT BIDDING AGREEMENT is entered into on this the ..... day of ..... 20...

AMONGST

1. {..... Limited, and having its registered office at ..... } (hereinafter referred to as the "First Part" which expression shall, unless repugnant to the context include its successors and permitted assigns)

AND

2. {..... Limited, having its registered office at ..... } and (hereinafter referred to as the "Second Part" which expression shall, unless repugnant to the context include its successors and permitted assigns)

AND

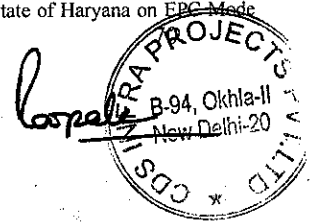
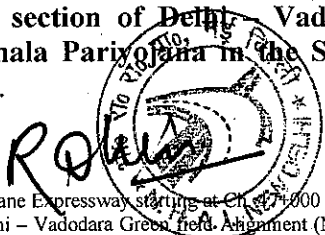
3. {..... Limited, and having its registered office at ..... } (hereinafter referred to as the "Third Part" which expression shall, unless repugnant to the context include its successors and permitted assigns)

The above mentioned parties of the FIRST, {SECOND and THIRD} PART are collectively referred to as the "Parties" and each is individually referred to as a "Party"

WHEREAS,

(A) NATIONAL HIGHWAYS AUTHORITY OF INDIA, established under the National Highways Authority of India Act 1988, represented by its Chairman and having its principal offices at G-5 & 6, Sector 10, Dwarka, New Delhi-110075 (hereinafter referred to as the "Authority" which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) has invited bids (the Bids") by its Request for Proposal No. .... dated .....(the "RFP") for award of contract for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana (the "Project") through an EPC Contract.

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



- (B) The Parties are interested in jointly bidding for the Project as members of a Joint Venture and in accordance with the terms and conditions of the RFP document and other bid documents in respect of the Project, and
- (C) It is a necessary condition under the RFP document that the members of the Joint Venture shall enter into a Joint Bidding Agreement and furnish a copy thereof with the Application.

**NOW IT IS HEREBY AGREED as follows:**

**1. Definitions and Interpretations**

In this Agreement, the capitalised terms shall, unless the context otherwise requires, have the meaning ascribed thereto under the RFP.

**2. Joint Venture**

- 2.1 The Parties do hereby irrevocably constitute a Joint Venture (the "Joint Venture") for the purposes of jointly participating in the Bidding Process for the Project.
- 2.2 The Parties hereby undertake to participate in the Bidding Process only through this Joint Venture and not individually and/ or through any other Joint Venture constituted for this Project, either directly or indirectly.

**3. Covenants**

The Parties hereby undertake that in the event the Joint Venture is declared the selected Bidder and awarded the Project, it shall enter into an EPC Contract with the Authority for performing all its obligations as the Contractor in terms of the EPC Contract for the Project.

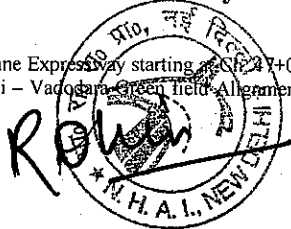
**4. Role of the Parties**

The Parties hereby undertake to perform the roles and responsibilities as described below:

- (a) Party of the First Part shall be the Lead member of the Joint Venture and shall have the power of attorney from all Parties for conducting all business for and on behalf of the Joint Venture during the Bidding Process and for performing all its obligations as the Contractor in terms of the EPC Contract for the Project.
- (b) Party of the Second Part shall be {the Member of the Joint Venture; and}
- (c) Party of the Third Part shall be {the Member of the Joint Venture.}

**5. Joint and Several Liability**

Construction of Eight Lane Expressway starting at CP 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodra Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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The Parties do hereby undertake to be jointly and severally responsible for all obligations and liabilities relating to the Project and in accordance with the terms of the RFP and the EPC Contract, till such time as the completion of the Project is achieved under and in accordance with the EPC Contract.

## 6. Share of work in the Project

The Parties agree that the proportion of construction in the EPC Contract to be allocated among the members shall be as follows:

First Party:

Second Party:

{Third Party:}

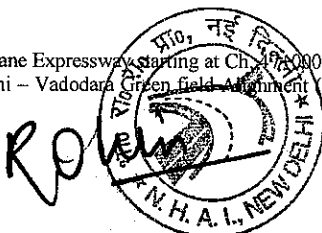
Further, the Lead Member shall itself undertake and perform at least 51 (fifty one) per cent of the total length of the project highway if the Contract is allocated to the Joint Venture.

## 7. Representation of the Parties

Each Party represents to the other Parties as of the date of this Agreement that:

- (a) Such Party is duly organised, validly existing and in good standing under the laws of its incorporation and has all requisite power and authority to enter into this Agreement;
- (b) The execution, delivery and performance by such Party of this Agreement has been authorised by all necessary and appropriate corporate or governmental action and a copy of the extract of the charter documents and board resolution/power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Joint Venture Member is annexed to this Agreement, and will not, to the best of its knowledge:
  - (i) require any consent or approval not already obtained;
  - (ii) violate any Applicable Law presently in effect and having applicability to it;
  - (iii) violate the memorandum and articles of association, by-laws or other applicable organisational documents thereof;
  - (iv) violate any clearance, permit, concession, grant, license or other governmental authorisation, approval, judgement, order or decree or any mortgage agreement, indenture or any other instrument to which such Party is a party or by which such Party or any of its properties or assets are bound or that is otherwise applicable to such Party; or

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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- (v) create or impose any liens, mortgages, pledges, claims, security interests, charges or Encumbrances or obligations to create a lien, charge, pledge, security interest, encumbrances or mortgage in or on the property of such Party, except for encumbrances that would not, individually or in the aggregate, have a material adverse effect on the financial condition or prospects or business of such Party so as to prevent such Party from fulfilling its obligations under this Agreement;
- (c) this Agreement is the legal and binding obligation of such Party, enforceable in accordance with its terms against it; and
- (d) there is no litigation pending or, to the best of such Party's knowledge, threatened to which it or any of its Affiliates is a party that presently affects or which would have a material adverse effect on the financial condition or prospects or business of such Party in the fulfillment of its obligations under this Agreement.

**8. Termination**

This Agreement shall be effective from the date hereof and shall continue in full force and effect until Project completion (the "Defects Liability Period") is achieved under and in accordance with the EPC Contract, in case the Project is awarded to the Joint Venture. However, in case the Joint Venture is either not pre-qualified for the Project or does not get selected for award of the Project, the Agreement will stand terminated in case the Applicant is not pre-qualified or upon return of the Bid Security by the Authority to the Bidder, as the case may be.

**9. Miscellaneous**

- 9.1 This Joint Bidding Agreement shall be governed by laws of {India}.
- 9.2 The Parties acknowledge and accept that this Agreement shall not be amended by the Parties without the prior written consent of the Authority.

IN WITNESS WHEREOF THE PARTIES ABOVE NAMED HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN. SIGNED, SEALED AND DELIVERED

For and on behalf of

LEAD MEMBER by:

SECOND PART

THIRD PART

(Signature)

(Signature)

(Signature)

(Name)

(Name)

(Name)

(Designation)

(Designation)

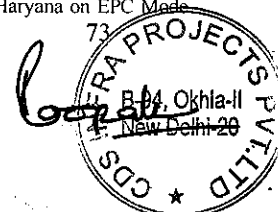
(Designation)

(Address)

(Address)

(Address)

Construction of Eight Lane Expressway starting at Ch/47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



In the presence of:

**Notes:**

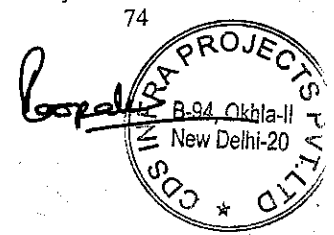
1. The mode of the execution of the Joint Bidding Agreement should be in accordance with the procedure, if any, laid down by the Applicable Law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.
2. Each Joint Bidding Agreement should attach a copy of the extract of the charter documents and documents such as resolution / power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Joint Venture Member.
3. For a Joint Bidding Agreement executed and issued overseas, the document shall be legalised by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney has been executed.

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Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green Field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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## APPENDIX VI

### INTEGRITY PACT FORMAT

*(To be executed on plain paper and submitted alongwith Technical Bid/Tender documents for tenders having a value of Rs. 5 cr or above for Consultancy projects and 100 cr. or above for Construction projects. To be signed by the Bidder and same signatory competent/ authorized to sign the relevant contract on behalf of the MoRTH)*

This integrity Pact is made at \_\_\_\_\_ on this \_\_\_\_\_ day of \_\_\_\_\_ 2018.

#### BETWEEN

**President of India through Ministry of Road Transport & Highways, Government of India** represented by the Chairman, The National Highways Authority Of India, having its principal offices at G-5 & 6, Sector 10, Dwarka, New Delhi-110075, (hereinafter referred to as the "**Principal/Owner**" which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns)

{Name and address of the Firm/Company}, (hereinafter referred to as "The Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s)" and which expression shall unless repugnant to be meaning or context thereof include its successors and permitted assigns.)

#### Preamble

Whereas, the Principal has floated the Tender {NIT No.....dtd.....} (hereinafter referred to as "Tender/Bid") and intends to award, under laid down organizational procedure, contract/s for **Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode** (hereinafter referred to as the "Contract"). And Whereas the Principal values full compliance with all relevant laws of the land, rules of land, regulations, economic use of resources and of fairness/ transparency in its relations with its Bidder(s) and/ or Contractor(s)/Concessionaire(s)/Consultant(s).

And whereas to meet the purpose aforesaid, both the parties have agreed to enter into this Integrity Pact (hereafter referred to as "Integrity Pact" or "Pact") the terms and conditions of which shall also be read as integral part and parcel of the Tender documents and contract between the parties.

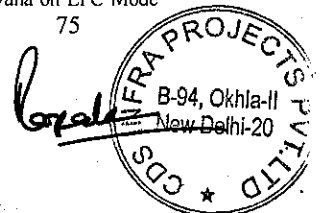
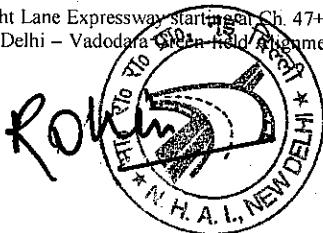
Now, therefore, in consideration of mutual covenants contained in this pact, the parties hereby agree as follows and this pact witnesses as under:

#### Article-1: Commitments of the Principal

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

(a) No employee of the Principal, personally or through family members, will in connection with the Tender for, or the execution of a Contract, demand, take a

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode





promise for or accept, for self, or third person, any material of immaterial benefit which the person is not legally entitled to.

- (b) The Principal will, during the Tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
- (c) The Principal will exclude all known prejudiced persons from the process, whose conduct in the past has been of biased nature.

(2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act or any other Statutory Acts or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions as per its internal laid down Rules/Regulations.

**Article - 2: Commitments of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s).**

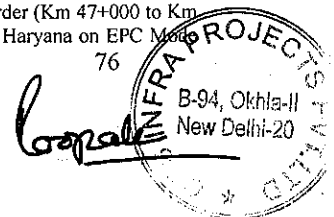
The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

- (a) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- (b) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contract, submission or nonsubmission or bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- (c) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not commit any offence under the relevant IPC/PC Act and other Statutory Acts; further the Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s) will not use improperly, for purposes of completion or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- (d) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) of foreign origin shall disclose the name and address of the Agents/ Representatives in India, if any. Similarly, the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) of Indian Nationality shall furnish the name and address of the foreign principle, if any.

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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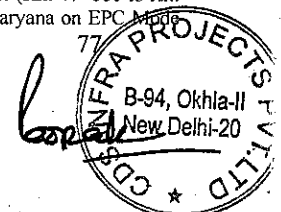
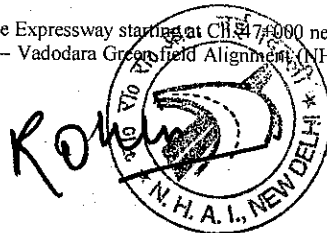


- (e) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract. He shall also disclose the details of services agreed upon for such payments.
- (f) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- (g) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not bring any outside influence through any Govt. bodies/quarters directly or indirectly on the bidding process in furtherance of his bid.

**Article - 3 Disqualification from tender process and exclusion from future contracts.**

- (1) If the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s), before award or during execution has committed a transgression through a violation of any provision of Article-2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) from the tender process.
- (2) If the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) has committed a transgression through a violation of Article-2 such as to put his reliability or credibility into question, the Principal shall be entitled to exclude including blacklist and put on holiday the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) for any future tenders/ contract award process. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the Principal taking into consideration the full facts and circumstances of each case particularly taking into account the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) and the amount of the damage. The exclusion will be imposed for a maximum of 3 years.
- (3) A transgression is considered to have occurred if the Principal after due consideration of the available evidence concludes that "On the basis of facts available there are no material doubts".
- (4) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) with its free consent and without any influence agrees and undertakes to respect and uphold the Principal's absolute rights to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.
- (5) The decision of the Principal to the effect that a breach of the provisions of this Integrity Pact has been committed by the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) shall be final and binding on the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s), however, the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) can approach IEM(s) appointed for the purpose of this Pact.

Construction of Eight Lane Expressway starting at CH 7+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Greenfield Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



- (6) On occurrence of any sanctions/ disqualification etc arising out from violation of integrity pact, the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) shall not be entitled for any compensation on this account.
- (7) Subject to full satisfaction of the Principal, the exclusion of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) could be revoked by the Principal if the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) can prove that he has restored/ recouped the damage caused by him and has installed a suitable corruption prevention system in his organization.

