National Highways & Infrastructure Development Corporation Limited

BUILDING INFRASTRUCTURE - BUILDING THE NATION

Ministry of Road Transport & Highways,
(Govt. of India)

DRAFT CONTRACT AGREEMENT

For

Construction of Uni-directional Singhpora - Vailoo Tunnel (Under Sinthanpass) of length 10.331km/10.363km (Tube-1/Tube-2)and its approach road from Km 111+067 (at Chhatroo km 140.870 on NH-244) to 149+678(at vailooJunction with NH -244 i.e., existing km 235.070) oftotal length 38.611 km in Union Territory of Jammu & Kashmir on EPC mode.

August, 2022

National Highways & Infrastructure Development Corporation Ltd
3rd floor, PTI Building, 4-Parliament Street,
New Delhi – 110001

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Part I

Preliminary

Engineering, Procurement and Construction Agreement

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

Between

[The President of India through the NHIDCL represented by:

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

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

And

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

Whereas:

A. [The Government of India] entrusted **Construction of Uni-directional Singhpora - Vailoo Tunnel (Under Sinthanpass) of length 10.331km/10.363km (Tube-1/Tube-2)and its approach road from Km 111+067 (at Chhatroo km 140.870 on NH-244) to 149+678(at vailooJunction with NH -244 i.e., existing km 235.070) oftotal length 38.611 km in Union Territory of Jammu & Kashmir on EPC mode** to the Authority;

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

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

[3] Refers to the single entity or the lead member of the joint venture, which is the selected bidder under the RFP.

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

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

B. The Authority resolved to construct **Construction of Uni-directional Singhpora - Vailoo Tunnel (Under Sinthanpass) of length 10.331km/10.363km (Tube-1/Tube-2)and its approach road from Km 111+067 (at Chhatroo km 140.870 on NH-244) to 149+678(at vailooJunction with NH -244 i.e., existing km 235.070) oftotal length 38.611 km in Union Territory of Jammu & Kashmir** on Engineering, Procurement, Construction ("**EPC**") basis in accordance with the terms and conditions to be set forth in an agreement to be entered into.

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

D. After evaluation of the bids received, the Authority accepted the bid of the selected bidder and issued its Letter of Acceptance No. <insert details> dated <insert date> (hereinafter called the "**LOA**") to the selected bidder for [rehabilitation and augmentation of the above section of NH 29 (old NH-150) at the Contract Price specified hereinafter, requiring the selected bidder to inter alia:

a. 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;

b. submit Performance Security and Additional Performance Security (if any) as per RFP requirements, and

c. execute this Agreement within 30 (thirty) days of the date of issue of LOA.

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:

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;

"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 fulfill any obligations of the Authority under this Agreement;

"Bank" means a bank incorporated in India and recognized by the Reserve Bank of India

"Bank Rate" means the standard rate at which Reserve Bank of India is prepared to buy or re-discount bills of exchange or other commercial paper eligible for purchase under the Reserve Bank of India Act 1934.

"Base Rate" means the floor rate of interest announced by the State Bank of India for all its lending operations;

"Base Date" means the last date of the calendar month, which precedes the Bid Due Date by at least 28 (twenty eight) days;

"Bid" means the documents in their entirety comprised in the bid submitted by the [selected bidder/ Joint venture] in response to the Request for Proposal in accordance with the provisions thereof;

"**Bid 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;

"**Bid Securing Declaration**" "Bid Securing Declaration" means the declaration provided by the Contractor to the Authority in accordance with the Request for Proposal, and which is to remain in force until completion of the Project and /or termination of the Contract;

"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 judgment 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 (iv);

"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 excluding GST specified in Clause 9.1 (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, semi-conductor, topography rights, utility models, rights in know-how and other intellectual property rights, in each case whether registered or unregistered and including applications for registration, and all rights or forms of protection having equivalent or similar effect anywhere in the world;

"**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) meters 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, kilometer-stones, [toll plaza(s)], electrical systems, communication systems, rest areas, relief centers, 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 Site comprising **Construction of Uni-directional Singhpora - Vailoo Tunnel (Under Sinthanpass) of length 10.331km/10.363km (Tube-1/Tube-2)and its approach road from Km 111+067 (at Chhatroo km 140.870 on NH-244) to 149+678(at vailooJunction with NH -244 i.e., existing km 235.070) oftotal length 38.611 km in Union Territory of Jammu & Kashmir on EPC mode.**
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;

"**Specialised Work**" means the work which requires expertise or particular skill/technique or an advanced level of knowledge in the specific field for undertaking the work as required in the Project.

"**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, reorganization, 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, license 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; 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;

(u) 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;

(v) 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

(w) 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 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

(i) If the Contractor has formed a Joint Venture of two persons for implementing the Project:

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

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

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

[6] This Clause 1.5 may be omitted if the Contractor is not a Joint venture. Even if the Contractor is a Joint venture, th~~e Authority may, at its discretion,~~ delete this provision.

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 fulfillment 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.

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 1(One) 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[7]

(c) all environmental clearances as required under Clause 4.3.[8]

(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.

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

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

such environmental clearances for the Project Highway are not required.

(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.[9]

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.

[9] Clause 3.3 may be suitably modified in the event that all the environmental clearances for the Project Highway have been received or are not required. It should be clearly stated that all the environmental clearances for the Project Highway have been received; or such environmental clearances for the Project Highway are not required.

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, fulfill, 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 and shall appoint full time Safety Officer & Labour Welfare Officer to achieve the compliance;

(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.

(k) ensure that all payments to the manpower (labour, operators, technicians, officers, engineers etc) are released directly to their bank account

(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 along with Stage Payment Statement. 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 agreements 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.

4.2 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.

4.3 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 centers 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 centers. 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) a replacement.

4.4 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.

4.5 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.

4.6 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.

4.7 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.

4.8 Co-ordination of the Works

(i) The Contractor acknowledges that in addition to the Agreement, it is also aware of terms of the other Project contracts and other agreements the Authority has

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

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

(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.

4.9 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.

4.10 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 [.] of the Agreement.

(g) the requirements of operation and maintenance; and

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

4.12 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.

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

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 ofits 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 theintellectual 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.

(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.

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

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 Appendix-VII (the "performance Security") for an amount equal to 3% three 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:

a) If the Bid Price offered by the Selected Bidder is lower than 20% of the estimated project cost/cost put to the Additional Performance Security shall be calculated @ 20% of the difference in the (i) Estimated Project Cost (as mentioned in RFP)-20% of the Estimated Project Cost and (ii) the Bid Price offered by the selected Bidder

b) Maximum limit of additional performance security shall be limited to 3% of the Bid Price offered by the selected Bidder.

c) This "Additional Performance Security") shall be treated as part of 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. 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 Authority may withdraw the LOA and debar the Selected Bidder from participating in the future projects of NHIDCL for a period of One year, on account of failure of the Selected Bidder to acknowledge the LOA. 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.

(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[10]

(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.

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

[10] The Authority may, in its discretion, omit Clause 7.5 and in lieu thereof increase the Performance Security under Clause 7.1 from 7.5% (seven point five per cent) to 10% (ten per cent).

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. The 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:

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

Where,

C = the Contract Price;

L = length of the Project Highway in metres; and

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

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

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

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

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

- Main in carriageway
- Median (for 4 lane carriageway or more)
- Paved and earthen shoulders
- Area for Structures including ROBs/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, unless covered under the deemed de-scoping in terms of sub-clause 8.3 (iii) (b), the Authority may at any time withdraw any Works forming part of this Agreement, subject to such Works not exceeding an aggregate value, such value to be determined

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 8.3.3. Such Works shall not be computed for the purposes of the aforesaid ceiling of 10% (ten per cent) hereunder.

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

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

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

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

The parties expressly agree that the value of the Works withdrawn shall be determined from the details available in Schedule-H. In the event that it is impossible to determine the value from Schedule-H, then the value shall be determined in accordance with the provisions of Clause 13.2 (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 this Agreement, save and except as otherwise expressly set forth in this Agreement. In the event of any encroachment or occupation on any part of the Site, the Contractor shall report such encroachment or occupation forthwith to the Authority and undertake its removal at its own cost and expenses.

8.6 Special/ temporary Right of Way

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

8.7 Access to the Authority and the Authority'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, subject to applicable laws and with assistance of the Authority, undertake shifting of any utility (including electric line, water pipes and telephone cables), to an appropriate location or alignment, if such utility or obstruction adversely affected the execution of works or maintenance of the project Highway in accordance with this agreement, as per the scope given in Schedule B and in accordance with applicable standards and specifications of concerned utility owning entity. The cost of shifting of such utilities indicated in Schedule B is payable to the Contractor as per Schedule H. Cost of Shifting utilities not included in the Schedule B if any shall be treated as Change of Scope. The Authority will provide assistance to the Contractor for obtaining the estimates for shifting of such utilities from the entity owning such electric lines, water pipes or telephone cables, as the case may be. The Contractor shall execute such utility shifting works under the supervision of utility owning agency and Authority Engineer (AE) in accordance with the provision of agreement. The supervision charges only shall be paid by the authority to the Utility owning entity. In the event of any delay in shifting thereof the contractor shall be responsible for failure to perform any of its obligation here under if such failure is not as a direct consequence of delay on the part of the entity owning such electric lines, water pipes or telephone cables as the case may be.

The dismantled material/scrap of existing Utility to be shifting dismantled shall belong to the Contractor who would be free to dispose-off the dismantled materials as deemed fit by them

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 as per Schedule B-I. The Contractor shall, at its own cost, dispose of 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) Work Programme

(A) Within 30 (thirty) days of the Appointed Date, the Contractor shall submit to the Authority and the Authority's Engineer a work programme (the "**Programme**") for organising and carrying out whole of the Works, developed using computerized Critical Path Method (CPM) networking techniques, using the Precedence Diagramming Method (PDM) and shall be present in bar chart and time-scaled network diagram format to a weekly or monthly time scale 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. Project Milestone Dates,

ii. the order in which the Contractor intends to carry out all physical work to be undertaken in the performance of the Contract obligations, including the anticipated timing of design and stages of Works,

iii. procurement of major materials and the delivery and/or partial delivery date on-Site of principal items of Contractor's Equipment/Machinery,

iv. any off-site work such as production or pre-fabrication of components,

v. installation of temporary construction facilities,

vi. construction activities of sub-contractors,

vii. the periods for reviews under Clause 10.2.

viii. the sequence and timing of inspections and tests specified in this Agreement

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

x. any outside influence which will or may affect the Works

(c) Part III : Monthly cash flow forecast.

(B) The Works Programme shall show achievement of all Milestone Dates and shall be organised in a logical work-breakdown-structure including work stages and phases, and shall clearly indicate the critical path(s).

(C) Each activity in the Works Programme shall be coded to indicate.

a. Activity ID and Activity Code.

b. The Authority's Engineer may request additional activity coding to the extent available without restraint to the Contractor's utilisation of the programme software. When requested the Contractor shall add the required additional coding to the Programme. The Contractor shall use additional code fields as requested to comply with the requirements and for the use of the Contractor.

c. Activity duration shall not exceed two (2) weeks, unless otherwise consented to by the Engineer, except non-construction activities such as submittals, submittal reviews, procurement and delivery of materials or equipment and concrete curing. The Contractor shall submit a Programme/Project Calendar cross reference clearly indicating the allowance for holidays.

(D) Baseline Physical Progress 'S' Curve

The Contractor shall also submit a forecast Cumulative Physical Progress 'S' curve based on the time-phased distribution of cost in the CPM Network Logic Diagram, expressed in percentage terms. This 'S' curve shall be generated from the

computerised CPM Network Logic Diagram

(E) Baseline Resource Charts

The Contractor shall also submit a Resource Charts, generated from the Contractor's CPM Network Diagram, showing the anticipated manpower and main Construction Equipment usage during the execution of the Project.

(F) Works Programme Revisions

a. The Contractor shall immediately notify the Authority's Engineer in writing of the need for any changes in the Works Programme, whether due to a change of intention or of circumstances or for any other reason. Where such proposed change affects timely completion of the Works or any Project Milestone Date. The proposed revised Works Programme shall show the sequence of operations of any and all works related to the change and the impact of changed work or changed conditions.

b. If at any time the Authority's Engineer considers the actual or anticipated progress of the work reflects a significant deviation from the Works Programme, he may request the Contractor to submit a proposed revised Programme. The proposed revised Works Programme shall show the sequence of operations of any and all work related to the change and the impact of changed work or changed conditions.

(G) Three Month Rolling Programme

(1) The Three Month Rolling Programme shall be an expansion of the approved Works Programme, covering sequential periods of three months. The Three Month Rolling Programme shall provide more detail of the Contractor's plan, organisation and execution of the work within these periods. In particular, the Contractor shall expand each activity planned to occur during the next three(3) month period, if necessary to a daily level of detail.

(2) The Three Month Rolling Programme shall be developed as a Critical Path Method (CPM) network, and shall be presented in bar chart and time-scaled network diagram format. Bar charts shall be presented on an A4 and time-scaled networks diagrams on an A1 size reproducible media. Tasks in the programme shall be derivatives of and directly related to tasks in the approved Works Programme.

(H) Programming Personnel and Software

The Contractor shall submit, as part of its Staff Organisation Plan, the names and required information for the staff to be employed on Works Programming. The principal Works Programmer shall hold reputable professional qualifications acceptable to the Authority's Engineer including at least five (5) years relevant experience in programming civil engineering works. Others in the group shall have at least three (3) years experience in such work. The programmers shall be employed by the Contractor full time on the Contract until the completion or such earlier time the Engineer may give his consent. Also the Contractor shall provide licenced copy of software used to develop Works Programme to the Authority and Authority's Engineer.

(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.

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 be 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:

(h) The Contractor shall ensure that only controlled copies of drawings reviewed & approved by Authority Engineer is released to site. If the unapproved drawings are found to be released to site, a non refundable penalty of Rs 1,00,000/- shall be levied to the contractor for each incidence.

(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) & (d) of 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 [548th (Five Hundred and Forty Eight) 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 180th (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 180th (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 in 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, if any.

10.8 As-Built Records

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

10.9 Contractor's Use of Authority's Documents

Intellectual property in the Authority's requirements and Specifications and Standards and all other documents and materials issued by the Authority or the Authority'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 be 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 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.

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 a result of any breach of this Agreement by the Authority, the Preservation Costs shall be borne by the Authority.

(iv) If suspension of Works is for reasons not attributable to the Contractor, the Authority'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 seek a self-declaration from its employees that they have not been convicted of any criminal offence by any court and if any criminal proceedings/charge-sheets have been pending/filed against them. The Contractor shall not employ persons with criminal track record on the project. In cases where it comes to notice later that the employee concerned has concealed any such fact in his self-declaration or commits a criminal offence during the course of his employment, the Contractor shall remove such person from the project

(d) Deleted.

(e) The employees and personnel of the Contractor shall work under the supervision, control and direction of the Contractor and the Contractor shall be solely responsible for all negotiations with its employees and personnel relating to their salaries and benefits, and shall be responsible for assessments and monitoring of performance and for all disciplinary matters. All employees / personnel, executives engaged by the Contractor shall be in sole employment of the Contractor and the Contractor shall be solely

responsible for their salaries, wages, statutory payments, etc and under no circumstances the personnel shall be deemed to be the employees of the Authority. Under no circumstances the Authority shall be liable for any payment or claim or compensation of any nature to the employees and personnel of the Contractor.

(f) All payments to the staff and labour of the contractor working on the project shall be made directly to their bank account.

(ii) Returns of Labour

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

(b) The Authority is entitled to witness labour payments made or to be made by the Contractor. If the Contractor defaults in its obligations for making any payments under the labour laws, the Employer may make the relevant payments. Any sum equal to any amount paid by the Employer under this Sub-Sub-Clause 9.2 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 Sub-Clause 12.4, as may be required from time to time, shall be provided to the Employer's Representative.

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

(v) Facilities for Staff and Labour

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

(vi) Health And Safety

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

(vii) Contractor's Personnel

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

(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 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 detailed proposal in support of:

(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 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 5 (five) 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 (if not included in the Schedule - H):

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

(b) 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: no maintenance charges shall be paid for the first year; 0.5% of the Contract Price each for the second, third and fourth year; 0.75% of the Contract Price each for the subsequent years till laying of the renewal layer or end of maintenance period, whichever is earlier. The requirement for the renewal layer shall be worked out based on the survey and investigation of the existing pavement and the cost of such renewal works shall be made separately to the Contractor based on the principles defined under clause 13.2(iii). After laying of the renewal layer, the Contractor shall be paid @ 0.5% of the original Contract Price each for the remaining years till the end of maintenance period.

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

(e) For any other works: The contractor shall be paid at the rate of 0.50% of the contract price for the entire duration of maintenance period.

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. For the avoidance of doubt, the electricity charges for operation of electrical infrastructure installed along the project length, except the infrastructure being used by the Contractor for its own use, shall be borne by the Authority;

(c) undertaking repairs to structures;

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

(e) informing the Authority 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 [****]. 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 (iii), and shall provide assistance and cooperation to the Authority, on a best effort basis, for performance of its obligations hereunder.

14.10 Taking over Certificate

The 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.

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' 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.

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.

(f) 3 (three) years from the date of completion for stretches requiring renewal of Bituminous Concrete (BC) layer through either using hot-in-place recycling of the entire BC layer or providing a fresh layer of BC with 40mm thickness.

(g) 3 (three) years from the date of completion for stretches requiring improvement to riding quality, in cases other than those mentioned in para (f) above, through laying a layer of BM/DBM and BC.

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 and the Specifications and Standards;

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

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

17.4 Contractor's failure to rectify Defects

If the Contractor fails to repair or rectify such Defect or deficiency within the period specified in Clause 17.2, the Authority shall be entitled to get the same repaired, rectified or remedied at the Contractor's cost to make the Project Highway conform to the Specifications and Standards and the provisions of this Agreement. All costs consequent thereon shall, after due consultation with the Authority and the Contractor, be determined by the Authority'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.

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 NHAI; RO/CE/ADG in the case of MoRTH projects executed through the State PWDs; and GM/ED/Director in the case of NHIDCL) is responsible for the overall supervision and monitoring of the execution of project as the representative of the owner of the project. The Authority'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 which 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

Article 19

Payments

19.1 Contract Price

(i) The Authority shall make payments to the Contractor for the Works on the basis of the lump sum price accepted by the Authority in consideration of the obligations specified in this Agreement for an amount of INR Rs. _____ (INR _____) (the "Contract Price"), which shall be subject to adjustments in accordance with the provisions of this Agreement. For the avoidance of doubt, the Parties expressly agree that the Contract Price shall not include the GST and cost of Maintenance, which shall be paid separately in accordance with the provisions of Clause 19.5 & 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 newly purchased key Construction equipment required for the works as per agreed Construction programme and brought to the site, if so requested by the 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 on a reducing balance basis. 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 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 @ "**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 the unrecovered balance.

19.3 Procedure for estimating the payment for the Works

(i) The Authority shall make interim payments to the Contractor as certified by the Authority'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 7th (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 therefore.

(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.

(vi) Goods & Sevice Tax(GST) Tax (GST) shall be paid to the Contractor along with the stage payment at prevailing rate, however, the Contractor has to submit the proof of deposited GST against their work to the Govt. at the time of submitting next stage payment request failing which the earlier paid GST will be deducted.

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 7th (seventh) day of each month in the format set forth in Schedule-O for the Maintenance of the Project Highway during the previous month.

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

19.7 Payment for Maintenance of the Project Highway

(i) Within 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 @ Bank Rate+ 3% 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:

(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:

RTR =Value of work done for the completion of a stage under the following items of Schedule-H: Road works, Tunnel works; and Other works (Schedule-H).

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

VRTR = RTR x [PL x (LI – LO)/LO + PA x (AI – AO)/AO + PF x (FI –FO)/FO + PC x (CI – CO)/CO + PS x (SI – SO)/SO]

Where

VRTR = Increase or decrease in the cost of Road works, Tunnel works, and Structures during the period under consideration due to changes in the rates for relevant components as stated

PC, the percentages of cement, for the relevant item. = 0.15

PL, the percentages of labour, respectively for the relevant item=0.22

PS the percentages of steel/components (including strands and cables) respectively for the relevant item=0.25

PA is the percentage of Plant, machinery and spares component for the relevant item=0.18

PF is the percentage of fuel and lubricants for the relevant items=0.05

AO = The wholesale price index as published by the Ministry of Commerce & Industry, Government of India (hereinafter called "WPI") for Manufacture of

machinery for mining, quarrying and construction for the month of the Base Date.

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.

CO = The WPI for Ordinary Portland cement for the month of the Base Date.

CI = The WPI for Ordinary Portland cement for the month three months prior to the month to which the IPC relates.

FO = The official retail price of high speed diesel (HSD) oil at the existing consumer pumps of Indian Oil Corporation ("IOC") in the UTs of [J&K and Ladakh] on the Base Date.

FI = The official retail price of HSD at the existing consumer pumps of IOC in the UTs of [J&K] on the first day of the month three months prior to the month to which the IPC relates.

LO = The consumer price index for industrial workers for the [circle applicable to project Highway in the UTs of J&K], published by Labour Bureau, Ministry of Labour, Government of India, (hereinafter called "CPI") for the month of the Base Date.

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

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

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

Sum of PA, PL, PC, PS, PF = 0.85

(e) In case an IPC relates to a month which is within 3 (three) months from the Base Date, no price adjustment shall be applicable.

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 therefore 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:

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

Where

V= Increase or decrease in the quarterly lump sum payment

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

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

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

19.13 Final Payment Statement

(i) Within 60 (sixty) days after receiving the Completion Certificate under Clause 12.2, 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 and for all sums to which the Authority is entitled, the balance, if any, due from the Authority to the Contractor or from the Contractor to the Authority, as the case may be.

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

19.16 Final payment statement for Maintenance

(i) Within 30 (thirty) days after completion of the Maintenance Period, the Contractor shall submit to the Authority'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.

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.