**Article – 4: Compensation for Damages.**

- (1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Article-3, the Principal shall be entitled to forfeit the Earnest Money Deposit/ Bid Security or demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security apart from any other legal right that may have accrued to the Principal.
- (2) In addition to 1 above, the Principal shall be entitled to take recourse to the relevant provisions of the contract related to Termination of Contract due to Contractor/ Concessionaire/Consultant's Default. In such case, the Principal shall be entitled to forfeit the Performance Bank Guarantee of the Contractor/ Concessionaire/ Consultant and/ or demand and recover liquidated and all damages as per the provisions of the contract/concession agreement against Termination.

**Article – 5: Previous Transgressions**

- (1) The Bidder declares that no previous transgressions occurred in the last 3 years immediately before signing of this Integrity Pact with any other Company in any country conforming to the anticorruption/ Transparency International (TI) approach or with any other Public Sector Enterprise/ Undertaking in India or any Government Department in India that could justify his exclusion from the tender process.
- (2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action for his exclusion can be taken as mentioned under Article-3 above for transgressions of Article-2 and shall be liable for compensation for damages as per Article-4 above.

**Article – 6: Equal treatment of all Bidders/ Contractors/ Concessionaires/ Consultants/ Subcontractors.**

- (1) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) undertake(s) to demand from all sub-contractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
- (2) The Principal will enter into agreements with identical conditions as this one with all Bidders/ Contractors/ Concessionaires/ Consultants and subcontractors.
- (3) The Principal will disqualify from the tender process all Bidders who do not sign this Pact or violate its provisions.

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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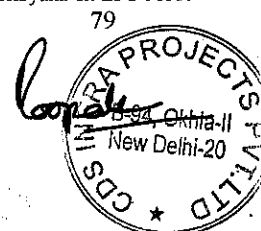
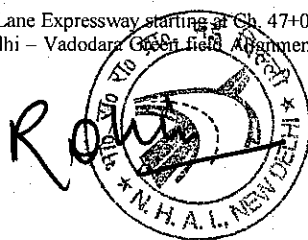


**Article - 7: Criminal charges against violating Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)/ Sub-contractor(s).**

If the Principal obtains knowledge of conduct of a Bidder/ Contractor/ Concessionaire/ Consultant or subcontractor, or of an employee or a representative or an associate of a Bidder/ Contractor/ Concessionaire/ Consultant or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

**Article- 8: Independent External Monitor (IEM)**

- (1) The Principal has appointed Shri. R.S. Gujral as Independent External Monitor (herein after referred to as "Monitor") for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- (2) The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Director General (Road Development) & Special Secretary.
- (3) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) accepts that the Monitor has the right to access without restriction to all project documentation of the Principal including that provided by the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s). The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/Contractor(s)/Subcontractor(s) with confidentiality.
- (4) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- (5) As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- (6) The Monitor will submit a written report to the Director General (Road Development) & Special Secretary within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
- (7) If the Monitor has reported to the Director General (Road Development) & Special Secretary, a substantiated suspicion of an offence under relevant IPC/PC Act, and the Director General (Road Development) & Special Secretary has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.



(8) The word 'Monitor' would include both singular and plural.

**Article – 9 Pact Duration**

This Pact begins when both parties have legally signed it (in case of EPC i.e. for projects funded by Principal and consultancy services). It expires for the Contractor/ Consultant 12 months after his Defect Liability Period is over or 12 months after his last payment under the contract whichever is later and for all other unsuccessful Bidders 6 months after this Contract has been awarded. (In case of BOT Projects) It expires for the concessionaire 24 months after his concession period is over and for all other unsuccessful Bidders 6 months after this Contract has been awarded.

If any claim is made/ lodged during his time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by Director General (Road Development) & Special Secretary.

**Article - 10 Other Provisions.**

- (1) This pact is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.
- (2) Changes and supplements as well as termination notices need to be made in writing.
- (3) If the Bidder/Contractor/Concessionaire/Consultant is in a partnership or a consortium Joint Venture partner, this pact must be signed by all partners or consortium members.
- (4) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- (5) Any disputes/ differences arising between the parties with regard to term of this pact, any action taken by the Principal in accordance with this Pact or interpretation thereof shall not be subject to any Arbitration.
- (6) The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provision of the extant law in force relating to any civil or criminal proceedings.

In witness whereof the parties have signed and executed this Pact at the place and date first done mentioned in the presence of following witness:-

(For & On behalf of the Principal)

(For & On behalf of the Bidder/ Contractor/  
Concessionaire/ Consultant )

(Office Seal )

Place \_\_\_\_\_

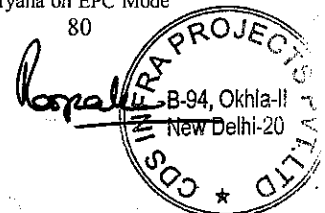
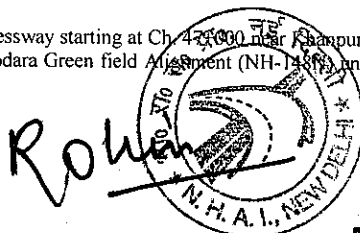
Date \_\_\_\_\_

Witness 1 : (Name & Address):

Witness 2 : (Name & Address):

Construction of Eight Lane Expressway starting at Ch. 47+000 near Champur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148B) under Bharatmala Pariyojana in the State of Haryana on EPC Mode

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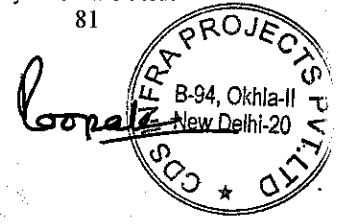
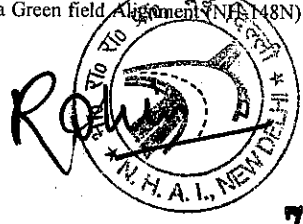
{COUNTERSIGNED and accepted by:

JV Partner}

*[A large, diagonal handwritten signature or scribble is present in the center of the page.]*

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode

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Appendix-VII  
(See Clauses 2.21)

**FORM OF BANK GUARANTEE**  
**Performance Security/Additional Performance Security**

To  
The Chairman,  
National Highways Authority of India  
New Delhi

WHEREAS \_\_\_\_\_ [name and address of Contractor]  
(hereafter called the "Contractor") has undertaken, in pursuance of Letter of Acceptance (LOA)  
No. \_\_\_\_\_ Dated \_\_\_\_\_ for **Construction of Eight Lane Expressway**  
**starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km**  
**47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N)**  
**under Bharatmala Pariyojana in the State of Haryana on EPC Mode** (hereinafter called the  
"Contract").

AND WHEREAS the Contract 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 Contract, during the {Construction Period/ Defects Liability Period and  
Maintenance Period} in a sum of Rs..... cr. (Rupees ..... crore) (the "**Guarantee**  
**Amount**"<sup>2</sup>).

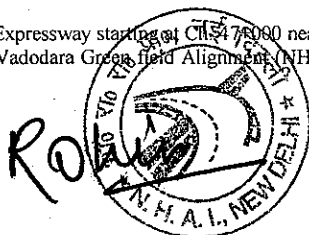
AND WHEREAS we, .....through our branch at ..... (the "**Bank**")  
have agreed to furnish this Bank Guarantee (hereinafter called the "**Guarantee**") by way of  
Performance Security.

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 Contract, 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.
2. A letter from the Authority, under the hand of an officer not below the rank of General Manager of National Highways Authority of India, 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 Contract 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 Contract and its decision that the Contractor is in default shall be final and

<sup>2</sup> Guarantee Amount for Performance Security and Additional Performance Security shall be calculated as per Contract.

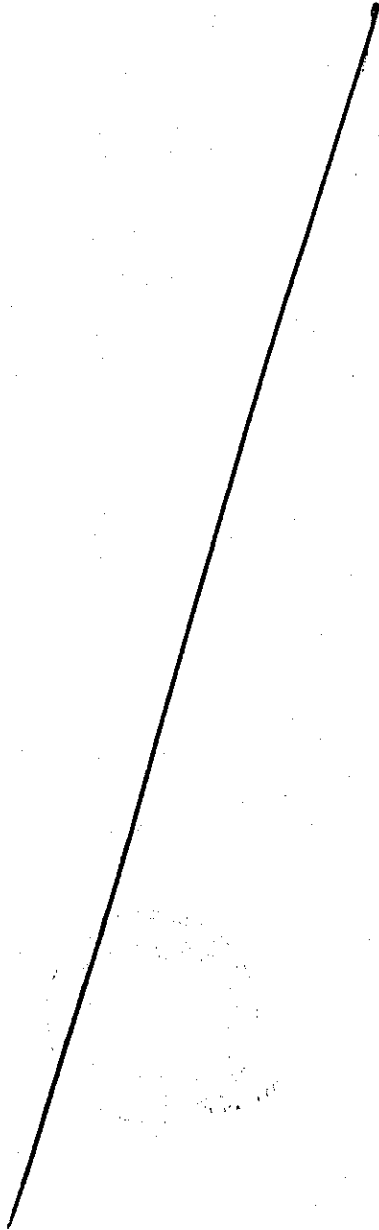
Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



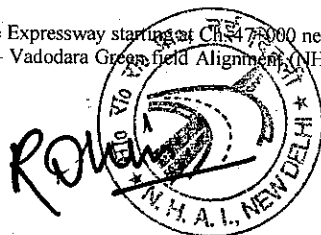
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binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.



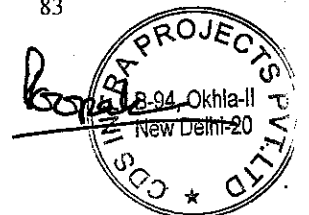
Construction of Eight Lane Expressway starting at Ch 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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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 Contract 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 Contract 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 Contract 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 Contract or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Contract.

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.

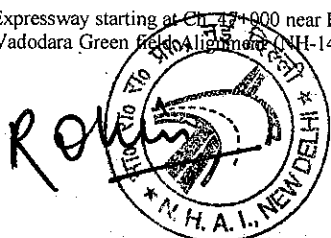
8. The Guarantee shall cease to be in force and effect on \*\*\*\*<sup>s</sup>. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.

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.

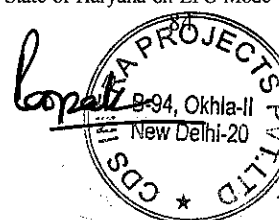
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly

<sup>s</sup>Insert date being 2 (two) years from the date of issuance of this Guarantee (in accordance with Clause 2.20.6 of the RFP).

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Greenfield Highway (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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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 Contract.
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 NHAI. Details of which is given as below:

S. No.	Particulars	Details
1.	Name of Beneficiary	National Highways Authority of India
2.	Name of Bank	Canara Bank
3.	Account No.	8598201005819
4.	IFSC Code	CNRB0008598

Signed and sealed this ..... day of ....., 20..... at .....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

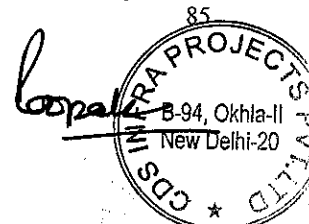
(Code Number)

(Address)

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-I48N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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Appendix-VIII  
(See Clauses 3.3.4)

**Format of LOA**

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

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

Dated,

To,

{Name of selected Bidder}

**Subject: Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode- Letter of Acceptance(LOA)-Reg.**

Reference: Your bid for the subject work dated .....

Sir,

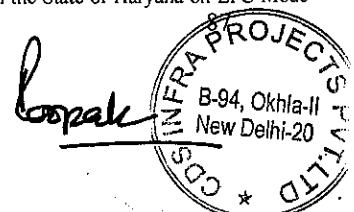
This is to notify you that your Bid dated ..... for execution of the {project description}, at your quoted bid price amounting to Rs. ....-/- {amount in words} has been determined to be the lowest evaluated bid and is substantially responsive and has been accepted.

1. You are requested to return a duplicate of the LOA as an acknowledgement and sign the Contract Agreement within the period prescribed in Clause 1.3 of the RFP.
2. You are also requested to furnish Performance Security for an amount of ..... {and Additional Performance Security for an amount of .....} as per Clause 2.21 of the RFP within 30 (thirty) days of receipt of this Letter of Acceptance(LOA). In case of delay in submission of Performance Security and Additional Performance Security, if any, you may seek extension of time for a period not exceeding 60 (Sixty) days on payment of Damages in accordance with Clause 2.21 of RFP.
3. In case of failure of submission of Performance Security, Additional Performance Security (if any) and Security against Damages (if any) within the additional 60 (Sixty) days time period, the award shall be deemed to be cancelled and Bid security shall be encashed by the Authority as per Clause 2.21 of the RFP.

Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode

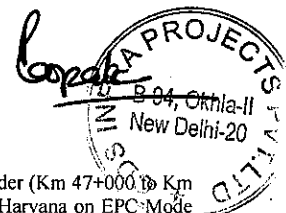


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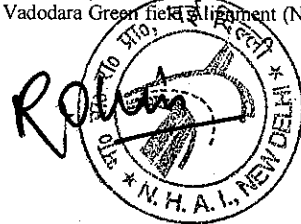


Yours faithfully,

{authorized signatory}

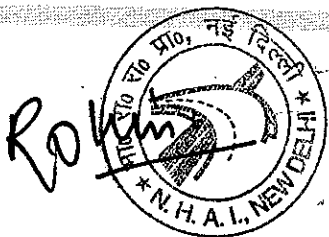
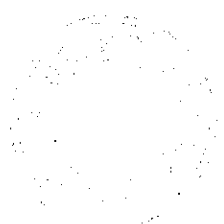


Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode



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**APPENDIX-1A  
(LETTER COMPRISING THE  
TECHNICAL BID)**



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**CENTRODORSTROY (INDIA) PVT. LTD.**

Project Division: 1st Floor, OPG World School Campus,  
Sector-19B, Dwarka, New Delhi-110075 (INDIA)  
Ph. : 011-4555 0222 (32 Lines) Fax : 011-4555 0200  
Email : mail@cdsipl.com Website : www.cdsipl.com

**APPENDIX IA****LETTER COMPRISING THE TECHNICAL BID**

(Refer Clause 2.1.5, 2.11 and 3.1.6)

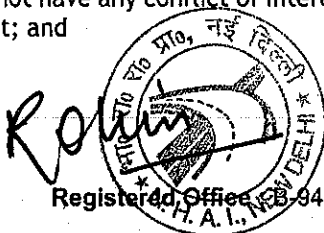
Date: 22.12.2018

To,  
General Manager (Tech), Bharatmala  
National Highways Authority of India,  
G-5 & 6, Sector-10, Dwarka,  
New Delhi-110075.

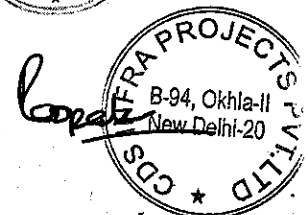
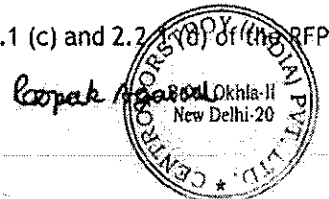
**Subject:** BID for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode Project

Dear Sir,

1. With reference to your RFP document dated 23.08.2018, I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our BID for the aforesaid Project. The BID is unconditional and unqualified.
2. I/ We acknowledge that the Authority will be relying on the information provided in the BID and the documents accompanying the BID for selection of the Contractor for the aforesaid Project, and we certify that all information provided in the Bid and its the Annexure I to VI along with the supporting documents are true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the BID are true copies of their respective originals.
3. This statement is made for the express purpose of our selection as EPC Contractor for the development, construction, rehabilitation and augmentation of the aforesaid Project and maintenance of the Project during the Defect Liability Period.
4. I/ We shall make available to the Authority any additional information it may find necessary or require to supplement or authenticate the BID.
5. I/ We acknowledge the right of the Authority to reject our BID without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
6. I/ We certify that in the last two years, we/ any of the JV partners have neither failed to perform for the works of Expressways, National Highways, ISC & EI works,, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against us, nor been expelled or terminated by Ministry of Road Transport & Highways or its implementing agencies for breach on our part.
7. I/ We declare that:
  - (a) I/ We have examined and have no reservations to the Bidding Documents, including any Addendum issued by the Authority; and
  - (b) I/We do not have any conflict of interest in accordance with Clauses 2.2.1 (c) and 2.2.1 (d) of the RFP document; and

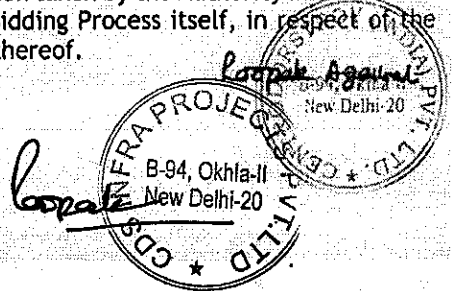
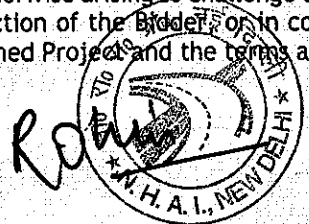


Registered Office: B-94, Okhla Phase II, New Delhi - 110020 (INDIA)



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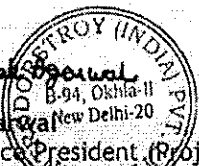
- (c) I/We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in Clause 4.3 of the RFP document, in respect of any tender or request for proposal issued by or any Agreement entered into with the Authority or any other public sector enterprise or any government, Central or State; and
  - (d) I/ We hereby certify that we have taken steps to ensure that in conformity with the provisions of Section 4 of the RFP, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice; and
  - (e) the undertakings given by us along with the Application in response to the RFP for the Project and information mentioned for the evaluation of the BID Capacity in Annexure VI were true and correct as on the date of making the Application and are also true and correct as on the BID Due Date and I/we shall continue to abide by them.
8. I/ We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any BID that you may receive nor to invite the Bidders to BID for the Project, without incurring any liability to the Bidders, in accordance with Clause 2.16.2 of the RFP document.
  9. I/We believe that we/our Joint Venture satisfy(s) the Threshold Technical Capacity, Net Worth criteria and meet(s) the requirements as specified in the RFP document.
  10. I/ We declare that we/ any Member of the Joint Venture or our/Joint Venture member, are not a Member of any other Joint Venture submitting a BID for the Project.
  11. I/ We certify that in regard to matters other than security and integrity of the country, we/ any Member of the Joint Venture or any of our/their Joint venture member have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which could cast a doubt on our ability to undertake the Project or which relates to a grave offence that outrages the moral sense of the community.
  12. I/ We further certify that in regard to matters relating to security and integrity of the country, we/ any Member of the Joint Venture or any of our/their Joint venture member have not been charge-sheeted by any agency of the Government or convicted by a Court of Law.
  13. I/ We further certify that no investigation by a regulatory authority is pending either against us/any member of Joint Venture or against our CEO or any of our directors/managers/ employees.
  14. I/ We further certify that we are not disqualified in terms of the additional criteria specified by the Department of Disinvestment in their OM No. 6/4/2001-DD-II dated 13.7.01, a copy of which forms part of the RFP at Annexure VII of Appendix-IA thereof.
  15. I/ We undertake that in case due to any change in facts or circumstances during the Bidding Process, we are attracted by the provisions of disqualification in terms of the guidelines referred to above, we shall intimate the Authority of the same immediately.
  16. I/We further acknowledge and agree that in the event such change in control occurs after signing of the Agreement upto its validity. It would, notwithstanding anything to the contrary contained in the Agreement, be deemed a breach thereof, and the Agreement shall be liable to be terminated without the Authority being liable to us in any manner whatsoever.
  17. I/ We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Authority in connection with the selection of the Bidder or in connection with the Bidding Process itself, in respect of the above mentioned Project and the terms and implementation thereof.



18. In the event of my/ our being declared as the Selected Bidder, I/we agree to enter into a Agreement in accordance with the draft that has been provided to me/us prior to the BID Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.
19. I/ We have studied all the Bidding Documents carefully and also surveyed the project highway and the traffic. We understand that except to the extent as expressly setb forth in the Agreement, we shall have no claim, right or title arising out of any documents or information provided to us by the Authority or in respect of any matter arising out of or relating to the Bidding Process including the award of Agreement.
20. I/ We offer a BID Security of Rs. 7.99 Crore (Rupees Seven Crore and Ninety Nine Lakh only) to the Authority in accordance with the RFP Document.
21. The BID Security in the form of a Bank Guarantee is attached.
22. The documents accompanying the Technical BID, as specified in Clause 2.11.1 of the RFP, have been submitted in separate files.
23. I/ We agree and understand that the BID is subject to the provisions of the Bidding Documents. In no case, I/we shall have any claim or right of whatsoever nature if the Project / Contract is not awarded to me/us or our BID is not opened or rejected.
24. The BID Price has been quoted by me/us after taking into consideration all the terms and conditions stated in the RFP, draft Agreement, our own estimates of costs and after a careful assessment of the site and all own the conditions that may affect the project cost and implementation of the project.
25. I/ We agree and undertake to abide by all the terms and conditions of the RFP document.
26. ~~I/ We, the Joint Venture agree and undertake to be jointly and severally liable for all the obligations of the EPC Contractor under the Contract Agreement.~~
27. I/ We shall keep this offer valid for 120 (one hundred and twenty) days from the BID Due Date specified in the RFP.
28. I/ We hereby submit our BID and offer a BID Price as indicated in Financial Bid for undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement.

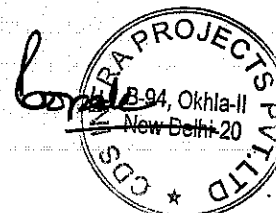
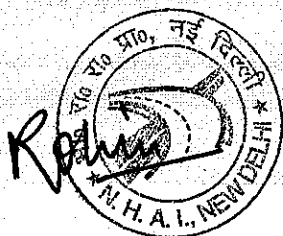
In witness thereof, I/we submit this BID under and in accordance with the terms of the RFP document.

Yours faithfully,

  
  
 Roopak Agarwal  
 Assistant Vice President (Project)

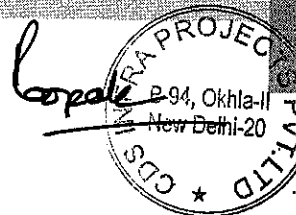
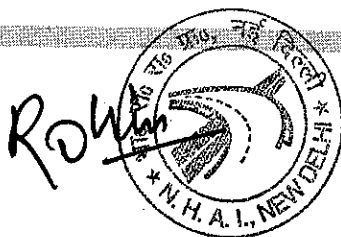
Date: 22.12.2018  
 Place: New Delhi

M/s Centrodorstroy India Pvt Ltd





**APPENDIX-IB (LETTER  
COMPRISING THE FINANCIAL  
BID)**



754

# CENTRODORSTROY (INDIA) PVT. LTD.

Project Division: 1st Floor, OPG World School Campus,  
Sector-19B, Dwarka, New Delhi-110075 (INDIA)  
Ph. : 011-4555 0222 (32 Lines) Fax : 011-4555 0200  
Email : mail@cdisipl.com Website : www.cdisipl.com



## APPENDIX - IB

Letter comprising the Financial BID  
(Refer Clauses 2.1.4, 2.11 and 3.1.6)

Date: 26.12.2018

General Manager (T) -Bharatmala Division,  
National Highways Authority of India,  
G-5 & 6, Sector-10, Dwarka,  
New Delhi-110075

**Subject:** BID for Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode Project

Dear Sir,

1. With reference to your RFP document dated 23.08.2018, I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our BID for the aforesaid Project. The BID is unconditional and unqualified.
2. I/ We acknowledge that the Authority will be relying on the information provided in the BID and the documents accompanying the BID for selection of the Contractor for the aforesaid Project, and we certify that all information provided in the Bid are true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the BID are true copies of their respective originals.
3. The BID Price has been quoted by me/us after taking into consideration all the terms and conditions stated in the RFP, draft Agreement, our own estimates of costs and after a careful assessment of the site and all the conditions that may affect the project cost and implementation of the project.
4. I/ We acknowledge the right of the Authority to reject our BID without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
5. In the event of my/ our being declared as the Selected Bidder, I/we agree to enter into a Agreement in accordance with the draft that has been provided to me/us prior to the BID Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.
6. I/ We shall keep this offer valid for 120 (one hundred and twenty) days from the BID Due Date specified in the RFP.
7. I/ We hereby submit our BID and offer a BID Price online for undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement.

Yours faithfully,  
For & Behalf: Centrodorstroy India Pvt. Ltd.

*Roopak Agarwal*

Roopak Agarwal  
Assistant Vice President (Projects)

Class III DSC ID: 53 6C 4A 9E

Date: 26.12.2018  
Place: New Delhi



Registered Office: B-94, Okhla Phase II, New Delhi - 110020 (INDIA)

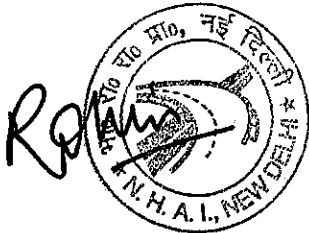


Tender No:NHAI/BW/ Delhi-Vadodara/2018/Pkg3

Name of Work	Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana
Name of the Firm	CENTRODORSTROY (INDIA) PVT LTD
Total Quoted Value In Figures (In Rs.)	In Words (In Rs.)
7808800000.00	Seven Hundred Eighty Crore and Eighty Eight Lakhs Only



# NHAI LETTER FOR OPENING OF FINANCIAL BID



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089



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
**National Highways Authority of India**  
(Ministry of Road Transport and Highways)  
जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200  
फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/BM/Delhi-Vadodara/2018/Pkg3

22.04.2019

To,

**List of Bidders as under**

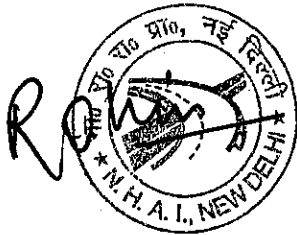
**Sub: Construction of Eight Lane Expressway starting at ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (km 47+000 to km 78+800) section of Delhi-Vadodara Greenfield Alignment (NH-148N) in the State of Haryana on EPC Mode under Bharatmala Pariyojana – Opening of financial proposals - Reg.**

In compliance to the Hon'ble High Court of Delhi Order dated 10.04.2019, the financial bids of the below mentioned bidders will be opened on 23.04.2019 at 11.30 AM without prejudice to the rights and contentions of the parties:

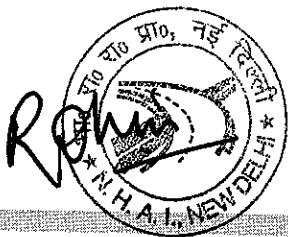
Sr. No.	Name of Bidder	Single/JV
1	M/s Centrodorstroy India Pvt Ltd.	Single entity
2	M/s PNC Infatech Limited	Single entity
3	Jiangxi Construction Engineering Group Corporation Ltd.-Shiv Build India Pvt. Ltd. (JV)	Joint Venture
4	M/s NKC Projects Pvt. Ltd- RKD Construction Pvt. Ltd. (JV)	Joint Venture
5	M/s Gawar Construction Limited	Single entity
6	M/s H G Infra Engineering Limited	Single entity
7	M/s Apco Infratech Pvt. Ltd.	Single entity
8	M/s Afcons Infrastructure Limited	Single entity
9	M/s KCC Buildcon Pvt. Ltd.	Single entity
10	M/s BSCPL Infrastructure Limited- Madhucon Projects Limited (JV)	Joint Venture

2. You are requested to depute your authorized representative for attending the financial opening on scheduled date and time.