19.21 Interest Bearing Working Capital Advance

Interest Bearing Working Capital Advance against unbilled executed work, not qualifying for payment under stage payment conditions, in the following manner :

(i) The revival of the project is possible by extending this facility.

(ii) Such Working Capital Advance shall be eligible for release at one intermediate stage during the construction period against the work done, which could not be billed and not qualify for payment under various stage of payment as per Schedule-H subject to the condition that the cumulative value of such works exceeds 5% of contract value.

(iii) On receipt of request from EPC Contractor for Working Capital Advance, Authority's Engineer (AE) shall determine the value of work done, which could not be billed and is not qualifying for payment under stage payment conditions but qualifying the requisite quality standards & specifications as per contract agreement.

(iv) The amounts so determined by AE shall be verified by Executive Engineer/ Project Director of executing agency and restricted to 90% of the amount assessed by AE, which shall not in any case exceed 10% of the Contract Price.

(v) 90% of the amount assessed by AE and verified 7 restricted to 10% of Contract Price by EE/PD as per Para-3(iv) above shall be released by regional officer, MoRT&H/competent DDO as Interest Bearing Working Capital Advance against work done by the Contractor. While releasing such amounts, Bank Guarantee or any other security shall not be sought, as the advance is against work already done.

(vi) Concerned RO is delegated with power to sanction such advance. However, in case of the project, where Cure Period Notice has been issued, a decision on sanctioning of Interest-Bearing Working Capital Advance shall be taken by ADG/CE HQ MoRTH/Member NHAI/ Director NHIDCL, considering the chances of revival of the project on payment of such advance.

(vii) The amounts so released as per Para-3(iv) above along with interest @ Bank Rate+ 3% per annum to be compounded annually on reducing balance basis shall be recovered by executing agency in 2 equal installments from subsequent consecutive 2 eligible invoices becoming due & payable immediately after release of such advance.

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

20.10 Application of insurance proceeds

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

20.11 Compliance with policy conditions

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

20.12 General Requirements of Insurance Policies

The Contractor must:

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

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

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

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

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

(f) provide all assistance to the Authority in the application for, and finalization

of, such comprehensive insurance package;

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

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 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, 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.

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.

(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. The Authority shall, within 15 (fifteen) days of receipt of such notice, terminate this Agreement under and in accordance with Article 23.

(ii) Notwithstanding anything to the contrary contained in this Agreement, in the event that Suspension is not revoked within 90 (ninety) days from the date of Suspension hereunder, the Agreement shall, upon expiry of the aforesaid period, be deemed to have been terminated by mutual agreement of the Parties and all the provisions of this Agreement shall apply, *mutatis mutandis*, to such Termination as if a Termination Notice had been issued by the Authority upon occurrence of a Contractor Default.

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 Adverse Effect;

(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 dis favour to any person in relation to the Contract,

or if any of the Contractor's personnel, agents or subcontractors gives or

offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (s). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.

(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.

(v) As a natural consequence of the termination, due to the contractor's failure, the contractor shall deemed to have been debarred for a period of 2 years and shall not be able to bid any contract of the Authority either singularly or in a JV or its Related Parties.
(Explanation: - Such debarment shall be a natural consequence of termination. No separate Show Cause / proceeding shall be initiated for placing such contractor under debarment).

(vi) The Authority may, at its discretion, without terminating the contract and allowing the contractor to continue with the existing contract(s), place the contractor(s) in the

'Negative List' for any of the following reasons :

a) Failure to achieve milestones proportionate to the encumbrance free ROW handed over.

(b) Failure to achieve targets / interim targets duly communicated by the Authority or its officers;

(c) Failure to mobilize machinery / manpower as per the discretion of the Authority or its officers;

(d) Inefficient and unsafe execution of work showing total disregard to public safety in construction zone and public convenience.

(e) Showing total disregard to environmental laws, local laws and State / local administration concerns;

(f) Showing total lack of ability (whether managerial / technical) to execute projects of such size;

(g) Failure to abide by any lawful direction of the Authority or its officers.

(h) Failure of contractor to extend/ replenish the Performance Security as per Contract Agreement.

(i) Failure of contractor to maintain the project highway during construction and/or after completion of work, during the maintenance period.

(j) Failure of contractor to rectify defects/ unsafe work within the time period as directed by Authority Engineer.

(k) Subcontracting part or whole of the work without approval of the Authority.

(l) Failure of contractor to fulfill its obligations as per Article 3 of contract of agreement.

Provided that, the Authority shall issue a notice giving 15 days time to the contractor before placing him in the 'Negative List' and upon evaluation of reply, if any, shall take a final decision. Such a notice shall not be issued without the approval of an officer below the rank of Executive Director.

Provided, upon satisfactory action on the matter for which the contractor has been placed in the list, the Competent Authority may allow the contractor to be deleted from the 'Negative List'.

(vii) Consequence of placement in the Negative List :-

"The contractor to include all the JV partners and their related parties shall not be eligible to bid in any of the Authority's contracts / projects for a period of 2 years from the date of being placed in the negative list or till the completion of the ongoing contract or removal of the Contractor from the negative list, whichever is earlier."

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 15th (fifteenth) day and prefers to continue with the project, it is deemed that the cause of action of the Termination Notice has been condoned by the Contractor and he would be deemed to have waived any claim and forfeited any right to any other remedy on that count or in relation to such action or omission.

23.3 Termination for Authority's convenience

Notwithstanding anything stated hereinabove, the Authority may terminate this

Agreement for convenience. The termination shall take effect 30 (thirty) days from the date of notice provided to the Contractor.

23.4 Requirements after Termination

Upon Termination of this Agreement in accordance with the terms of this Article 23, the Contractor shall comply with and conform to the following:

(a) deliver all relevant records, reports, Intellectual Property and other licences pertaining to the Works, Maintenance, other design documents;

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

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

23.5 Valuation of Unpaid Works

(i) Within a period of 45 (forty-five) days after Termination under Clause 23.1, 23.2 or 23.3, as the case may be, has taken effect, the Authority'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 Bank Rate + 3% 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

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 a licence, at no cost to the Authority, authorising continued use of the infringing work. If the Contractor is unable to secure such licence within a reasonable time, the Contractor shall, at its own expense, and without impairing the Specifications and Standards, either replace the affected work, or part, or process thereof with non-infringing work or part or process or modify the same so that it becomes non-infringing.

25.3 Notice and contest of claims

In the event that either Party receives a claim or demand from a third party in respect of which it is entitled to the benefit of an indemnity under this Article 25 (the "**Indemnified Party**") it shall notify the other Party (the "**Indemnifying Party**") within 15 (fifteen) days of receipt of the claim or demand and shall not settle or pay the claim without the prior approval of the Indemnifying Party, which approval shall not be unreasonably withheld or delayed. If the Indemnifying Party wishes to contest or dispute the claim or demand, it may conduct the proceedings in the name of the Indemnified Party, subject to the Indemnified Party being secured against any costs involved, to its reasonable satisfaction.

25.4 Defence of claims

(i) The Indemnified Party shall have the right, but not the obligation, to contest, defend and litigate any claim, action, suit or proceeding by any third party alleged or asserted against such Party in respect of, resulting from, related to or arising out of any matter for which it is entitled to be indemnified hereunder, and reasonable costs and expenses thereof shall be indemnified by the Indemnifying Party. If the Indemnifying Party acknowledges in writing its obligation to indemnify the Indemnified Party in respect of loss to the full extent provided by this Article 25, the Indemnifying Party shall be entitled, at its option, to assume and control the defence of such claim, action, suit or proceeding, liabilities, payments and obligations at its expense and through the counsel of its choice; provided it gives prompt notice of its intention to do so to the Indemnified Party and reimburses the Indemnified Party for the reasonable cost and expenses incurred by the Indemnified Party prior to the assumption by the Indemnifying Party of such defence. The Indemnifying Party shall not be entitled to settle or compromise any claim, demand, action, suit or proceeding without the prior written consent of the Indemnified Party, unless the Indemnifying Party provides such security to the Indemnified Party as shall be reasonably required by the Indemnified Party to secure the loss to be indemnified hereunder to the extent so compromised or settled.

(ii) If the Indemnifying Party has exercised its rights under Clause 25.3, the Indemnified Party shall not be entitled to settle or compromise any claim, action, suit or

proceeding without the prior written consent of the Indemnifying Party (which 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.

Article 26
Dispute Resolution

26.1 Dispute Resolution

(i) In the event of any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "Dispute") either Party may call upon the Authority engineer, to mediate and assist the Parties in arriving at an amicable settlement thereof.

(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.

(iii) Dispute Resolution Board (DRB):

Failing mediation by the Authority engineer or without the intervention of the Authority engineer, either Party may require such Dispute to be referred to the Dispute Resolution Board ("DRB") in accordance with the procedure setforth in Schedule-[S] to the Contract Agreement. The decision(s) of the Dispute Resolution Board shall be binding on both parties who shall promptly give effect to unless and until the same is revised/ modified, as hereinafter provided, in a Conciliation/ Arbitral Tribunal.

26.2 Conciliation

If either the employer or the Contractor is dissatisfied with any decision of the DRB, and/ or if the DRB is unable to resolve the dispute, 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

Any Dispute which is not resolved amicably by conciliation as provided in Clause 26.2 shall be finally settled by arbitration as set forth below:

i) The Dispute shall be finally referred to Society for Affordable Resolution of Disputes (hereinafter called as SAROD), a Society registered under Society's Act, 1860 vide Registration no, S/RS/SW1049/2013 duly represented by Authority and National Highways Builders Federation (NHBF). The dispute shall be dealt with in terms of Rules of SAROD. The detailed procedure for conducting Arbitration shall be governed by the Rules of SAROD and provisions of Arbitration & Conciliation Act, 1996, as amended from time to time. The Dispute shall be governed by Substantive Law of India.

ii) The appointment of Tribunal, Code of conduct for Arbitrators and fees and expenses of

SAROD and Arbitral Tribunal shall also be governed by the Rules of SAROD as amended from time to time. The rules of SAROD are placed at Appendix-III.

iii) Subject to the provisions of THE LIMITATION ACT, 1963, as amended from time to time, Arbitration may be commenced during or after the Contract Period, provided that the obligations of Authority and the Contractor shall not be altered by reason of the Arbitration being conducted during the Contract Period.

iv) The venue of Arbitration shall be New Delhi or a place selected by governing body of SAROD and the language for all documents and communications between the parties shall be English.

v) The expenses incurred by each party in connection with the preparation, presentation, etc., of arbitral proceedings shall be shared by each party itself.

26.3.2 The arbitrators shall make a reasoned award (the "Award). Any Award made in any arbitration held pursuant to this Article # shall be final and binding on the Parties as from the date it is made, and the Contractor and the Authority agree and undertake to carry out such Award without delay.

26.3.3 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.

26.3.4 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.

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 judgment 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

(ii) 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. All obligations surviving Termination shall only su rvive for a period of 3 (three) years following the date of such Termination.

27.8 Entire Agreement

This Agreement and the Schedules together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof, and no amendment or modification hereto shall be valid and effective unless such modification or amendment is agreed to in writing by the Parties and duly executed by persons especially empowered in this behalf by the respective Parties. All prior written or oral understandings, offers or other communications of every kind pertaining to this Agreement are abrogated and withdrawn. 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 otherwisebind, the other Party.