*Robin*  
22/04/19  
(Robin Kumar Gupta)  
General Manager (T)  
Bharatmala



# LETTER OF AWARD



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भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
**National Highways Authority of India**  
(Ministry of Road Transport and Highways)  
जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200  
फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/BM/DELHI-Vadodara/2018/Pkg. 3/135667

dated 28.05.2019

To,  
M/s Centrodorstroy India Pvt Ltd.  
B-94, Okhla Phase-II,  
New Delhi-110020

**Subject:** Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana – **Letter of Acceptance (LOA) – Reg.**

**Reference:** Your bid for the subject work dated 26.12.2018

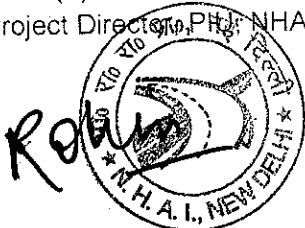
This is to notify you that your Bid dated 26.12.2018 for execution of the work for "Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana", at your quoted bid price amounting to **Rs. 780,88,00,000/- (Rupees Seven Hundred Eighty Crore and Eighty Eight Lakh Only)** has been determined to be the lowest evaluated bid and is substantially responsive and has been accepted.

2. You are requested to return a duplicate of the LOA as an acknowledgement within a period of 7 (seven) days of issue of this Letter of Acceptance (LOA) and sign the Contract Agreement within the period prescribed in Clause 1.3 of the RFP.
3. You are also requested to furnish Performance Security for an amount of **Rs. 39,04,40,000/- (Rupees Thirty Nine Crore Four Lakh and Forty Thousand only)** as per Clause 2.21 of the RFP within 30 (thirty) days of receipt of this Letter of Acceptance (LOA). In case of delay in submission of Performance Security, if any, you may seek extension of time for a period not exceeding 60 (Sixty) days on payment of Damages in accordance with Clause 2.21 of RFP.
4. In case of failure of submission of Performance Security and Security against Damages (if any) within the additional 60 (Sixty) days' time period, the award shall be deemed to be cancelled and Bid security shall be encashed by the Authority as per Clause 2.21 of the RFP.

*Rohin*  
28/05/2019  
(Rohin Kumar Gupta)  
General Manager (Tech.)

Copy to:

1. CGM (T) – R.O., NHAI, Delhi
2. Project Director, PH, NHAI, Sohna



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भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
**National Highways Authority of India**

(Ministry of Road Transport and Highways)

जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075

G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200

फैक्स / Fax : 91-11-25093507 / 25093514

**Duplicate Copy**

dated 28.05.2019

NHAI/BM/DELHI-Vadodara/2018/Pkg. 3/135667

To,

**M/s Centrodorstroy India Pvt Ltd.**

B-94, Okhla Phase-II,

New Delhi-110020

**Subject:** Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana – **Letter of Acceptance (LOA) – Reg.**

**Reference:** Your bid for the subject work dated 26.12.2018

This is to notify you that your Bid dated 26.12.2018 for execution of the work for **“Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana”**, at your quoted bid price amounting to **Rs. 780,88,00,000/- (Rupees Seven Hundred Eighty Crore and Eighty Eight Lakh Only)** has been determined to be the lowest evaluated bid and is substantially responsive and has been accepted.

2. You are requested to return a duplicate of the LOA as an acknowledgement within a period of 7 (seven) days of issue of this Letter of Acceptance (LOA) and sign the Contract Agreement within the period prescribed in Clause 1.3 of the RFP.

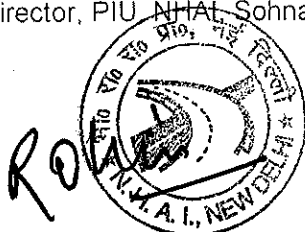
3. You are also requested to furnish Performance Security for an amount of **Rs. 39,04,40,000/- (Rupees Thirty Nine Crore Four Lakh and Forty Thousand only)** as per Clause 2.21 of the RFP within 30 (thirty) days of receipt of this Letter of Acceptance (LOA). In case of delay in submission of Performance Security, if any, you may seek extension of time for a period not exceeding 60 (Sixty) days on payment of Damages in accordance with Clause 2.21 of RFP.

4. In case of failure of submission of Performance Security and Security against Damages (if any) within the additional 60 (Sixty) days' time period, the award shall be deemed to be cancelled and Bid security shall be encashed by the Authority as per Clause 2.21 of the RFP.

*Rohin*  
28/05/2019  
(Rohin Kumar Gupta)  
General Manager (Tech.)

Copy to:

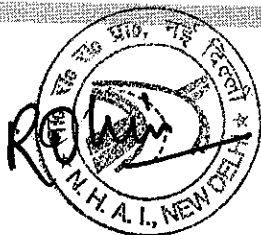
1. CGM (T) – R.O., NHAI, Delhi
2. Project Director, PIU NHAI, Sohna



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# ACCEPTANCE OF LOA



*Coopak*



762

# CENTRODORSTROY (INDIA) PVT. LTD.

Project Division: 1st Floor, OPG World School Campus,  
Sector-19B, Dwarka, New Delhi-110075 (INDIA)  
Ph. : 011-4555 0222 (32 Lines) Fax : 011-4555 0200  
Email : mail@cdisipl.com Website : www.cdisipl.com



Ref.: CDS/HO/KPG/19-20/13850

Date: 30.05.2019

To,  
Mr Rohin Gupta, General Manager (T) - Bharatmala,  
National Highways Authority of India,  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075  
Phone +91-11-25074100/200 (Extn. 1111),  
e-mail: rohingupta@nhai.org

**Project:** Construction of Eight Lane Expressway Starting At Ch. 47+000 Near Khanpur Ghati and Ends at Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi - Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana

**Subject:** Acceptance of LOA

**Reference:** LOA vide letter # NHAI/BM/DELHI-Vadodara/2018/Pkg-3/135667 dated 28.05.2019

Dear Sir,

At the outset we express our sincere thanks for awarding the subject Project to us. We acknowledge herewith the receipt of LOA for the subject Project in Original on 30.05.2019. In accordance with the Clause 3.3.4 of RFP documents we are returning herewith the copy of the LOA duly signed and accepted by the Authorised Signatory.

Thanking you,

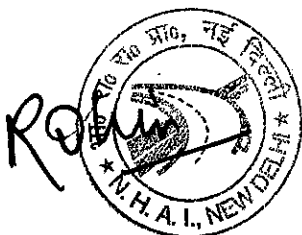
For Centrodorstroy India Pvt Ltd

*Roopak Agarwal*

Roopak Agarwal  
Assistant Vice President (Project)

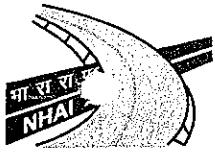
Encl: As above

Cc: 1. CGM (T), R.O., NHAI, New Delhi  
2. Project Director, PIU, NHAI, Sohna, Haryana



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भारतीय राष्ट्रीय राजमार्ग प्राधिकरण  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
**National Highways Authority of India**

(Ministry of Road Transport and Highways)  
जी-5 एवं 6, सेक्टर-10, द्वारका, नई दिल्ली-110075  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200  
फैक्स / Fax : 91-11-25093507 / 25093514

**Duplicate Copy**

NHAI/BM/DELHI-Vadodara/2018/Pkg. 3 | 135667

dated 28.05.2019

To,

**M/s Centrodorstroy India Pvt Ltd.**  
B-94, Okhla Phase-II,  
New Delhi-110020

**Subject:** Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana – **Letter of Acceptance (LOA) – Reg.**

**Reference:** Your bid for the subject work dated 26.12.2018

This is to notify you that your Bid dated 26.12.2018 for execution of the work for **“Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana”**, at your quoted bid price amounting to **Rs. 780,88,00,000/- (Rupees Seven Hundred Eighty Crore and Eighty Eight Lakh Only)** has been determined to be the lowest evaluated bid and is substantially responsive and has been accepted.

2. You are requested to return a duplicate of the LOA as an acknowledgement within a period of 7 (seven) days of issue of this Letter of Acceptance (LOA) and sign the Contract Agreement within the period prescribed in Clause 1.3 of the RFP.

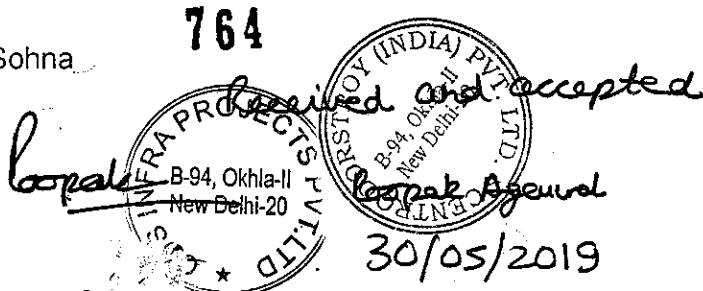
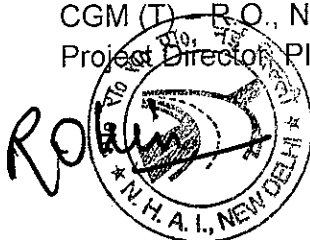
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4. In case of failure of submission of Performance Security and Security against Damages (if any) within the additional 60 (Sixty) days' time period, the award shall be deemed to be cancelled and Bid security shall be encashed by the Authority as per Clause 2.21 of the RFP.

*Rohin*  
28/05/2019  
(Rohin Kumar Gupta)  
General Manager (Tech.)

Copy to:

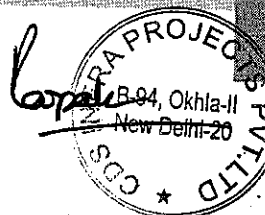
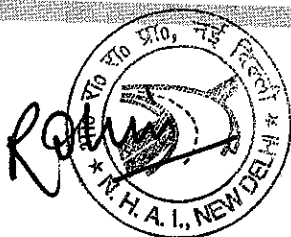
1. CGM (T), B.O., NHAI, Delhi
2. Project Director, PIU, NHAI, Sohna



764

30/05/2019

# LETTER FOR CONSENT



765

# CDS INFRA PROJECTS PVT. LTD.

(Formerly known as Centrodorstroy India Pvt. Ltd.)

**Project Division:** 301, Ground Floor, Udyog Vihar Phase-II,  
Gurugram, Haryana-122013 | Ph. : +91-124-6098222  
Email : mail@cdisipl.com | Website : www.cdisipl.com

Ref.: CDS/HO/KPG/19-20/13952

Date: 15.07.2019

To  
**Mr Rohin Gupta, General Manager (T) - Bharatmala,**  
**National Highways Authority of India,**  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075  
Phone +91-11-25074100/200 (Extn. 1111),  
e-mail: rohingupta@nhai.org

**Project:** Construction of Eight Lane Expressway Starting At Ch. 47+000 Near Khanpur Ghati and Ends at Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi - Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana

**Subject:** Regarding consent for signing of the EPC Agreement

Dear Sir,

The Contractor writes in relation to the receipt of Authority's letter no. NHAI/BM/DELHI-Vadodara/2018/Pkg. 3/135667 dated 28.05.2019 wherein, the Authority has awarded the letter of Award (LOA) and the Contractor's letter no. CDS/HO/KPG/19-20/13850 dated 30.05.2019, wherein the Contractor has acknowledged and accepted the LOA for the captioned Project. In Compliance of the RFP, the Contractor has already submitted 50% of the performance Security Bank Guarantee in favor of the Authority.

Subsequently, in terms of Recital D (i) of the draft EPC Agreement, the Contractor hereby provided consent to enter into this Agreement and the enforceability of the provisions thereof.

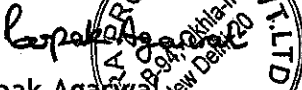

Furthermore, the Contractor requests the Authority to kindly provide a time Convenient to execute and finalize the EPC Agreement, at the earliest.

We are enclosing herewith following documents -

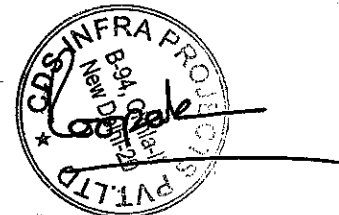
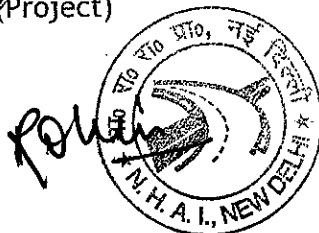
1. Power Of Attorney (POA) in favour of Authorised Signatory.
2. Certificate issued by Registrar Of Companies (ROC) confirming change of name of "Centrodorstroy (India) Pvt. Ltd." to "CDS Infra Projects Pvt. Ltd."

Thanking you,

For CDS Infra Projects Pvt. Ltd.  
(Formerly known as Centrodorstroy India Pvt. Ltd.)

  
  
Roopak Agarwal  
Assistant Vice President (Project)

Encl: As stated



766

# CENTRODORSTROY (INDIA) PVT. LTD.

Project Division: 301, Ground Floor, Udyog Vihar Phase-II,  
Gurgaon, Haryana-122013 | Ph. : +91-124-6098222  
Email : mail@cdisipl.com | Website : www.cdisipl.com



Ref.: CDS/HO/KPG/19-20/13863

Date: 03.06.2019

To,  
Mr Rohin Gupta, General Manager (T) - Bharatmala,  
National Highways Authority of India,  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075  
Phone +91-11-25074100/200 (Extn. 1111),  
e-mail: rohingupta@nhai.org

**Project:** Construction of Eight Lane Expressway Starting At Ch. 47+000 Near Khanpur Ghati and Ends at Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi - Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana In The State Of Haryana

**Subject:** Legal Opinion

**Reference:** LOA vide letter # NHAI/BM/DELHI-Vadodara/2018/Pkg-3/135667 dated 28.05.2019

Dear Sir,

Please find enclosed Legal Opinion provided by our Legal Counsel for your records please.

Thanking you,

For Centrodorstroy India Pvt Ltd

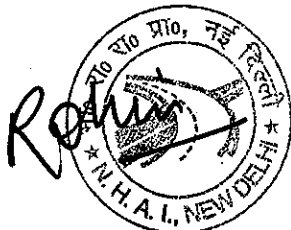
*Roopak Agarwal*

B-94, Okhla-II  
New Delhi-20

Roopak Agarwal  
Assistant Vice President (Project)

Encl: As above

Cc: 1. CGM (T), R.O., NHAI, New Delhi  
2. Project Director, PIU, NHAI, Sohna, Haryana



*Rohin*  
*Agarwal*



767

**LEGAL OPINION**

To,  
The General Manager (Tech.),  
NHAI,  
G-5&6, Sector-10,  
Dwarka, New Delhi-110075

*Reh*  
*10/6*  
*Dym*

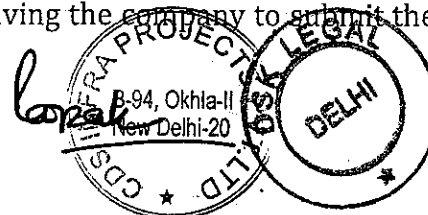
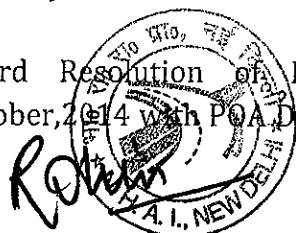
**Subject: Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi- Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana.**

Ref.: Your Letter No. NHAI/BM/DELHI-Vadodara/2018/Pkg.3/135667 dated 28<sup>th</sup> May ,2019 issued to CDS INFRA PROJECTS PRIVATE LIMITED (formerly known as CENTRODORSTROY INDIA PVT. LTD.)

Dear Sir,

M/s CDS INFRA PROJECTS PRIVATE LIMITED (formerly known as CENTRODORSTROY INDIA PVT. LTD.) , B-94, Okhla Industrial Area, Phase-II, New Delhi-110020 has sought my opinion regarding its authority to enter into Contract and the enforceability of the provisions thereof to undertake the work awarded by the National Highways Authority of India, vide its awarded letter no. NHAI/BM/DELHI-Vadodara/2018/Pkg.3/135667 dated 28<sup>th</sup> May ,2019. The contract is for the Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi- Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana. In this respect, photo copies of following documents have been placed before me.

- 1) Draft Engineering, Procurement and Construction Agreement of the project.
- 2) Letter of Award vide No. NHAI/BM/DELHI-Vadodara/2018/Pkg.3/135667 dated 28<sup>th</sup> May ,2019.
- 3) Board Resolution of M/s Centrodorstroy (India) Pvt. Ltd. Dated:01<sup>st</sup> October, 2014 with POA Dated: 22-12-2018 resolving the company to submit the

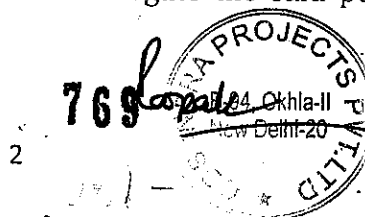
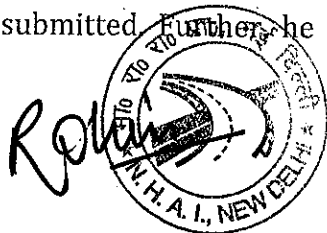


RFP for this Project and resolution to sign the EPC Contract with National Highways Authority of India.

- 4) Certificate of Incorporation of M/s CDS INFRA PROJECTS PRIVATE LIMITED (formerly known as CENTRODORSTROY INDIA PVT. LTD.) Dated: 29-05-2019 issued by the Registrar of Companies, New Delhi.
- 5) Memorandum and Articles of Association of M/s CDS INFRA PROJECTS PRIVATE LIMITED (formerly known as CENTRODORSTROY INDIA PVT. LTD.)
- 6) Request for Proposal (RFP) of this project.

I have perused the above documents. On the basis of documents placed before me, I am of the opinion that CDS INFRA PROJECTS PRIVATE LIMITED (formerly known as CENTRODORSTROY INDIA PVT. LTD.) , B-94, Okhla Industrial Area, Phase-II, New Delhi-110020 is legally authorised to enter into the above EPC Contract with the National Highways Authority of India, New Delhi for the following reasons:-

- (a) The change of name from CENTRODORSTROY INDIA PVT. LTD. to CDS INFRA PROJECTS PRIVATE LIMITED has been duly registered with the Registrar of Companies on 29.05.2019.
- (b) As per the Memorandum of Association of CDS INFRA PROJECTS PRIVATE LIMITED (formerly known as CENTRODORSTROY INDIA PVT. LTD.) dated 28.05.2004, one of the main objects to be pursued by the said company is the business of Civil Construction contracts of Road making, Bridges, Structures, Earthwork, Supervision of Infrastructure projects as also maintaining Highways-Expressways, Stretches of Roads on total integrated Highway maintenance systems, executing of infrastructure projects etc. Therefore, CDS INFRA PROJECTS PRIVATE LIMITED is eligible to undertake the construction of Highways as per its Memorandum of Association.
- (c) As per the Board Resolution dated 01.10.2014, Mr. Sandeep Chandra, Managing Director of CDS INFRA PROJECTS PRIVATE LIMITED has been authorised to enter into an agreement with any of the tendering authority on acceptance of the bid submitted. Further, he can also delegate the said power to any other person.





- (d) On 22.12.2018, by way of an Power of Attorney, Mr. Sandeep Chandra authorised Mr. Roopak Agarwal to execute and do all such acts as required to undertake the Bid for 'Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi- Vadodara Green field Alignment (NH-148N) on EPC Mode under Bharatmala Pariyojana in the State of Haryana.'
- (e) Further, the Board can authorise Mr. Roopak Agarwal to execute contracts on behalf of the company in terms of Article 108 and 109 of the Article of Association of CDS INFRA PROJECTS PRIVATE LIMITED.

This opinion is given to The General Manager (Tech.), National Highways Authority of India, Dwarka, New Delhi in connection with the execution and implementation of the project which is evidenced by the draft contract and is being given because the undersigned has been a legal Counsel for M/s CDS INFRA PROJECTS PRIVATE LIMITED (formerly known as CENTRODORSTROY INDIA PVT. LTD.).

Place : New Delhi  
Dated: 01-06-2019

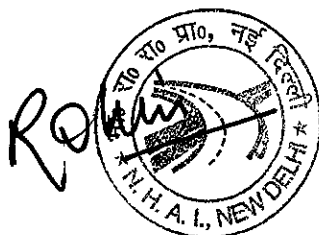
Yours Faithfully

*Samir Malik*

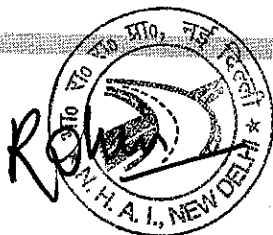
SAMIR MALIK

DSK LEGAL PARTNER

DELHI



# BANK GUARANTEE TOWARDS PERFORMANCE SECURITY



# CENTRODORSTROY (INDIA) PVT. LTD.

Project Division: 301, Ground Floor, Udyog Vihar Phase-II,  
Gurugram, Haryana-122013 | Ph. : +91-124-6098222  
Email : mail@cdisipl.com | Website : www.cdisipl.com



Ref.: CDS/HO/KPG/19-20/13924

Date: 26.06.2019

To  
Mr Rohin Gupta, General Manager (T) - Bharatmala,  
National Highways Authority of India,  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075  
Phone +91-11-25074100/200 (Extn. 1111),  
e-mail: rohingupta@nhai.org

Project: Construction of Eight Lane Expressway Starting At Ch. 47+000 Near Khanpur Ghati and Ends at Haryana-Rajasthan Border (Km 47+000 To Km 78+800) Section of Delhi - Vadodara Green Field Alignment (NH-148N) Under Bharatmala Pariyojana

Subject: Submission of Performance Security

Reference: LOA vide letter # NHAI/BM/DELHI-Vadodara/2018/Pkg-3/135667 dated 28.05.2019

Dear Sir,

This is in reference to LOA issued vide your vide letter # NHAI/BM/DELHI-Vadodara/2018/Pkg-3/135667 dated 28.05.2019 regarding the above said Project which has been awarded to us by you. We are submitting the Original Performance Security (equivalent to 2.5% of Project Cost) as below -

B.G. No.	Amount (Rs)	Issue Date	Expiry Date	Purpose
IPBG02861900073	19,52,20,000	25.06.2019	24.06.2021	Performance Security

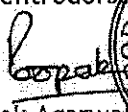
SFMS document for the above mentioned Bank Guarantee is also enclosed.

Kindly note that the balance Performance Security (equivalent to 2.5% of Project Cost) shall be submitted within 30 days of signing of Agreement.

We request you to release the Bid Security of Rs. 7,99,00,000/- submitted to you in form of Bank Guarantee along with the Bid. (Bank Name - Corporation Bank, BG No. - IPBG02861800103 dated 24.12.2019 - copy enclosed).


Thanking you,

For Centrodorstroy India Pvt Ltd

  
Roopak Agarwal  
Assistant Vice President (Project)

Encl: As above 1. Original Performance Security - 07 Pages  
2. Copy of Bid Security - 06 Pages

Cc: The Project Director, PIU, NHAI, Sohna, Haryana.

  
Registered Office : B-94, Okhla Phase II, New Delhi - 110020 (INDIA)

  
CENTRODORSTROY (INDIA) PVT. LTD.  
B-94, Okhla-II  
New Delhi-20

प.कू. I.D.3024



# कार्पोरेशन बैंक Corporation Bank

कार्पोरेशन बैंक / Corporation Bank  
एम 3-4, एम-ब्लॉक मार्केट ग्रेटर कैलाश-II  
M-3-4, M-Block Market, Greater Kailash-II  
नई दिल्ली / New Delhi-48 / 011-29210507  
cb2B@corpbank.co.in

सार्वजनिक क्षेत्र का अग्रणी बैंक A Premier Public Sector Bank

C.K. - II, New Delhi शाखा Branch

**नियंत्रक कार्यालय का पता Address of the Controlling Office :**

सहायक महा प्रबंधक The Asst. General Manager  
 आंचलिक प्रबंधक The Zonal Manager  
 आंचलिक कार्यालय\* Zonal Office

**CORPORATION BANK**  
 Zonal Office, Delhi South  
 MGF Building, 1st Floor  
 1, Faiz Road, Jhandewalan,  
 New Delhi-110005

क्रमांक  
Serial **312258**

इस प्रावण पत्र को गारंटी पत्र सं..... दिनांकित..... के.....  
 राशि के लिए जो..... तक वैध है, के साथ अनुबंधित किया जाये इस कार्यालय द्वारा  
 \*\* (1) श्री/सुश्री/श्रील.....  
 \*\* (2) श्री/सुश्री/श्रील..... के संयुक्त हस्ताक्षरों से जारी किया गया है।

This covering letter is issued to be annexed to the Letter of Guarantee No IPBC02861900073  
 dated 25/06/2019 for amount of Rs. 195220000/- valid till 24/06/2024

issued by this office under the joint signatures of  
 \*\* (1) Mr./Ms/Mx. Tariq Ansari - Chief Manager  
 \*\* (2) Mr./Ms/Mx. Prachi Sharma - Sr. Manager

2. यदि इस गारंटी की पुष्टि की आवश्यकता हो तो इसे उपयुक्त नियंत्रक कार्यालय से प्राप्त करें।

Confirmation of this Guarantee, if the same is desired, should be obtained from the controlling office named above.

दिनांक Date 25/06/2019

सहायक महा प्रबंधक Asst. Gen. Manager  
 एम-3-4, ग्रेटर कैलाश-II, नई दिल्ली-110048  
 M-3-4, Greater Kailash-II, New Delhi-110048  
 हस्ताक्षर Signature [Signature]  
 नाम Name Chander Singh  
 पदनाम Designation AGM

हिताधिकारी का नाम व पता Beneficiary's name & address:  
The Chairman, National Highways  
Authority of India, G-5 & 6, Sector 10,  
Dwarka, New Delhi-110075

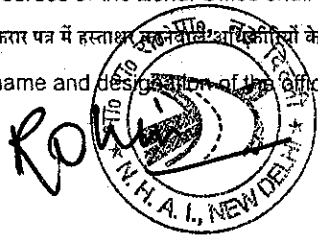
कार्पोरेशन कार्यालय : मंगलादेवी मंदिर मार्ग, पो.बॉ.सं.88 मंगलूरु - 575 001

Corporate Office : Mangaladevi Temple Road, P.B. No. 88, Mangaluru - 575 001



PO:17478/SNSP/18

- \* आंचलिक कार्यालय का पूरा पता दें। This BG is issued on behalf of our client
- \* Full address of the Zonal Office shall be furnished. M/s Centrodorstroy India Pvt
- \*\* गारंटी करार पत्र में हस्ताक्षर करने वाले अधिकारियों के पूरे नाम व पदनाम का उल्लेख करें। Uel
- \*\* Full name and designation of the officials signing the Guarantee Agreement be furnished.



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सत्यमेव जयते

# INDIA NON JUDICIAL

## Government of National Capital Territory of Delhi

### e-Stamp

Certificate No. : IN-DL96099927611114R  
 Certificate Issued Date : 30-May-2019 03:24 PM  
 Account Reference : NONACC (BK)/ dl-corp/bk/ CORP GKAILASH/ DL-DLH  
 Unique Doc. Reference : SUBIN-DL DL-CORPBK97647236796491R  
 Purchased by : CORPORATION BANK  
 Description of Document : Article Bank Guarantee  
 Property Description : NA  
 Consideration Price (Rs.) : 0  
 (Zero)  
 First Party : CORPORATION BANK  
 Second Party : NA  
 Stamp Duty Paid By : CORPORATION BANK  
 Stamp Duty Amount(Rs.) : 100  
 (One Hundred only)



Please write or type below this line.....