27.11 Third parties

This Agreement is intended solely for the benefit of the Parties and their respective successors and permitted assigns, and nothing in this Agreement shall be construed to create any duty to, standard of care with reference to, or any liability to, any person not a Party to this Agreement.

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; [***]

(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 [Managing Director,] 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 articulars 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.

ARTICLE 28

VALUE ENGINEERING OR INNOVATION

28.1 Value Engineering or Innovation

28.1.1 Value Engineering Proposals

The Contractor may submit to the Authority, in writing at its own cost, value engineering proposals for modifying the Authority's Requirements, provision of additional land, access or feasibility over and above that is provided in the Contract for the purpose of saving in time, construction or manufacture costs. The value engineering proposal shall not impair the essential character, functions or characteristics or the Work, including service life, economy of operation, ease of maintenance, desired appearance, or design and safety standards.

The Contractor shall provide his value engineering proposal in a time limit prescribed by the Authority Engineer. The Authority Engineer's decision in this regard shall be communicated to the Contractor within a reasonable period of time. If by any reason the time limit specified by the Authority Engineer is exceeded, the proposal may not be considered.

The decision of the Authority Engineer in this regard shall be final and binding.

28.1.2 Value Engineering Proposals –Contents

If the Authority requires or accepts it, and if the Contractor wants to proceed with the proposal, the Contractor must provide (at no cost to the Authority) a detailed report prepared by a consultant acceptable to the Authority and which shall include:

a. a general description of the original Contract requirements for the Works and the proposed changes
b. an detail of all the proposed modifications to the drawings and specifications
c. an detail of all Work and goods affected by the value engineering proposal
d. a detailed estimate of the construction cost based on the original Contract requirements and based on the proposed changes
e. any resultant time extensions or reductions for the Contract statement to the extent of minimum saving expected. The Contractor's cost of preparing value engineering proposal shall be excluded in determining the estimated net savings in construction costs.

28.1.3 Value Engineering Proposals- Authority Review

The Authority may in his sole discretion, accept or reject the value engineering proposal or any part thereof and determine the estimated net saving in the construction cost. The Authority shall not be liable for delays or damages to the Contractor due to any failure of the Authority to accept or act upon any value engineering proposal submitted pursuant to this Clause. If the submitted value engineering proposal is similar to a change of scope already under consideration by the Authority, the Authority may make such changes without respect to the value engineering proposal.

Once, the Authority or the Authority Engineer rejects the value engineering during proposition due to any reason, it shall not be pursued by Contractor in any other form.

28.1.4 Amendments- Authority Issuance

If the value engineering proposal is acceptable to the Authority in whole or in parts, it will accept by execution of an amendment. Such amendment shall identify all the changes in the specifications, Contract Period etc, shall specify net savings on construction costs and shall provide that the Contractor be paid 50% of saved net savings amount based on the difference between the amount contained in the Contract and the estimated net savings both as determined by the Authority.

28.1.5 Contractor's Acceptance and Payment

The Contractor shall either accept or reject any proposed amendment executed by the Authority Engineer pursuant to this section within 5 working days of its receipt date from the Authority. If the Contractor does not reject the same in the period stipulated above, the amendments shall be deemed to be accepted by the Contractor and shall constitute a change of shall constitute the full compensation. The Contractor will be paid this 50% or less but not more at the time of final payment on Authority Engineer's certification that the net savings as intended by value engineering have been achieved.

ARTICLE 29

EXTRAORDINARY GEOLOGICAL OCCURRENCE (EGO)

29.1 Only exceptionally adverse and unexpected geological conditions and/or an unexpected influx of water severely in excess of the capacity of the facilities envisaged and required for temporary and permanent dewatering, under circumstances-leaving no possibility of further advance by the construction methods and leading to a serious and protracted interruption (in general more than 7 days) in the advance of the drill and blast excavation, will be considered as an Extraordinary Geological Occurrence (EGO).

29.2 Any variations in intact rock and rock mass properties, geological units and lithologies along the tunnel alignments form data provided in the Detailed Geological Report appended to bid documents will not be accepted as an Extraordinary Geological Occurrence (EGO).

29.3 To forewarn of possible adverse geological conditions, the contractor may drill vertical cored exploratory holes in the roof or invert for any distance behind the face, and horizontal and ascending percussions pilot holes ahead of the face, drilling of exploratory and pilot holes. Any interruption to the advance on account of such drilling and subsequent ground treatment (including grouting or pre-bolting of the face) shall not be considered as EGO. Drilling and Grouting ahead of the face, grouting criteria for control of water inflow at face shall not be considered as EGO.

29.4 Cases of a gradual or predicted increase of water inflow and/ or a gradual or predicted deterioration of geological conditions will not be considered as EGO.

29.5 No EGO will be acknowledged or accepted in the rear zones.

29.6 If any EGO occurs, the contractor shall without delay propose a method to be used to overcome the situation and undertake, with the approval of the Authority Engineer, all the necessary steps to expeditiously resume the tunnel excavation.

29.7 The EGO provisions do not in any way release the contractor from his responsibility/ obligations stipulated under this Contract Agreement.

29.8 **Measurement and Payment:**

Temporary suspension of D&B excavation due to extraordinary geological occurrence, payment will be by the number of working day during which such suspension occurs. This cost includes the cost of all D&B equipments and D&B tunneling crews for the heading to the extent that this manpower cannot be used for special measures to deal with extraordinary geological occurrence or elsewhere on the project. The cost towards such occurrence shall be finalized by the contractor in consultation with the Authority Engineer. Further, for avoidance of doubt, it is clarified that the EGO and its cost shall be dealt in accordance with Annexure-I the Article 21 which is as per the Risk Allocation Matrix. The sum total of the cost towards EGO shall have the pre-determined upper ceiling upto 5% of the Contract Price.

Article 30

PART – A : SHE MANAGEMENT

1.0 General

1.1 Scope

1.1.1 This document defines the principal requirements of the Authority on Safety, Health and Environment (SHE) associated with the contractor / sub-contractor and any other agency to be practiced at construction worksites and other associated works at all time.

1.2 Definition / languages

1.2.1 In this document

i) The use of 'shall' indicates a mandatory requirement.
ii) The use of 'should' indicates a guideline that is strongly recommended.
iii) The use of 'may' indicates a guideline that is to be considered.
iv) 'SHE' means Safety, Health and Environment.
v) Authority means National Highways & Infrastructure Development Corporation Ltd., (NHIDCL).
vi) Authority's Representative means ED/GM/DGM(Project) of NHIDCL and TL, Authority's Engineer
vii) Chief Safety Officer means an officer nominated by NHIDCL who is overall responsible for monitoring all SHE functions prescribed in this document.
viii) BOCWA means Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996
ix) BOCWR means Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Central Rules, 1998
x) DG means Director General of Ministry of Labour, Govt. of India.

1.3 Application of this document

1.3.1 This document applies to all aspects of the contractor's scope of work, including all aspects conducted by sub-contractors and all other agencies. There shall be no activity associated to the contract, which is exempted from the purview of this document.

1.4 Purpose of this document

1.4.1 The objective of these guidelines is to ensure that adequate precautions are taken to avoid accidents, occupational illness and harmful effects on the environment during construction.

1.4.2 This document:

i) Describes the SHE interfaces between Authority and the Contractor.
ii) Details the processes by which the contractor shall manage SHE issues while carrying out the work under the contract.

iii) Describes by reference, the practices and procedures as given in the NHIDCL Project Safety, Health & Environment manual for best SHE performance.

1.4.3 These requirements shall be read together with NHIDCL Project SHE Manual, OHSAS 18001-1999, Occupational Health and Safety Management System and ISO 14001: 2004 Environmental Management Systems. Definition of key terms used in these requirements related to OHSAS 18001 and ISO 14001 standard are found in NHIDCL's Project SHE Manual.

2.0 'SHE' Targets and Goals

2.1 The SHE targets, goals and aim for the Works are to achieve:

i) Zero total recordable injuries.
ii) Zero reportable environmental incidents
iii) All personnel inducted in accordance with the approved contractor SHE plan
iv) Total compliance of conducting inspections and audits as per approved SHE plan
v) 100% incident recording and reporting
vi) 100% adherence of usage of appropriate PPEs at work.
vii) Executing construction work with least disturbance to the environment, adjoining road users and traffic.

3.0 Compliance

3.1 Memorandum of Understanding (MOU)

3.1.1 A Memorandum of Understanding placed at ***Attachment No.: 1*** shall be executed before the appointed date by the contractor with regard to various provisions on Safety, Health and Environment to be practiced during the construction work.

3.2 NHIDCL's SHE Policy and Management Systems

3.2.1 The construction works shall be undertaken in accordance with NHIDCL's SHE Policy and Management Systems as amended from time to time provided in Project SHE Manual.

3.3 Indian statutory requirements

3.3.1 Primary statutory regulations

3.3.1.1 Contractor shall develop thorough understanding about Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996, Central Rules 1998, Building and Other Construction Workers' Welfare Cess Act, 1996 and Central Rules, 1998, not only to satisfy the Inspectors' perspective but the use of legislation as the strong tool for effective SHE management at construction worksites. Contractor is strongly advised to practice the principle of voluntary compliance.

3.3.1.2 In order to facilitate the contractor for better understanding on the various provisions of Govt. a tabulated information highlighting the Sections/Rules referring to the corresponding registration of contractors, maintenance of registers and records, hours of work and wages, welfare, medical facilities and safety requirements are given in Attachment No.: 2. It is an indicative one and not a limiting list.

3.3.2 In addition, the construction works shall be undertaken in accordance with all applicable legislation and Indian statutory requirements listed below (latest version) and their latest versions but not limiting to:

i) Indian Electricity Act 2003 and Rules 1956.
ii) National Building Code, 2005.
iii) Motor Vehicles Act as amended in 1994 and The Central Motor Vehicles Rules, 1989.
iv) Indian Road Congress Code IRC: SP: 55-2001 'Guidelines on Safety In Road Construction Zones.
v) The Petroleum Act, 1934 and Rules 1976.
vi) Gas Cylinder Rules, 2003.
vii) Indian Explosives Act. 1884, along with the Explosives substance Act 1908 and the Explosives Rules 1983.
viii) The (Indian) Boilers Act, 1923.
ix) The Public Liability Insurance Act 1991 and Rules 1991.
x) Minimum Wages Act, 1948 and Rules 1950.
xi) Contract Labour Act, 1970 and Rules 1971.
xii) Child Labour (Prohibitions & Regulations) Act, 1986 and Rules 1950.
xiii) Environment Protection Act, 1986 and Rules 1986.
xiv) Air (Prevention and control of Pollution) Act, 1981.
xv) Water (Prevention and Control of Pollution) Act, 1974.
xvi) The Noise Pollution (Regulation & Control) Rules, 2000.
xvii) Notification on Control of Noise from Diesel Generator (DG) sets, 2002.
xviii) Recycled Plastic Usage Rules, 1998.
xix) Notification, Central Ground Water Board, Act January 1997.
xx) Manufacture, Storage & Import of Hazardous Chemicals Rules, 1989.
xxi) The Hazardous Waste (Management & Handling) Rules, 1989.
xxii) Hazardous Waste Management Rules 1989 (as amended in 1999).
xxiii) Batteries (Management and Handling) Rules.
xxiv) Fly ash utilization notification, Sept 1999 as amended in August 2003.

3.3.3 Workman Compensation Act, 1923 along with allied Rules

3.3.3.1 The contractor shall ensure that all his employees / workmen are covered under 'Workmen Compensation Act' and shall pay compensation to his workmen as and when the eventuality for the same arises.

3.3.4 Not withstanding the above Act/Rules, there is nothing in those to exempt the contractor from the purview of any other Act or Rule in Republic of India for the safety of men and materials.

3.3.5 If the requirements stated in this document are less stringent than or in conflict with the country's applicable legislation, the latter shall apply.

3.4 International Standards, Guidelines & ISO Certifications

3.4.1 The works should be undertaken in accordance with the applicable international guidelines, standards and specifications on SHE and every contract shall aim to achieve ISO certifications listed below during the currency of the contract:

OHSAS 18001-1999 : Occupational Health and Safety Management System.

ISO 14001-2004 : Environmental Management Systems.

3.4.2 The process of certification shall start immediately after the award of the work and complete within reasonable time. Towards this, the contractor shall undertake the required steps including appointment of ISO consultant for obtaining the certification on Occupational Health and Safety Management System and Environment Management System.

3.4.3 In case of failure on the part of the contractor, the Authority at the cost of the contractor shall do the same.

4.0 Contractor SHE Policy and Plan

4.1 The contractor as per Section 39 of the BOCW Act shall formulate a SHE policy and get it approved by DG/CIIBC (appropriate Authority) respectively and display it at conspicuous places at work sites in Hindi and a local language understood by the majority of construction workers.

4.2 Within 4 weeks of the notification of acceptance of the tender, the Contractor shall submit a detailed and comprehensive Contract specific SHE Plan. The SHE Plan shall include detailed policies, procedures and regulations which, when implemented, will ensure compliance of the contract provisions. The SHE Plan shall include the following but not be restricted to:

i) A statement of the Contractor's policy, organisation and arrangements for SHE

ii) The name(s) and experience of person(s) within the Contractor's proposed management who shall be responsible for co-ordinating and monitoring the Contractor's SHE performance;

iii) The number of SHE staff who shall be employed on the Works, their responsibilities, authority and line of communication with the proposed Contractor's agent;

iv) A statement of the Contractor's policy and procedures for identifying and estimating hazards, and the measures for addressing the same;

v) A list of SHE hazards anticipated for this Contract and sufficient information to demonstrate the Contractor's proposals for achieving effective and efficient health and safety procedures;

vi) A description of the SHE training courses and emergency drills which shall be provided by the Contractor, with an outline of the syllabus to be followed;

vii) Details of the safety equipment which shall be provided by the Contractor, including personal protective equipment;

viii) A statement of the Contractor's policy and procedures for ensuring that Contractor's Equipment used on the Project Site are maintained in a safe condition and are operated in a safe manner;

ix) A statement of the Contractor's policy and procedures for ensuring that sub-contractors comply with the Contractor's safety plan;

x) A statement of the Contractor's disciplinary procedures with respect to SHE related matters, and

xi) A statement of the Contractor's procedure for reporting and investigating accidents, dangerous occurrences or occupational illnesses

4.3 The Contractor shall, from time to time and as necessary are required by the Authority to produce supplements to the SHE Plan such that it is at all times a detailed, comprehensive and contemporaneous statement by the Contractor of his site safety, industrial health and environment obligations, responsibilities, policies and procedures relating to work on Site. Any and all submissions of supplements to the SHE Plan shall be made to the Authority in accordance with the agreed procedures.

4.4 If at any time the SHE plan is, in the Authority's opinion, insufficient or requires revision or modification to ensure the security of the Works and the safety of all workmen upon and visitors to the Site, the Authority may instruct the Contractor to revise the SHE plan and the Contractor shall within 7 days submit the revised plan to

the Authority for review.

4.5 Any omissions, inconsistencies and errors in the SHE Plan or the Authority's acceptance or rejection of the SHE Plan and/or supplements thereto shall be without prejudice to the Contractor's obligations with respect to site safety, industrial health and environment and shall not excuse any failure by the contractor to adopt proper and recognised safety practices throughout the execution of the Work.

4.6 The Contractor shall adhere to the SHE Plan and shall ensure, as far as practically possible, that all sub-contractors of all tiers require that contracting parties each have a copy of the Site SHE Plan and comply with its provisions.

4.7 The details of contents to be covered in the site SHE plan are given in ***Attachment No.: 3.***

5.0 Designer's role

5.1 Designer's role in Safety, Health and Environment

5.2 Designer's primary role includes to minimise the risk to health and safety of those who are going to construct, maintain, clean, repair, dismantle or demolish the structures and any one else like adjoining road users/general public, who might be affected by the work.

5.3 General philosophy

5.2.1 When considering health and safety in designer's work, they shall be expected to do what is reasonable at the time the design is prepared. It may be possible for hazards, which cannot be addressed at the feasibility stage to be looked at during detailed design. In deciding what is reasonably practicable, the risk to health and safety produced by a feature of the design has to be weighed against the cost of excluding the feature. The overall design process does not need to be dominated by a concern to avoid all risks during the construction phase and maintenance. However, a judgement has to be made by weighing up one consideration against another so the cost is counted not just in financial terms, but also those of fitness for purpose, aesthetics, buildability or environmental impact. By applying these principles, it may be possible to make decisions at the design stage, which will avoid or reduce risks during construction work. In many cases, the large number of design considerations will allow a number of equally valid design solutions. What is important is the approach to the solutions of design problems. This should involve a proper exercise of judgement, which takes account of health and safety issues.

5.3 Hierarchy of Risk Control

5.3.1 Designers shall need, so far as reasonably practicable, to avoid or reduce risks by applying a series of steps known as the hierarchy of risk control or principles of prevention and protection. The steps to be adopted shall include the following:

i) consider if the hazard can be prevented from arising so that the risk can be avoided (eg, alter the design to avoid the risk);

ii) if this cannot be achieved, the risk should be combated at source (eg, ensure the design details of items to be lifted include attachment points for lifting);

iii) failing this, priority should be given to measures to control the risk that will protect all people;

iv) only as a last resort should measures to control risk by means of personal protection be assumed (eg, use of safety harnesses).

5.4 Duty to provide health and safety risks in the drawing itself

5.4.1 In case of situations were the designers have carried out the design work and concluded that there are risks, which was not reasonably practicable to avoid, detailed information shall be given about the health and safety risks, which remain. This information needs to be included with the design to alert others to the risks, which they cannot reasonably be expected to know. This is essential for the parties who have to use the design information.

5.4.2 If the designers' basic design assumptions affect health or safety, or health and safety risks are not obvious from the standard design document, the designer shall provide additional information. The information shall include a broad indication of the assumptions about the precautions for dealing with the risks. The information will need to be conveyed in a clear manner; it shall be included on drawings, in written specifications or outline method statements. The level of detail to be recorded will be determined by the nature of the hazards involved and the associated level of risk.

5.5 Authority's approval

5.5.1 Every structure like scaffold, falsework, launching girder, earth retaining structures etc. shall have its design calculations included in the method statements in addition to health and safety risks. Authoritys' designer or his approved proof check consultants as applicable as per the contract conditions shall approve all these designs.

5.6 Any non-standard structures like trestles made up of re-bars or structures which are very old, corroded, repaired for many times etc. for which no design calculations can be made accurately from any national standards, shall not be allowed to be used at sites even for short duration.

5.7 If any of the above mentioned clauses are not adhered penalty shall be imposed depending upon the gravity of the unsafe act and or condition

6.0 Contractor SHE Organisation

6.1 **Education and Experience**

6.1.1 The contractor shall appoint the required SHE personnel as prescribed in General Instruction ***NHIDCL/SHE/GI/001/MPR/2020*** (enclosed at the end) based upon the statutory requirement and establish the safety organisation based upon the contract value. The minimum educational qualification and the work experience are given in General Instruction ***NHIDCL/SHE/GI/002/QE/2020.***

6.1.2 In order to effectively interact on labour welfare matters with the Authority and the statutory authorities enforcing the labour welfare legislations every contractor shall employ a full time Labour Welfare Officer duly qualified and experienced as per clause *6.1.1***.**

6.2 **Conduct and competency**

6. 2.1 The conduct and functioning of the contractor SHE personnel shall be monitored by the Authority. Any default or deficiency shall attract penalty as per details given under penalty clause ***56.0*** of this document.

6.2.2 The Contractor shall ensure that all personnel are competent to perform the job assigned to them. In the event that the Contractor is unable to demonstrate the competency of any person whose activities can directly impact on the Works' SHE performance, the Authority shall remove that person from the site without any procedural formalities.

6.3 **Approval from Authority**

6.3.1 The name, address, educational qualification, work experience and health condition of each personnel deployed for SHE jobs shall be submitted to the Authority in the format

prescribed for the purpose for comments and approval well before the start of the work. Only on approval by the Authority these personnel are authorised to work. In case any of the SHE personnel leaves the contractor the same shall be intimated to the Authority. The contractor shall recruit new personnel and fill up the vacancy.

6.4 **Responsibility of SHE personnel**

6.4.1 For all works carried out by the contractor and his sub-contractors, the responsibility of ensuring the required SHE manpower lies with the main contractor only. The minimum required manpower indicated by the Authority includes the sub-contractors' work also. It shall be the responsibility of the main contractor to provide required SHE manpower for all the works executed by all contractors. Necessary conditions shall be included in all sub-contract documents executed by the main contractor.

6.5 Employment status of SHE personnel

6.5.1 No contractor shall engage SHE manpower from any outsourcing agencies in which case the effectiveness would be lost. All SHE manpower shall be on the payroll of the main contractor only and not on the payroll of any subcontractor or outsourcing manpower agencies etc. This condition does not apply to positions like traffic marshals who are engaged almost on a daily requirement basis.

6.6 Reporting of SHE personnel

6.6.1 All SHE personnel are to report to the Chief SHE Manager who shall report directly to the Team Leader/Chief Safety Manager of the Authority's Engineer. The Authority shall monitor adherence to this procedure at all times. In case of non-adherence penalty shall be levied as indicated in the penalty clause.

6.7 Inadequate SHE personnel

6.7.1 In case if the contractor fail to provide the minimum required manpower as illustrated in General Instruction ***NHIDCL/SHE/GI/001/MPR/2020*****,** or fail to fill up vacancies created within 14 days, the same shall be provided by the Authority at contractor's cost. Any administrative expenses involved to provide the same like paper advertisement or manpower consultant charges, etc shall also be at the cost of contractor.