### Bank Guarantee for Performance Security

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

BG No. IPCC02861900073  
 Date 25/06/2019  
 Amount Rs. 19,522,000/-  
 Due Date 24/06/2021

कृते कार्पोरेशन बैंक / For CORPORATION BANK

वरिष्ठ प्रबंधक / SENIOR MANAGER  
 एम-3-4, ग्रेटर कैलाश-II, नई दिल्ली-48  
 M-3-4, Greater Kailash-II, New Delhi-48

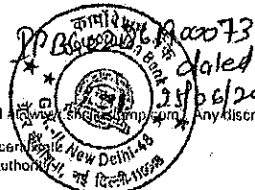
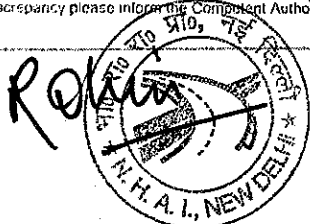
#### Statutory Alert:

- The authenticity of this Stamp Certificate should be verified by clicking on the website renders if invalid.
- The onus of checking the legitimacy is on the users of the certificate.
- In case of any discrepancy please inform the Competent Authority.

1

कृते कार्पोरेशन बैंक / For CORPORATION BANK

मुख्य प्रबंधक / CHIEF MANAGER  
 एम-3-4, ग्रेटर कैलाश-II, नई दिल्ली-48  
 M-3-4, Greater Kailash-II, New Delhi-48



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BG No. JPBC02A61900073  
Date 25/06/2019  
Amount Rs. 19,52,20,000/-  
Due Date 24/06/2021

WHEREAS M/s Centrodorstroy India Pvt. Ltd. having its registered office at B-94, Okhla Phase – II, New Delhi – 110020 (hereinafter called the "Contractor") has undertaken, in pursuance of Letter of Acceptance (LOA) No. NHAI/BM/DELHI-Vadodara/2018/Pkg-3/135667 Dated 28.05.2019 for Construction of Eight Lane Expressway Starting at Ch.47+000 Near Khanpur Ghati and ends at Haryana- Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi-Vadodara Green Field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode (hereinafter called the "Contract").

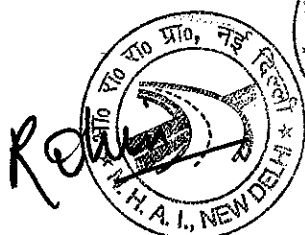
AND WHEREAS the Contract requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Contract, during the Construction Period/ Defects Liability Period and Maintenance Period in a sum of Rs. 19,52,20,000/- (Rupees Nineteen Crores Fifty Two Lacs Twenty Thousand Only) (the "Guarantee Amount").

AND WHEREAS we, Corporation Bank, having our head office at Mangladevi Temple Road, Mangalore, Karnataka through our branch at M-3&4, Greater Kailash – II, New Delhi – 110048 (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 Contract, 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.
2. A letter from the Authority, under the hand of an officer not below the rank of General Manager in National Highways Authority of India, 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 Contract 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 Contract 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.

कृते कार्पोरेशन बैंक / For CORPORATION BANK  
प्रमुख प्रबंधक / SENIOR MANAGER  
एम-3-4, ग्रेटर कैलाश-II, नई दिल्ली-48  
M-3-4, Greater Kailash-II, New Delhi-48



कृते कार्पोरेशन बैंक / For CORPORATION BANK

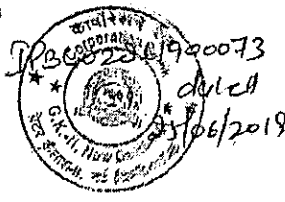
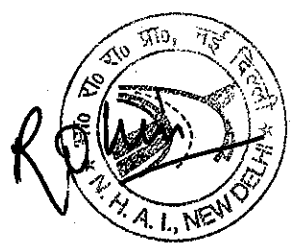
प्रमुख प्रबंधक / SENIOR MANAGER  
एम-3-4, ग्रेटर कैलाश-II, नई दिल्ली-48  
M-3-4, Greater Kailash-II, New Delhi-48  
B-94, Okhla-II  
New Delhi-20

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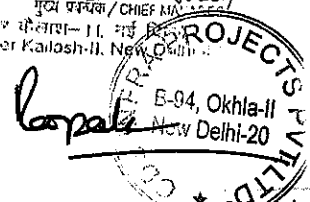
BG No. IPB607861900073  
 Date 25/06/2019  
 Amount Rs. 1,95,22,000/-  
 Due Date 24/06/2021

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 Contract 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 Contract 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 Contract 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 Contract or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Contract.
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 on **24.06.2021**. 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.

कृते कार्पोरेशन बँक / For CORPORATION BANK  
 वरिष्ठ प्रबन्धक / SENIOR MANAGER  
 एम-3-4, ग्रेटर कैलाश-II, नई दिल्ली-48  
 M-3-4, Greater Kailash-II, New Delhi-48



कृते कार्पोरेशन बँक / For CORPORATION BANK  
 मुख्य प्रबन्धक / CHIEF MANAGER  
 एम-3-4, ग्रेटर कैलाश-II, नई दिल्ली-48  
 M-3-4, Greater Kailash-II, New Delhi-48



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BG No. IPBC 02861900073

Date 25/06/2019

Amount Rs. 19,522,00,000/-

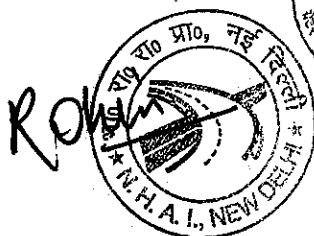
Due Date 24/06/2021

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 Contract.
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 Corporation Bank, M-3&4, Greater Kailash - II 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 NHA. Details of which is given as below :

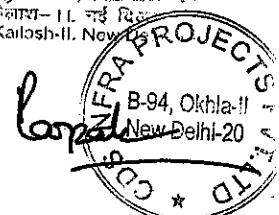
S. No.	Particulars	Details
1.	Name of Beneficiary	National Highways Authority of India
2.	Name of Bank	Canara Bank
3.	Account No.	8598201005819
4.	IFSC Code	CNRB0008598

कृते कार्पोरेशन बैंक / For CORPORATION BANK  
वरिष्ठ प्रबन्धक / SENIOR MANAGER  
एम-3-4, ग्रेटर कैलाश-II, नई दिल्ली-48  
M-3-4, Greater Kailash-II, New Delhi-48

कृते कार्पोरेशन बैंक / For CORPORATION BANK  
मुख्य प्रबन्धक / CHIEF MANAGER  
एम-3-4, ग्रेटर कैलाश-II, नई दिल्ली-48  
M-3-4, Greater Kailash-II, New Delhi-48



777



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BG No. JPBG02861900073  
Date 25/06/2019  
Amount Rs. 19,52,20,000/-  
Due Date 24/06/2021

Notwithstanding anything contained hereinabove,

1. Our liability under this Bank Guarantee shall not exceed Rs. 19,52,20,000/- (Rupees Nineteen Crores Fifty Two Lacs Twenty Thousand Only)
2. This Bank Guarantee shall remain valid upto 24.06.2021, and
3. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if a written claim or demand is served upon us on or before 24.06.2021.

Dated this 25th day of June 2019 at New Delhi.

कृते कार्पोरेशन बैंक / For CORPORATION BANK

वरिष्ठ प्रबन्धक / SENIOR MANAGER  
एम-3-4, ग्रेटर कैलाश-II, नई दिल्ली-48  
M-3-4, Greater Kailash-II, New Delhi-48

प्राची शर्मा / PRACHI SHARMA  
वरिष्ठ प्रबन्धक / Senior Manager  
S-1248



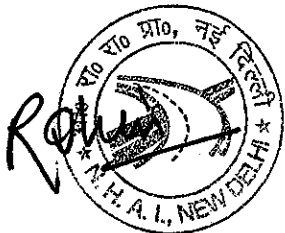
कृते कार्पोरेशन बैंक / For CORPORATION BANK

मुख्य प्रबन्धक / CHIEF MANAGER  
एम-3-4, ग्रेटर कैलाश-II, नई दिल्ली-48  
M-3-4, Greater Kailash-II, New Delhi-48

मे. खीर जलरी / Mohd. Tariq Ansari  
मुख्य प्रबन्धक / Chief Manager  
एस.पी.नं./S.P. No. A-284

कार्पोरेशन बैंक / Corporation Bank  
एम 3-4, एम-ब्लॉक मार्केट ग्रेटर कैलाश-II  
M-3-4, M-Block Market, Greater Kailash-II  
नई दिल्ली / New Delhi-48 / 011-29210867  
cb286@corpbank.co.in

5



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760

{A:BGSF010760XXXCORP0000286CNRB0008598112000XXXXXXXXXXXXXXXXX2BGS2019062615262236837078XXXXXXXXXXXXXXXXXXXXXXXXX11)}(4:

Message

:27:1/1

:20:IPBG02861900073

:23:ISSUE

:30:20190625

:40C:URDG

:77C:BANK GUARANTEE ISSUED ON 25062019

FOR RS195220000.00 FAVOURING

THE CHAIRMAN NATIONAL HIGHWAYS

AUTHORITY OF INDIA C 5 AND 6

SECTOR 10 DWARKA NEW DELHI 110075

ISSUED ON BEHALF OF OUR CLIENT

CENTRODORSTROY INDIA PVT LTD

VALID UPTO 24062021

THIS BG PHYSICALLY ISSUED ON ESTAMP

CERTIFICATE NO IN DL96099927611114R

DATED 30052019

NOTWITHSTANDING ANYTHING CONTAINED

HEREINABOVE

1 OUR LIABILITY UNDER THIS BANK GUARANTEE SHALL NOT EXCEED RS195220000.00

2 THIS BANK GUARANTEE SHALL REMAIN VALID

UPTO 24062021 AND

3 WE ARE LIABLE TO PAY THE GUARANTEED

AMOUNT OR ANY PART THEREOF UNDER THIS

BANK GUARANTEE ONLY AND ONLY IF YOU

SERVE UPON US A WRITTEN CLAIM OR DEMAND

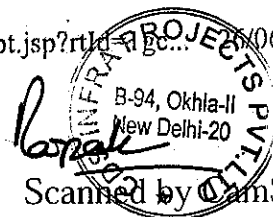
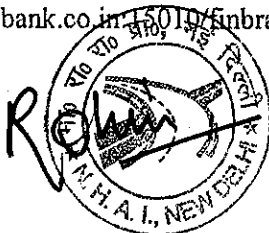
ON OR BEFORE THE EXPIRY OF THIS GUARANTEE

I.E. 24062021

-)

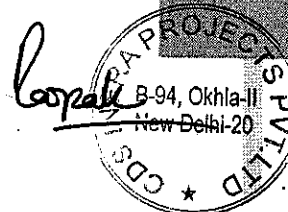
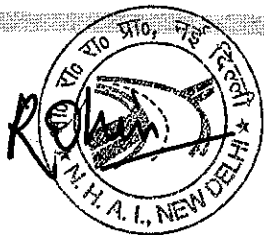
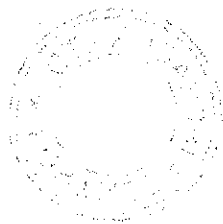


[http://finacle.corpbank.co.in/5010/finbranch/arjspmorph/INFENG/tran\\_rpt.jsp?rtld=1&gc...](http://finacle.corpbank.co.in/5010/finbranch/arjspmorph/INFENG/tran_rpt.jsp?rtld=1&gc...) 06/2019



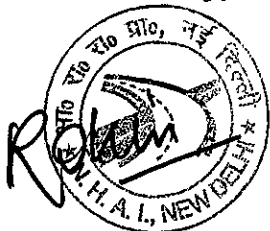
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**CONFIRMATION BANK GUARANTEE  
TOWARDS PERFORMANCE  
SECURITY**



<b>Transaction</b>		<b>Instance Type and Transmission</b>	
Number: 761949		Normal	
Priority			
Message Output Reference			
Correspondent Input Reference		XXXXXXXXXXXXXXXXXX	
Received Date&Time		25 Jun 2019 19:39	
Message Output		<b>Message Header</b> 760 Guarantee: Format Specifications	
Sender		CORP0000286 [CORPORATION BANK, M 4 GREATER KAILASH PART 2 NEW DELHI 110048]	
Receiver		CNRB0008598 [CANARA BANK, EXTENSION COUNTER NATIONAL HIGHWAY AUTHORITY OF INDIA (NHAI) G5&6 SECTOR-10 DWARKA NEW DELHI 110075]	
<b>Message Text</b>			
27	Number of a message	1	
	Total Number of Messages	1	
20	Sender's Reference	IPBG02861900073	
23	Code 3	ISSUE	
30	Requested Execution Date (YYMMDD)	20190625	
40C	Applicable Rules	URDG	
77C	Details of Guarantee	<p>BANK GUARANTEE ISSUED ON 25062019 FOR RS195220000.00 FAVOURING THE CHAIRMAN NATIONAL HIGHWAYS AUTHORITY OF INDIA G 5 AND 6 SECTOR 10 DWARKA NEW DELHI 110075 ISSUED ON BEHALF OF OUR CLIENT CENTRODORSTROY INDIA PVT LTD VALID UPTO 24062021 THIS BG PHYSICALLY ISSUED ON ESTAMP CERTIFICATE NO IN DL96099927611114R DATED 30052019 NOTWITHSTANDING ANYTHING CONTAINED HEREIN ABOVE</p> <p>1 OUR LIABILITY UNDER THIS BANK GUARANTEE SHALL NOT EXCEED RS195220000.00</p> <p>2 THIS BANK GUARANTEE SHALL REMAIN VALID UPTO 24062021 AND</p> <p>3 WE ARE LIABLE TO PAY THE GUARANTEED AMOUNT OR ANY PART THEREOF UNDER THIS BANK GUARANTEE ONLY AND ONLY IF YOU SERVE UPON US A WRITTEN CLAIM OR DEMAND ON OR BEFORE THE EXPIRY OF THIS GUARANTEE I.E. 24062021</p>	
<b>Message Trailer</b>			

BG confirmed as per SFMS Package



कृते केनरा बैंक / For Canara Bank

वरिष्ठ प्रबन्धक / Sr. Manager  
एन एन ए आई, सेक्टर-10, द्वारका, नई दिल्ली - 75  
NHAI, Sector-10, Dwarka, New Delhi-75



**CERTIFICATE OF INCORPORATION  
PURSUANT TO CHANGE OF NAME**





सत्यमेव जयते  
GOVERNMENT OF INDIA  
MINISTRY OF CORPORATE AFFAIRS

Office of the Registrar of Companies  
4th Floor, IFCI Tower 61, New Delhi, Delhi, India, 110019

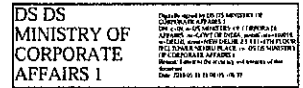
**Certificate of Incorporation pursuant to change of name**  
*[Pursuant to rule 29 of the Companies (Incorporation) Rules, 2014]*

Corporate Identification Number (CIN): U45203DL2004PTC126630

I hereby certify that the name of the company has been changed from CENTRODORSTROY (INDIA) PRIVATE LIMITED to CDS INFRA PROJECTS PRIVATE LIMITED with effect from the date of this certificate and that the company is limited by shares.