6.8 Prohibition of performance of other duties

6.8.1 As per Schedule VIII of DBOCWR no SHE personnel shall be required or permitted to do any work which is unconnected to, inconsistent with or detrimental to the performance of the SHE duties for respective category mentioned in General Information ***NHIDCL/SHE/GI/001/MPR/2020.***

6.9 Facilities to be provided to SHE personnel

6.9.1 As per schedule VIII of BOCWR, the contractor shall provide all SHE personnel with such facilities, equipment and information that are necessary to enable him to dispatch his duties effectively.

6.9.2 The minimum Authority's requirements of such facilities / equipments to be provided for SHE personnel are given in the General Instruction *NHIDCL/SHE/GI/003/AVE/2020.*

7.0 Contractor SHE Committee

7.1 All employees should be able to participate in the making and monitoring of arrangements for safety, industrial health and environment at their place of work. The establishment of site SHE committees in which employees and Contractor and sub-contractor management are represented can increase the involvement and commitment of employees. The contractor shall ensure the formation and monitor the functioning of contractor SHE committees.

7.2 Terms of Reference

7.2.1 The Terms of Reference for the committee shall be as follows;

i) To establish company safety policies and practices

ii) To monitor the adequacy of the contractor's site SHE plan and ensure its implementation

iii) To review SHE training

iv) To review the contractor's monthly SHE report.

v) To identify probable causes of accident and unsafe practices in building or other construction work and to suggest remedial measures.

vi) To stimulate interest of Authority and building workers in safety by organizing safety week, safety competition, talks and film-shows on safety, preparing posters or taking similar other measures as and when required or as necessary.

vii) To go round the construction site with a view to check unsafe practices and detect unsafe conditions and to recommend remedial measures for their rectifications including first-aid medical and welfare facilities.

viii) Committee team members should perform a site inspection before every committee meetings and to monitor SHE inspection reports.

ix) To bring to the notice of the Authority the hazards associated with use, handling and maintenance of the equipment used during the course of building and other construction work

x) To suggest measures for improving welfare amenities in the construction site and other miscellaneous aspect of safety, health and welfare in building or other construction work.

xi) To look into the health hazards associated with handling different types of explosives, chemicals and other construction materials and to suggest remedial measures including personal protective equipment.

xii) To review the last safety committee meeting minutes and to take action against persons/sub-contractors for non-compliance if any.

7.3 Within 14 days of award of contract, the SHE committee shall be constituted and notification regarding the same shall be communicated to the members and employees as per the format provided in ***Form No.: SF 001***

7.4 Site SHE Committee meeting shall be conducted at least once in a month with the minimum members listed below:

Chairman	Project Manager
Secretary	SHE Manager (In-charge)

Members	i) Labour Welfare Officer ii) In charge of plant and machinery iii) In charge of site electrics iv) In charge of stores. v) Senior Managers/ Engineers heading different sub functions. vi) Sub – contractor's representative vii) Labour Contractor's representative viii) Workers' representative ix) Co-contractor representative. x) SHE staffs
Authority's Representatives	AE's SHE in charge and other representatives

7.6 Construction SHE Committee meeting shall be conducted at least once in a week with the minimum members listed below:

Chairman	Project Manager
Secretary	SHE Manager (In-charge)
Members	i) Labour Welfare Officer ii) In charge of plant and machinery iii) In-charge of site electrics iv) Senior Managers / Engineers heading different sub functions v) Sub- Contractor's representative vi) Labour contractor's representative vii) Workers' representatives viii) All SHE Staffs

7.6 **Co-contractors' participation**

7.6.1 In case of areas where more than one main contractors are working together, the Authority shall instruct the other contractors to join for the monthly SHE committee meeting of the main civil contractor, so as to discuss and decide about the common provision of security, lighting, toilet, drinking water etc. and sharing the maintenance cost of the same etc.

7.6.2 The general principle for sharing the cost shall be either based on the contract value of works executed at the contiguous area or the daily average number of workmen employed by each contractor in the contiguous area.

7.7 **Minimum time between two monthly SHE Committee meetings**

7.7.1 A minimum period of **21 days** shall be maintained between any two SHE monthly committee meetings.

7.8 **Agenda**

7.8.1 The Secretary shall circulate the agenda of the meeting at least seven working days in advance of the scheduled date of the meeting to all members.

7.8.2 The agenda should broadly cover the following:

i) Confirmation of minutes

ii) Chairman's review/overview of site SHE performance / condition

iii) Previous month SHE statistics

iv) Incident and Accident Investigation / dangerous occurrence / near miss report

v) Site SHE inspection

vi) Sub-contractors' SHE issues

vii) Safety presentation by Members

viii) Report from Authority

ix) Matters arising

x) Any other business

7.9 **Minutes of the meeting**

7.9.1 The Minutes of the meeting shall be prepared as per the format provided at ***Form No.: SF- 002*** and sent to all members within 2 working days preferably by mail/fax followed by hardcopy. Safety Committee meeting minutes shall also be displayed in the notice board for wider publicity to all concerned.

7.10 **Disciplinary Action**

7.10.1 The chairman shall inform the members of any outstanding issues in the meeting and in case of repeated offence/ non-compliance by some members or other co/sub contractors and propose suitable disciplinary action including provisions of monitory penalty as per the relevant contract clauses, the Authority shall ensure that the same is implemented.

8.0 ID Card and First day at work, SHE orientation training

8.1 The Contractor shall ensure that all personnel working at the site receive an induction SHE training explaining the nature of the work, the hazards that may be encountered during the site work and the particular hazards attached to their own function within the operation. The training shall cover the contents as given in the General Instruction NHIDCL/SHE/GI/004/OT/2020.

8.2 All personnel shall be issued a photo identity card of size 85mm x 55mm duly signed by the authorized representative of the contractor before they are engaged for any work as per the format given in the General Instruction ***NHIDCL/SHE/GI/005/IDC/2020.***

8.3 Contractor shall also issue a personnel SHE handbook in a language known to the workers, which provides information on SHE and emergency procedures that all personnel working on contract are required to know and the need to follow. Contractor shall ensure that this is distributed and its content introduced to all personnel working at the site.

9.0 SHE Training

9.1 The behavior of people at all levels of the contractor is critical for SHE performance.

9.2 The contractor shall organize quality SHE training to engage Managers, supervisors and other personnel in behavioral change and improve safety performance.

9.3 The Contractor shall analyze the training requirements for all the employees and initiate a training program to demonstrate that all persons employed, including subcontractors, are suitably qualified, competent and fit. This will include:

i) Detailed Job descriptions for all personnel, to include their specific SHE responsibilities

ii) Specification of qualifications, competency and training requirements for all personnel

iii) Assessment and recording of training needs for all personnel, including subcontractors' employees in the workforce, vendor representatives and site visitors

iv) A system for assessing new hirers e.g. previous training

v) A means of confirming that the system is effective

vi) A matrix and schedule of training requirements, covering general, task–specific and SHE-related training, showing the training frequency and interval between refresher courses

vii) Timely, competent delivery of training courses

9.4 The contractor shall arrange behavioral-based training programmes for all the executives to identify, recognise and eliminate unsafe act and unsafe conditions.

9.5 The minimum requirement of training needs for various categories of employees are given in general instruction ***NHIDCL/SHE/GI/006/TM/2020.***

9.6 The contents of SHE training to Managers/Supervisors as given in general instruction ***NHIDCL/SHE/GI/007/TMS/2020*** shall be conducted.

9.7 The refresher-training programme to all employees shall be conducted once in six months.

9.8 Toolbox talk as given in the Authority's Project SHE manual shall be conducted to all high-risk workmen everyday.

9.9 On-the spot practical skill development training on height safety including scaffold safety, crane safety, welding safety, electrical safety, traffic safety for marshals shall also be conducted to all foremen/ workmen who were associated to the concerned jobs.

9.10 Daily Safety Oath as given in Project SHE manual shall be taken by every employee including workman without fail.

9.11 All vehicle drivers including Hydra operators shall be trained on defensive driving to be organised by the contractor. All vehicle drivers shall also undergo refresher training on defensive driving once in 6 months.

9.12 All the above listed training programmes except at clause *9.11* shall be organised by the contractor only after taking approval from the Authority for the training faculty / organisation, content and durations.

9.13 In case of failure on the part of the contractor to provide all the above-mentioned training programs to all employees in time, the same shall be provided by the Authority through accredited agencies if required by formulating a common scheme to all contractors. Any administrative expenses and training fee towards the same shall be at the cost of the contractor.

10.0 SHE Inspection

10.1 The contractor shall evolve and administer a system of conducting SHE inspections and other risk management analysis on a periodical basis.

10.2 The purpose of SHE inspection is to identify any variation in construction activities and operations, machineries, plant and equipment and processes against the SHE Plan and its supplementary procedures and programs.

10.3 Following SHE inspections program shall be adopted.

i) Planned General Inspection

ii) Routine Inspection

iii) Specific Inspection

iv) Other Inspection

10.3.1 Planned General Inspection

10.3.1.1 Planned general inspections are performed at predetermined intervals and it usually involves the representation from both Contractor and the Authority.

10.3.1.2 Inspections that will be classified under this inspection program are:

i) Monthly contractor and sub-contractors site safety committee Inspection.

ii) Weekly safety inspection by construction supervisors (Contractors and Sub-contractors).

iii) Daily safety inspection by contractor site SHE team.

10.3.2 Routine Inspection

10.3.2.1 Routine inspections are often referring to the inspection of work site, equipment and temporary structures performed by site and equipment operators and temporary structure erectors.

Inspections that will be classified under this inspection program are:

i) Daily Inspection of plant and equipment by operator

ii) Weekly Inspection of scaffold by scaffolding supervisor

iii) Monthly Inspection of electrical hand tools by competent electrical supervisor

iv) Quarterly Inspection of temporary electrical systems by competent electrical supervisor

v) Half-yearly inspection of lifting machinery, lifting appliances, equipment and gears by Govt. approved competent person.

10.3.2.2 The list mentioned above is not exhaustive. Contractor may add additional categories. Contractors' Site SHE Manager will ensure that a system of routine inspections are carried out periodically to all plants, equipment, powered tools and any other temporary structures that will pose a hazard to operators and workmen.

10.3.3 Specific Inspection

10.3.3.1 Specific inspections are performed on activities without a predetermined date. Competent supervisors usually perform inspections for ensuring an activity whether it is executed in accordance to a general set of rules; method statement submitted or developed procedures.

The following are examples that will be commonly performed as required on the construction site:

i) Inspection performed before a heavy lifting operation.

ii) Inspection performed before and after the entry of person into a confined space.

iii) Inspection performed before and after a welding and gas cutting operation.

iv) Inspection of formwork before concreting by formwork erector.

The list mentioned above is not exhaustive. The contractor shall ensure that a competent supervisor inspects all high-risk processes and activities.

10.3.4 Other Inspection

Other inspections includes the following:

i) Mandatory Inspections by Labour Department of Government.

ii) NHIDCL site SHE management team

10.3.5 The contractor shall prepare all required safety inspection checklist for all activity operations and equipment. Checklists will be prepared based on the Indian standards, rules and regulations and CA's requirements. The formats provided in the Project SHE manual may be referred.

10.3.6 All inspection records and reports will be properly kept and filed for audit purpose. Inspection reports of Planned General Inspection and Routine Inspection will be used for discussion during Safety Committee Meetings.

11.0 SHE Audit

11.1 General

11.1.1 The purpose and scope of SHE audit is to assess potential risk, liabilities and the degree of compliance of construction Safety, Health & Environmental plan and its supplementary procedures and programs against applicable and current SHE legislation regulations and requirements of the Authority.

11.1.2 Project Manager holds the ultimate responsibility in ensuring implementation of SHE audit program during the construction work.

11.2 Monthly Audit Rating Score (M A R S)

11.2.1 Monthly Audit Rating Score (MARS) will be performed once in a month. Authority's team consisting of Project Manager and Authority's representative based on the pre-designed score-rating format will conduct it. The details of the pre-designed monthly audit score rating formats are given in the Project SHE manual.

11.2.2 This Monthly SHE Audit Rating Score (MARS) report will enable the Authority to evaluate the general compliance by the Contractor with the Conditions of Contract, the Authority's Project SHE Manual and the Contractor's site specific SHE Plan.

11.2.3 Monthly Audits will be conducted in accordance with NHIDCL Guidelines. The Project Manager accompanied by the Authority's representatives shall carry out the Audit. The Contractor's senior manager and SHE in-charge should also be invited to attend.

11.2.4 Timing

The Monthly Audit Rating Score (MARS) should be conducted at least 7 days prior to the scheduled date of Monthly SHE Committee meeting.

11.2.5 Evaluation

11.2.5.1 The numerical scoring has been weighed on a 1-10 scale. The audit team will use their observations noted in evaluating the points to be awarded against each of the elements of the audited section. Wherever some topics and sub-topics are not applicable the score rating need not be given. The overall audit ratings shall be achieved by:

$$\text{Overall Audit rating} = \frac{\text{Actual Score Achieved}}{\text{Maximum Possible Score}} \times 100$$

11.2.5.2 The criticality of the required actions for the respective sections of the Audit will be classified as:

Sl. No.	Score	Description	Action
1	< 60%	Immediate	Require Contractor to rectify within 24 hours
2	< 75%	Improvement Necessary	Contractor rectification within 7 days and confirmed in writing to Authority
3	< 90%	Improvement Desirable	Contractor rectification within one month and confirmed in writing to Authority

11.2.6 Report

A copy of each Audit Report will be sent to Authority and to all subcontractors, with whom it will then be discussed in detail at the Monthly SHE Committee Meeting in order to ensure that any corrective actions are agreed upon.

11.3 Monthly Electrical Safety Audit

11.3.1 A team comprising of contractor's senior SHE (Electrical) engineer and Authority's representative shall conduct monthly electrical safety audit covering the following and submit the report to Authority.

i) Electrical accidents investigation findings and remedy

ii) Adequacy of power generation and power requirements

iii) Power distribution and transmission system in place

iv) Updated electrical single line diagram showing the current condition of power source and distribution including the IP44 DBs arrangement.
v) Electrical protection devices – selection, installation and maintenance.
vi) Earth or ground connection and earth pit maintenance details
vii) Education and training of electrical personnel undertaken
viii) Routine electrical inspection details
ix) Electrical maintenance system and register.
x) Name plate details of major electrical equipment
xi) Classified zones in the site, if any.

11.4 External SHE Audit

11.4.1 External SHE audits are to be conducted by external agencies that are competent with ISO qualified auditors with the prior approval of the Authority.

11.4.2 Areas of competence of Audit team

11.4.2.1 Practical understanding of BOCW Act and Rules, statutory requirements on health/medical and welfare of workmen, construction hazards and its prevention and control, traffic management, electrical safety, rigging, safety of construction equipment and environment management.

11.4.2.2 Audit shall be conducted as per the guidelines of ISO, ILO, and national standards. Audit report shall also be presented as per the above formats.

11.4.3 External SHE audit shall be conducted on a quarterly basis throughout the currency of the contract.

11.4.4 Targets of SHE Audit:

The contents and coverage of the external audit shall include the following items

11.4.4.1 SHE management:

i) Organization
ii) Communication and Motivation
iii) Time office
iv) Inspection
v) Emergency preparedness
vi) Budget allocation
vii) Education and Training
viii) Work permit system

11.4.4.2 Technical:

i) Building and Structure
ii) Construction operational safety
iii) Material safety
iv) Hand tools and Power tools
v) Electrical system
vi) Safety Appliances

vii) Fire prevention and control
viii) Housekeeping
ix) Maintenance and Machinery safety
x) First-aid and Medical Facilities
xi) Welfare measures
xii) Environmental Management

11.4.5 Audit Documents:

11.4.5.1 Contractor shall make the below listed documents available for the review by the Audit team.

i) SHE policy
ii) SHE manual
iii) SHE Rules and Regulation
iv) SHE organization chart
v) Annual SHE objectives / programs
vi) Accident / near miss statistics and analysis
vii) SHE Training program / records for all personnel
viii) Operating manuals and maintenance manual of all equipments
ix) Safe worthiness certificates of all lifting appliances and gears
x) Medical fitness record for all personnel
xi) Risk identification, assessment and control details
xii) Environmental management reports
xiii) Emergency management records including mock drill

11.4.6 **Audit Preparation:**

i) Audit team members are required to gather information by observations through interviews and by checks of hardware and documentation.
ii) Audit team shall prepare checklist to cover all parts based on SHE legislations rules and regulations and NHIDCL requirements.
iii) Audit team members shall verify the facts and findings leading to the identified gaps and weakness.
iv) Audit leader has overall responsibility for reaching a conclusion.

11.4.7 **Reporting:**

11.4.7.1 Audit report shall be prepared and directly sent to the Authority within 7 days of conducting the audit with a copy to the contractor.

11.4.8 **Report contents:**

i) Executing summary - based on the finalized checklists as written the findings to the Authority by the audit team members, the audit leader will compile a concise and accurate summary of observations and findings.
ii) Introduction - this will contain basic information regarding the facilities or organization audited, the specific audit dates (inclusion of those for preparation and post-audit activities).
iii) Principal positive findings - This will contain the summary of positive aspects as observed by the auditors. It will also contain highlights of those issue, which may warrant dissemination as best practice regarding methodology used or achievement.

iv) Audit Findings - All audit findings as detailed in the audit checklists shall be grouped together as priority 1 and 2 as detailed below in a separate listing.

a) Priority 1: Actions to rectify gaps or weakness should generally be implemented within two-weeks time, if risk potential is high or unacceptable.

b) Priority 2: Actions should be generally implemented or rectified with a maximum of 3 – 4 weeks, if not rectified would create a likelihood of minor injury or business loss.

11.4.9 Conformity Report & Action by Authority

11.4.9.1 The auditor shall inspect the site after 14 days of conducting initial audit for checking the adequacy of implementation of items maintained under priority 1 by the contractor and shall submit a conformity / non-conformity report to the Authority with a copy to the contractor.

11.4.9.2 The auditor shall again inspect after 28 days of conducting initial audit for checking the adequacy of implementation of items mentioned under priority 2 by the contractor and shall submit a conformity / non-conformity report to the Authority with a copy to the contractor.

11.4.9.3 In case of non-conformity of items mentioned by auditor, the Authority shall take necessary steps including stoppage of work and or imposing any penalty for getting the item implemented.

11.4.10 Failure of contractor to conduct External SHE Audit

11.4.10.1 If the contractor fails to conduct the external SHE audit in time, the Authority at the cost of contractor shall get it done.

12.0 SHE Communication

12.1 The contractor shall take every effort to communicate the Safety, Occupational health and Environment management measures through posters campaigns / billboards / banners / glow signs being displayed around the work site as part of the effort to rise safety awareness amongst to the work force. Posters should be in Hindi, English and other suitable language deemed appropriate. Posters / billboards / banners/ glow signs should be changed at least once in a month to maintain the impact.

12.2 The contractor shall also observe important days as listed in General Instruction ***NHIDCL/SHE/GI/008/DAY/2020*** and printing and displaying safety signage and posters as listed in General Instruction ***NHIDCL/SHE/GI/009/PS/2020*****.**

12.3 The list indicated are the minimum requirements of the Authority and the contractor is encouraged to further the SHE communication activities by formulating suitable reward schemes for safety performers and any other activities, which deem fit for the purpose.

13.0 SHE Submittals to the Authority

13.1 The contractor's SHE management should send the following reports to the Authority

periodically:

i) Daily Reporting of total no of workmen (as given in Clause ***13.2***)
ii) Monthly SHE Report (as given in Clause ***13.3***)
iii) SHE Committee Meeting Minutes (as given in Clause ***7.9.1***)
iv) SHE Inspection Reports
v) SHE Audit Reports
   a) Monthly Audit Rating Score (MARS) report
   b) External SHE Audit
   c) Electrical Safety Audit
vi) Air and Noise Quality monitoring report

13.2 Daily Reporting of total no of workmen

13.2.1 The contractor shall report to the Authority the total no of workmen engaged by all including any subcontractor within 2 hours of starting of any shift in any day. This reporting shall be the primary duty of the Chief SHE Manager of the contractor and reporting shall be through tele-fax / email. The onus of checking the receipt of the same by the Authority lies with the contractor. If the information is not received or received more than 2 hrs after starting of the shift, penalty shall be levied as per relevant clause.

13.3 **Monthly SHE Report**

13.3.1 The contractor shall prepare a monthly SHE report consisting of the following and submit 3 copies within 7th of next month to the Authority as specified in the Project SHE manual.

i) Monthly man-hour details as specified in the Project SHE manual
ii) Monthly accident / incident details as specified in the Project SHE manual
iii) SHE committee details
iv) Details of SHE training conducted in the month
v) SHE Inspection
vi) SHE internal audit details like electrical audit etc.
vii) SHE Communication activities under taken in the month indicating the number of posters displayed and balance availability in stock.
viii) Air quality / Noise monitoring details
ix) Toolbox talks details
x) PPE details: Quantity purchased, issued to the workmen and stock available.
xi) Details on IP 44 panel boards, lighting poles, welding and cutting equipments, Ladders, Hoists, tools & tackles.
xii) Monthly Lux meter study results
xiii) Housekeeping
xiv) Barricade maintenance details
xv) No of critical excavations
xvi) Health & Welfare activities
xvii) Safety walk conducted by Contractors' Project Manager in the month
xviii) SHE Activities Planned for next month

14.0 Accident reporting and investigation

14.1 **Reporting to Authority**

14.1.1 All accidents and dangerous occurrences shall immediately be informed telephonically to the Authority. This will enable the Authority to reach to the scene of accident / dangerous occurrences to monitor/assist any rescue work and/or start conducting the investigation process so that the evidences are not lost.

14.1.2 Reports of all accidents (fatal / injury) and dangerous occurrences shall also be sent within 24 hours as per format provided in the Authority's Project SHE manual.