Company was originally incorporated with the name CENTRODORSTROY (INDIA) PRIVATE LIMITED.

Given under my hand at New Delhi this Twenty ninth day of May two thousand nineteen.



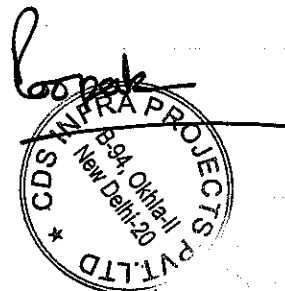
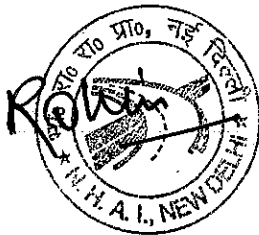
KAMAL HARJANI

Registrar of Companies  
RoC - Delhi

Mailing Address as per record available in Registrar of Companies office:

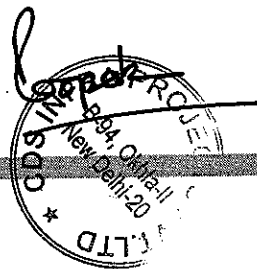
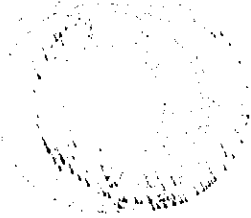
CDS INFRA PROJECTS PRIVATE LIMITED

B-94 OKHLAPHASE II, NEW DELHI, Delhi, India, 110020

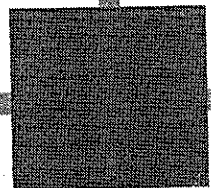


783

**POA AND BOARD RESOLUTION FOR  
SIGNING OF CONTRACT  
AGREEMENT**



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# CENTRODORSTROY (INDIA) PVT. LTD.

Projects Division: 132 & 133, First Floor, Vardhman Crown Mall,  
LSC, Plot No. 2, Sector 19, Dwarka, New Delhi - 110075  
Ph.: 011-4555 0222 (32 lines) Fax: 011-4555 0200  
Email: mail@cdisipl.com Website: www.cdisipl.com



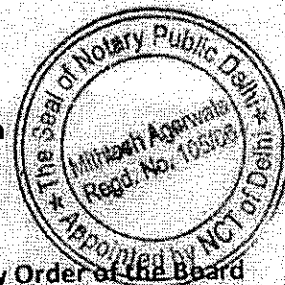
## BOARD RESOLUTION

We hereby certify that the following is the true copy of the resolution adopted by the Board of Directors of M/s Centrodorstroy India Pvt. Ltd. in accordance with their authority at a meeting duly held on 01<sup>st</sup> October 2014 and not subsequently rescinded or modified.

"RESOLVED that Mr. Sandeep Chandra, Managing Director of the Company is hereby authorised to do, execute and perform the acts, matters, and things, on behalf of the Company.

1. To sign all correspondence pertaining to tender work, to sign and submit tender document, joint Venture, pre-qualification documents etc., to be submitted to Govt., Semi Govt., Public & Private Organization etc.
2. To enter into an agreement with any of the tendering authority on acceptance of the bid submitted.
3. To attend meeting for discussion in connection with tender/contract works, pre-qualification etc.
4. And generally to do, execute and perform all and every other acts, matters and things whatsoever in any way arising out of and in relation thereto pertaining to tenders, contracts, pre-qualification etc.
5. To delegate the powers to any other person whom so ever he may find suitable.

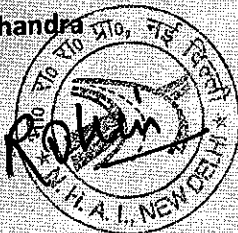
Specimen Signature of Mr. Sandeep Chandra



By Order of the Board

Signature attested  
For Centrodorstroy India Pvt. Ltd.

Kavita Chandra  
Director



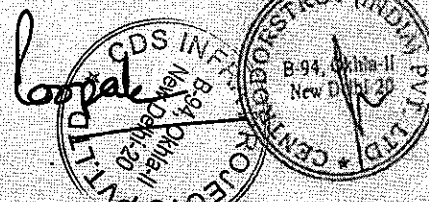
Kavita Chandra  
Director

22 DEC 2018

ATTESTED PHOTO COPY

Notary Public Delhi 785

Registered office: B-94, Okhla Phase II, New Delhi - 110 020 (INDIA)







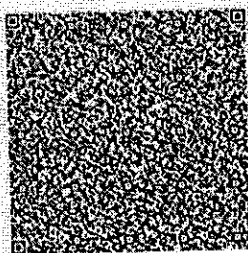
सत्यमेव जयते

# INDIA NON JUDICIAL

## Government of National Capital Territory of Delhi

### e-Stamp

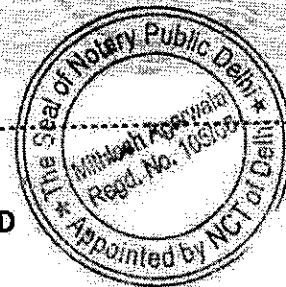
Certificate No.	: IN-DL08448490342940Q
Certificate Issued Date	: 27-Nov-2018 02:22 PM
Account Reference	: IMPACC (IV)/ dl791003/ DELHI/ DL-DLH
Unique Doc. Reference	: SUBIN-DL08448490342940Q
Purchased by	: CENTRODORSTROY INDIA PVT LTD
Description of Document	: Article 5 General Agreement
Property Description	: Not Applicable
Consideration Price (Rs.)	: 0 (Zero)
First Party	: CENTRODORSTROY INDIA PVT LTD
Second Party	: Not Applicable
Stamp Duty Paid By	: CENTRODORSTROY INDIA PVT LTD
Stamp Duty Amount(Rs.)	: 100 (One Hundred only)



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### Appendix-III

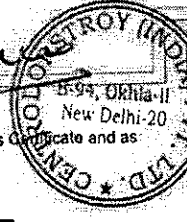
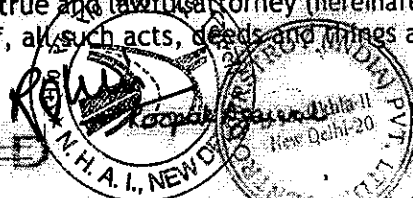
#### Power of Attorney for signing of BID (Refer Clause 2.1.8)



Know all men by these presents, We CENTRODORSTROY INDIA PVT LTD having registered address as B-94, Okhla, Phase - II, New Delhi - 110020; India, do hereby irrevocably constitute, nominate, appoint and authorize Mr. Roopak Agarwal son of Dr. S. K. Agarwala and presently residing at 527, Sanskriti Apartment, Sector - 19B, Dwarka, New Delhi - 110075, India, who is presently employed with us/the Lead Member of our Joint Venture and holding the position of Assistant Vice President (Project), as our true and lawful attorney (hereinafter referred to as the "Attorney") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with

#### Statutory Alert:


1. The authenticity of this Stamp Certificate should be verified at [www.shreee-stamp.com](http://www.shreee-stamp.com) available on the website renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.



or incidental to submission of our BID for the "Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode" Project proposed or being developed by the The National Highways Authority of India (the "Authority") including but not limited to signing and submission of all applications, BIDs and other documents and writings, participate in Pre-BID and other conferences and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts including the agreement and undertakings consequent to acceptance of our BID, and generally dealing with the Authority in all matters in connection with or relating to or arising out of our BID for the said Project and/ or upon award thereof to us and/or until the entering into of the EPC Contract with the Authority.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, CENTRODORSTROY INDIA PVT. LTD., THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS 22<sup>ND</sup> DAY OF DECEMBER 2018.

*(Signature)*  


For .....  
 (Signature)  
 Name: Sandeep Chandra  
 Designation: Managing Director  
 Address: 4, Ashoka Avenue, DLF Farms,  
 Chhattarpur, New Delhi - 110030

Witness:

1. Arvind Sharma *Arund*
2. Ram Kishor *RKM*

Accepted

*Roopak Agarwal*

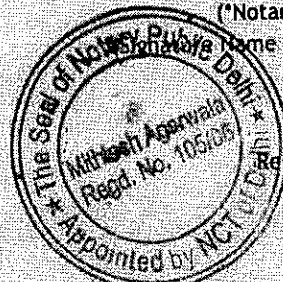


(Signature)

Name: Roopak Agarwal  
 Designation: Assistant Vice President (Projects)  
 Address: 527, Sanskriti Apartment,  
 Sector - 19B, Dwarka,  
 New Delhi - 110075

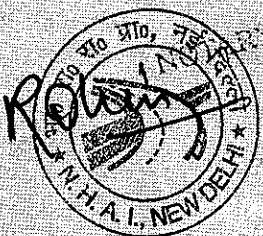
(Notarised)  
 Person identified by me/ personally appeared before me/  
 Attested/ Authenticated  
 (\*Notary to specify as applicable)  
 Name and Address of the Notary

**ATTESTED**

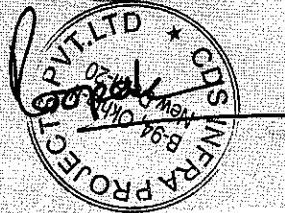


Seal of the Notary  
 Registration No. of the Notary

Date: **22 DEC 2018**



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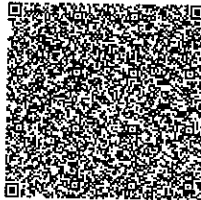
सत्यमेव जयते

# INDIA NON JUDICIAL

## Government of National Capital Territory of Delhi

### e-Stamp

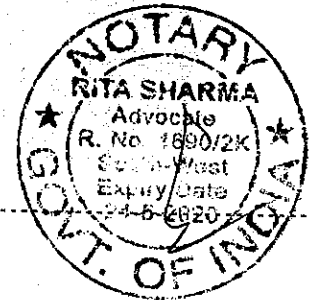
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 Certificate Issued Date : 13-Jul-2019 03:13 PM  
 Account Reference : IMPACC (IV)/ dl981903/ DELHI/ DL-DLH  
 Unique Doc. Reference : SUBIN-DL98190347858515476284R  
 Purchased by : CDS INFRA PROJECTS PRIVATE LIMITED  
 Description of Document : Article 5 General Agreement  
 Property Description : Not Applicable  
 Consideration Price (Rs.) : 0  
 (Zero)  
 First Party : CDS INFRA PROJECTS PRIVATE LIMITED  
 Second Party : Not Applicable  
 Stamp Duty Paid By : CDS INFRA PROJECTS PRIVATE LIMITED  
 Stamp Duty Amount(Rs.) : 100  
 (One Hundred only)



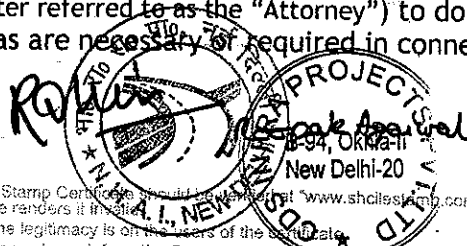
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### Appendix-III

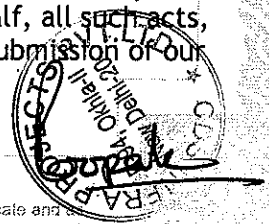
#### Power of Attorney for signing of BID (Refer Clause 2.1.8)



Know all men by these presents, We CDS INFRA PROJECTS PRIVATE LIMITED (formerly known as Centrodorstroy (India) Pvt. Ltd.) having registered address as B-94, Okhla, Phase - II, New Delhi - 110020, India, do hereby irrevocably constitute, nominate, appoint and authorize Mr. Roopak Agarwal son of Dr. S. K. Agarwala and presently residing at 527, Sanskriti Apartment, Sector - 19-B, Dwarka, New Delhi - 110075, India, who is presently employed with us/the Lead Member of our Joint Venture and holding the position of Assistant Vice President (Project), as our true and lawful attorney (hereinafter referred to as the "Attorney") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our



Handwritten signature



#### Statutory Alert:

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2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Controller of Stamps, New Delhi-20.

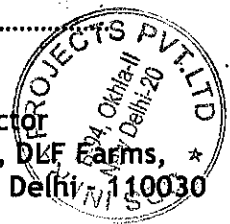
BID for the "Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi - Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode" Project proposed or being developed by the The National Highways Authority of India (the "Authority") including but not limited to signing and submission of all applications, BIDs and other documents and writings, participate in Pre-BID and other conferences and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts including the agreement and undertakings consequent to acceptance of our BID, and generally dealing with the Authority in all matters in connection with or relating to or arising out of our BID for the said Project and/ or upon award thereof to us and/or until the entering into of the EPC Contract with the Authority.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, CDS INFRA PROJECTS PRIVATE LIMITED (formerly known as Centrodorstroy (India) Pvt. Ltd.), THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS 13<sup>th</sup> DAY OF JULY 2019.

*(Handwritten Signature)*

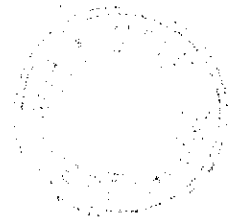
For .....  
 (Signature)  
 Name: Sandeep Chandra  
 Designation: Managing Director  
 Address: 4, Ashoka Avenue, DLF Farms, Chhattarpur, New Delhi - 110030



Witness:

1. Arvind Sharma *(Handwritten Signature)*
2. Saroj Kumar

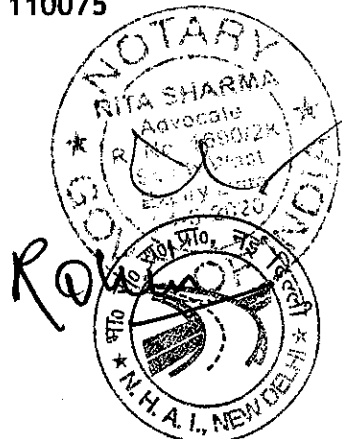
Accepted



*(Handwritten Signature)*

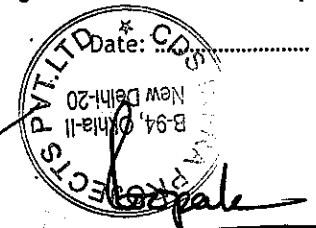
.....  
 (Signature)  
 Name: Roopak Agarwal  
 Designation: Assistant Vice President (Projects)  
 Address: 527, Sanskriti Apartment, Sector - 19B, Dwarka, New Delhi - 110075

(Notarised)  
 Person identified by me/ personally appeared before me/  
 Attested/ Authenticated  
 (\*Notary to specify as applicable)  
 (Signature Name and Address of the Notary)

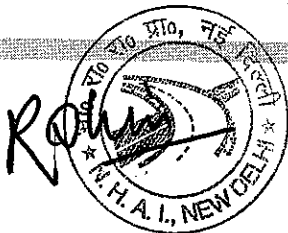


ATTESTED  
 789  
 Notary Delhi, India  
 13 JUL 2019

Seal of the Notary  
 Registration No. of the Notary



# INTEGRITY PACT



**APPENDIX VI**  
**INTEGRITY PACT FORMAT**

This integrity Pact is made at Delhi on this \_\_\_<sup>th</sup> day of \_\_\_ 2019.

**BETWEEN**

**National Highways Authority of India** represented by Chairman, **National Highways Authority of India, G-5&6, Sector-10, Dwarka, New Delhi-110075**, (hereinafter referred to as the "Principal/Owner" which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns)

**AND**

**CDS Infra Projects Pvt. Ltd., at B-94, Okhla Phase-II, New Delhi-110020**, (hereinafter referred to as "The Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s)" and which expression shall unless repugnant to be meaning or context thereof include its successors and permitted assigns.)

**Preamble**

Whereas, the Principal has floated the Tender no. NHAI/BM/Delhi- Varodara/2018/Pkg-3 dated 23.08.2018 (hereinafter referred to as "Tender/Bid") and intends to award, under laid down organizational procedure, contract/s for **Construction of Eight Lane Expressway starting at Ch. 47+000 near Khanpur Ghati and ends at Haryana-Rajasthan Border (Km 47+000 to Km 78+800) section of Delhi – Vadodara Green field Alignment (NH-148N) under Bharatmala Pariyojana in the State of Haryana on EPC Mode** (hereinafter referred to as the "Contract").

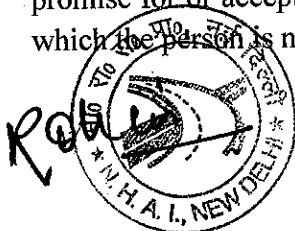
And Whereas the Principal values full compliance with all relevant laws of the land, rules of land, regulations, economic use of resources and of fairness/ transparency in its relations with its Bidder(s) and/ or Contractor(s)/Concessionaire(s)/Consultant(s).

And whereas to meet the purpose aforesaid, both the parties have agreed to enter into this Integrity Pact (hereafter referred to as "Integrity Pact" or "Pact") the terms and conditions of which shall also be read as integral part and parcel of the Tender documents and contract between the parties.

Now, therefore, in consideration of mutual covenants contained in this pact, the parties hereby agree as follows and this pact witnesses as under:

**Article-1: Commitments of the Principal**

- (1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-
  - (a) No employee of the Principal, personally or through family members, will in connection with the Tender for, or the execution of a Contract, demand, take a promise for or accept, for self, or third person, any material of immaterial benefit which the person is not legally entitled to.



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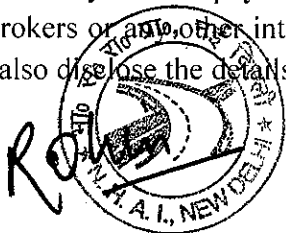


- (b) The Principal will, during the Tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
- (c) The Principal will exclude all known prejudiced persons from the process, whose conduct in the past has been of biased nature.
- (2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act or any other Statutory Acts or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions as per its internal laid down Rules/Regulations.

**Article – 2: Commitments of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s).**

The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

- (a) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- (b) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contract, submission or non submission or bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- (c) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not commit any offence under the relevant IPC/PC Act and other Statutory Acts; further the Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s) will not use improperly, for purposes of completion or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- (d) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) of foreign origin shall disclose the name and address of the Agents/ Representatives in India, if any. Similarly the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) of Indian Nationality shall furnish the name and address of the foreign principle, if any.
- (e) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract. He shall also disclose the details of services agreed upon for such payments.



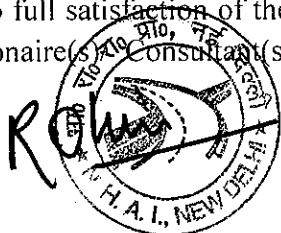
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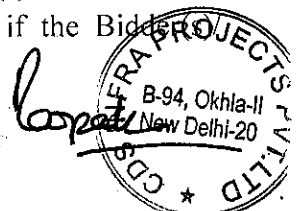
- (f) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- (g) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not bring any outside influence through any Govt. bodies/quarters directly or indirectly on the bidding process in furtherance of his bid.

**Article - 3 Disqualification from tender process and exclusion from future contracts.**

- (1) If the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s), before award or during execution has committed a transgression through a violation of any provision of Article-2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) from the tender process.
- (2) If the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) has committed a transgression through a violation of Article-2 such as to put his reliability or credibility into question, the Principal shall be entitled to exclude including blacklist and put on holiday the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) for any future tenders/ contract award process. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the Principal taking into consideration the full facts and circumstances of each case particularly taking into account the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) and the amount of the damage. The exclusion will be imposed for a maximum of 3 years.
- (3) A transgression is considered to have occurred if the Principal after due consideration of the available evidence concludes that "On the basis of facts available there are no material doubts".
- (4) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) with its free consent and without any influence agrees and undertakes to respect and uphold the Principal's absolute rights to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.
- (5) The decision of the Principal to the effect that a breach of the provisions of this Integrity Pact has been committed by the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) shall be final and binding on the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s), however, the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) can approach IEM(s) appointed for the purpose of this Pact.
- (6) On occurrence of any sanctions/ disqualification etc arising out from violation of integrity pact, the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) shall not be entitled for any compensation on this account.
- (7) Subject to full satisfaction of the Principal, the exclusion of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) could be revoked by the Principal if the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)



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Contractor(s)/ Concessionaire(s)/ Consultant(s) can prove that he has restored/ recouped the damage caused by him and has installed a suitable corruption prevention system in his organization.

#### **Article – 4: Compensation for Damages.**

- (1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Article-3, the Principal shall be entitled to forfeit the Earnest Money Deposit/ Bid Security or demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security apart from any other legal right that may have accrued to the Principal.
- (2) In addition to 1 above, the Principal shall be entitled to take recourse to the relevant provisions of the contract related to Termination of Contract due to Contractor/ Concessionaire/Consultant's Default. In such case, the Principal shall be entitled to forfeit the Performance Bank Guarantee of the Contractor/ Concessionaire/ Consultant and/ or demand and recover liquidated and all damages as per the provisions of the contract/concession agreement against Termination.

#### **Article – 5: Previous Transgressions**

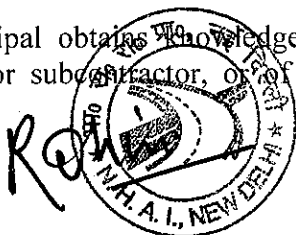
- (1) The Bidder declares that no previous transgressions occurred in the last 3 years immediately before signing of this Integrity Pact with any other Company in any country conforming to the anti corruption/ Transparency International (TI) approach or with any other Public Sector Enterprise/ Undertaking in India or any Government Department in India that could justify his exclusion from the tender process.
- (2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action for his exclusion can be taken as mentioned under Article-3 above for transgressions of Article-2 and shall be liable for compensation for damages as per Article-4 above.

#### **Article – 6: Equal treatment of all Bidders/ Contractors/ Concessionaires/ Consultants/ Subcontractors.**

- (1) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) undertake(s) to demand from all sub-contractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
- (2) The Principal will enter into agreements with identical conditions as this one with all Bidders/ Contractors/ Concessionaires/ Consultants and subcontractors.
- (3) The Principal will disqualify from the tender process all Bidders who do not sign this Pact or violate its provisions.

#### **Article – 7: Criminal charges against violating Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)/ Sub-contractor(s).**

If the Principal obtains knowledge of conduct of a Bidder/ Contractor/ Concessionaire/ Consultant or subcontractor, or of an employee or a representative or an associate of a



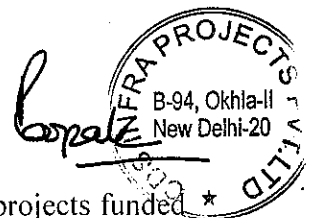
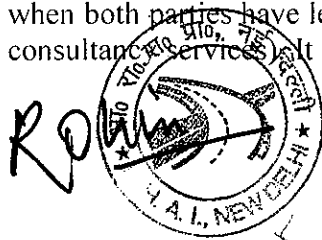
Bidder/ Contractor/ Concessionaire/ Consultant or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

**Article- 8: Independent External Monitor (IEM)**

- (1) The Principal has appointed Shri. R.S. Gujral as Independent External Monitor (herein after referred to as "Monitor") for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- (2) The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Director General (Road Development) & Special Secretary.
- (3) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) accepts that the Monitor has the right to access without restriction to all project documentation of the Principal including that provided by the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s). The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/Contractor(s)/Subcontractor(s) with confidentiality.
- (4) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- (5) As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- (6) The Monitor will submit a written report to the Director General (Road Development) & Special Secretary within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
- (7) If the Monitor has reported to the Director General (Road Development) & Special Secretary, a substantiated suspicion of an offence under relevant IPC/PC Act, and the Director General (Road Development) & Special Secretary has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.
- (8) The word 'Monitor' would include both singular and plural.

**Article – 9 Pact Duration**

This Pact begins when both parties have legally signed it (in case of EPC i.e. for projects funded by Principal and consultant services). It expires for the Contractor/ Consultant 12 months after



his Defect Liability period is over or 12 months after his last payment under the contract whichever is later and for all other unsuccessful Bidders 6 months after this Contract has been awarded. (In case of BOT Projects) It expires for the concessionaire 24 months after his concession period is over and for all other unsuccessful Bidders 6 months after this Contract has been awarded.


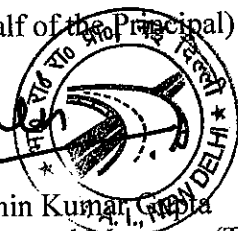
If any claim is made/ lodged during his time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by Director General (Road Development ) & Special Secretary.

#### Article - 10 Other Provisions.

- (1) This pact is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.
- (2) Changes and supplements as well as termination notices need to be made in writing.
- (3) If the Bidder/Contractor/Concessionaire/Consultant is a partnership or a consortium, this pact must be signed by all partners or consortium members.
- (4) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- (5) Any disputes/ differences arising between the parties with regard to term of this pact, any action taken by the Principal in accordance with this Pact or interpretation thereof shall not be subject to any Arbitration.
- (6) The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provision of the extent law in force relating to any civil or criminal proceedings.

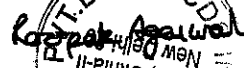
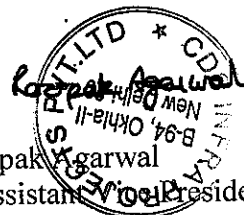
In witness whereof the parties have signed and executed this Pact at the place and date first done mentioned in the presence of following witness:-

(For & On behalf of the Principal)

Name- Mr. Rohin Kumar, Okhla  
Designation- General Manager, (Tech) Bharatmala  
Address- National Highways Authority of India  
G-5&6, Sector-10, Dwarka,  
New Delhi-110075

(For & On behalf of the Contractor)

Name: Mr. Roopak Agarwal  
Designation: Assistant Vice President (Projects)  
CDS Infra Projects Pvt. Ltd.,  
B-94, Okhla Phase-II, New Delhi-110020,

In the presence of:

1.

2.

In the presence of:

1.

2.