14.1.3 No accident / dangerous occurrences is exempted from reporting to the Authority.

14.1.4 Any wilful delay in verbal and written reporting to the Authority shall be penalised as per relevant clause.

14.2 **Reporting to Govt. organizations**

14.2.1 In addition to the above verbal and written reporting to the Authority, as per Rule 210 of BOCWR, notice of any accident to a worker at the building or construction site that:

a) causes loss of life; or

b) disables a worker from working for a period of 48 hours or more immediately following the accident;

c) shall forthwith be sent by telegram, telephone, fax, or similar other means including special messenger within four hours in case of fatal accidents and 72 hours in case of other accidents, Authority to:

i) the Regional Labour Commissioner (central), wherein the contractor has registered the firm/work

ii) the board with which the worker involved was registered as a beneficiary;

iii) Director General and

iv) the next of kin or other relative of the worker involved in the accident;

14.2.2 Further, notice of accident shall be sent in respect of an accident which

(a) causes loss of life; or

(b) disables the injured worker from work for more than 10 days to

i) the officer-in-charge of the nearest police station;

ii) the District Magistrate or, if the District Magistrate by order so desires, to

iii) the Sub-Divisional Magistrate

14.2.3 In case of an accident causing minor injury, first-aid shall be administered and the injured worker shall be immediately transferred to a hospital or other place for medical treatment.

14.2.4 Where any accident causing disablement that subsequently results in death, notice in writing of such death, shall be sent to the authorities mentioned in clause ***14.2.1*** and ***14.2.2*** above within 72 hours of such death.

14.2.5 **Reporting of dangerous occurrences:**

14.2.5.1 The following classes of dangerous occurrences shall be reported to the Inspector having jurisdiction, whether or not any disablement or death caused to the worker, namely:

(a) collapse or failure of lifting appliances, or hoist, or conveyors, or similar equipment for handling of building or construction material or breakage or failure of rope, chain or loose gears; or overturning of cranes used in construction work;

(b) falling of objects from height;

(c) collapse or subsidence of soil, tunnel, pipe lines, any wall, floor, gallery, roof or any other part of any structure, launching girder, platform, staging, scaffolding or means of access including formwork;

(d) explosion of receiver or vessel used for storage of pressure greater than atmospheric pressure, of any gas or gases or any liquid or solid used as building material;

(e) fire and explosion causing damage to any place on construction site where building workers are employed;

(f) spillage or leakage of any hazardous substance and damage to their container;

(g) collapse, capsizing, toppling or collision of transport equipment;

(h) leakage or release of harmful toxic gases at the construction site;

14.2.6 In case of failure of launching girder, lifting appliance, loose gear, hoist or building and other construction work, machinery and transport equipment at a construction site, such appliances, gear, hoist, machinery or equipment and the site of such occurrence shall, as far as practicable, be kept undisturbed until inspected by the Authorities;

14.2.7 Every notice given for fatal accidents or dangerous occurrences shall be followed by a written report to the concerned Authorities under Section 39 of BOCWA and the Director General in the specified Form XIV of BOCWR.

14.3 Accident investigation

14.3.1 General

14.3.1.1 Investigations should be conducted in an open and positive atmosphere that encourages the witnesses to talk freely. The primary objective is to ascertain the facts with a view to prevent future and possibly more serious occurrences.

14.3.1.2 Accidents and Dangerous Occurrences which result in death, serious injury or serious damage must be investigated by the Contractor immediately to find out the cause of the accident/occurrence so that measures can be formulated to prevent any recurrence.

14.3.1.3 Near misses and minor accidents should also be investigated by the Contractor as soon as possible as they are signals that there are inadequacies in the safety management system.

14.3.2 Procedure of incident investigation

14.3.2.1 It is important after any accident or dangerous occurrence that information relating to the incident is gathered in an organised way. The following steps shall be followed;

a) take photographs and make sketches

b) examine involved equipment, workpiece or material and the environmental conditions

c) interview the injured, eye-witnesses and other involved parties

d) consult expert opinion where necessary

e) identify the specific contractor or sub-contractor involved.

14.3.2.2 Having gathered information, it is then necessary to make an analysis of incident

a) establish the chain of events leading to the accident or incident

b) find out at what stage the accident took place

c) consider all possible causes and the interaction of different factors that led up to the accident, and identify the most probable cause The cause of an accident should never be classified as carelessness. The specific act or omission that caused the accident must be identified.

14.3.2.3 The next stage is to proceed with the follow-up action

a) report on the findings and conclusions

b) formulate preventive measures to avoid recurrence

c) publicise the findings and the remedial actions taken

14.4 Authority's independent incident investigation

14.4.1 In case of fatal / dangerous occurrence the Authority shall also conduct independent investigation. Contractor and his staff shall extend necessary co-operation and testify about the accident.

14.4.2 The contractor shall take every effort to preserve the scene of accident till the Authority completes the investigation.

14.4.3 All persons summoned by the Authority in connection to witness recording shall obey the instructions without delay. Any wilful suppression of information by any person shall be removed from the site immediately and / or punishable as per relevant penalty clause.

15.0 Emergency preparedness plan

15.1 The Contractor shall prepare an Emergency Response Plan for all work sites as a part of the Contractor SHE Plan. The plan shall integrate the emergency response plans of the Contractor and all other subcontractors. The Emergency Response Plan shall detail the Contractor's procedures, including detailed communications arrangements, for dealing with all emergencies that could affect the Site. This include where applicable, injury, sickness, evacuation, fire, chemical spillage, severe weather and rescue.

15.2 The contractor shall ensure that an Emergency Response Plan is prepared to deal with emergencies arising out of:

i) Fire and explosion

ii) Collapse of lifting appliances and transport equipment

iii) Collapse of building, sheds or structure etc.

iv) Gas leakage or spillage of dangerous goods or chemicals

v) Bomb threatening, Criminal or Terrorist attack

vi) Drowning of workers

vii) Landslides getting workers buried floods, Earthquake, storms and other natural calamities.

15.3 Arrangements shall be made for emergency medical treatment and evacuation of the victim in the event of an accident or dangerous incident occurring, the chain of command and the responsible persons of the contractor with their telephone numbers and addresses

for quick communication shall be adequately publicized and conspicuously displayed in the workplace.

15.4 Contractors shall require to tie-up with the hospitals and fire stations located in the neighbourhood for attending to the casualties promptly and emergency vehicle kept on standby duty during the working hours for the purpose.

15.5 Contractor shall conduct an onsite emergency mock drill once in every month for all his workers and his subcontractor's workers.

15.6 It shall be the responsibility of the contractor to keep the Local Law & Order Authorities informed and seek urgent help, as the case may be, so as to mitigate the consequences of an emergency. Prompt communication to NHIDCL, telephonically initially and followed by a written report, shall be made by the contractor.

16.0 Experts / Agencies for SHE services

16.1 Contractors may utilise the services of experts/agencies empanelled under Rule 250 of BOCWR and Rule 297 of DBOCWR for the purpose of training, internal audit and any other SHE services with prior approval of the Authority.

16.2 As an aide to contractors, a list of experts/agencies and the offered service are given in General Instruction NHIDCL/SHE/GI/010/AE/2020 for ready reference. In addition to it if the contractor would like to use any expert/agencies' services for any SHE activities the same can also be allowed provided that they are competent and meet to the general requirements of Authority. In every case prior approval of the Authority is mandatory.

PART – B : SAFETY

17.0 Housekeeping

17.1 Housekeeping is the act of keeping the working environment cleared of all unnecessary waste, thereby providing a first-line of defence against accidents and injuries.

17.2 Contractor shall understand and accept that improper housekeeping is the primary hazard in any construction site and ensure that a high degree of house keeping is always maintained. Indeed "Cleanliness is indeed next to Godliness"

17.3 Housekeeping is the responsibility of all site personnel, and line management commitment shall be demonstrated by the continued efforts of supervising staff towards this activity.

17.4 General House keeping shall be carried out by the contractor and ensured at all times at Work Site, Construction Depot, Batching Plant, Labour Camp, Stores, Offices and toilets/urinals. Towards this the Contractor shall constitute a special group of house keeping personnel as per General Instruction ***NHIDCL/SHE/GI/001/MPR/2020***. This group shall ensure daily cleaning at work sites and surrounding areas and maintain a register as per the approved format by the Authority.

17.5 Adequate time shall be assigned to ensure that good housekeeping is maintained. This shall be carried out by team of housekeeping squad.

17.6 The contractor shall be responsible to provide segregated containers for disposal of debris at required places and regular cleaning of the same.

17.7 Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the surrounding area from excavated soil, rubbish etc, which may cause inconvenience to and endanger the public. The barricade especially those exposed to public shall be aesthetically maintained by regular cleaning and painting as directed by the Authority. These shall be maintained in one line and level.

17.8 The structure dimension of the barricade, material and composition, its colour scheme, NHIDCL logo and other details shall be in accordance with specifications laid down in tender document.

17.9 All stairways, passageways and gangways shall be maintained without any blockages or obstructions. All emergency exits passageways, exits fire doors, break-glass alarm points, fire fighting equipment, first aid stations, and other emergency stations shall be kept clean, unobstructed and in good working order.

17.10 Lumber with protruding nails shall be either bent / removed and properly stacked.

17.11 All surplus earth and debris are removed/disposed off from the working areas to officially designated dumpsites. Trucks carrying sand, earth and any pulverized materials etc. in order to avoid dust or odour impact shall be covered while moving. The tyres of the trucks leaving the site shall be cleaned with water, wherever the possibility of spillage on carriageways meant for regular road traffic exists.

17.12 No parking of trucks/trolleys, cranes and trailers etc. shall be allowed on roads, which may obstruct the traffic movement.

17.13 Roads shall be kept clear and materials like: pipes, steel, sand boulders, concrete, chips and brick etc. shall not be allowed on the roads to obstruct free movement of road traffic.

17.14 Water logging or bentonite spillage on roads shall not be allowed. If bentonite spillage is observed on road endangering the safety of road users, the contractor shall be penalised as per relevant clause.

17.15 Proper and safe stacking of material are of paramount importance at yards, stores and such locations where material would be unloaded for future use. The storage area shall be well laid out with easy access and material stored / stacked in an orderly and safe manner.

17.16 Flammable chemicals / compressed gas cylinders shall be safely stored.

17.17 Unused/surplus cables, steel items and steel scrap lying scattered at different places within the working areas shall be removed to identified locations(s).

17.18 All wooden scrap, empty wooden cable drums and other combustible packing materials, shall be removed from work place to identified location(s).

17.19 Empty cement bags and other packaging material shall be properly stacked and removed.

17.20 The Contractor shall ensure that all his sub-contractors maintain the site reasonably clean through provisions related to house keeping

18.0 Working at Height

18.1 Definitions

18.1.1 "access" and "egress" include ascent and descent.

18.1.2 "fragile surface" means a surface, which would be able to fail if any reasonably foreseeable loading were to be applied to it.

18.1.3 "line" includes rope, chain or webbing

18.1.4 "personal fall protection" means –

(a) a fall prevention, work restraint, work positioning, fall arrest or rescue system, other than a system in which the only safeguards are collective safeguards; or
(b) rope access and positioning techniques;

18.1.5 "work at height" means –

(a) work in any place, including a place at or below ground level;
(b) obtaining access to or egress from such place while at work, except by a staircase in a permanent workplace,

where, if protective measures were not taken, a person could fall a distance liable to cause personal injury;

18.1.6 "work equipment" means any machinery, appliance, apparatus, tool or installation for use at work (whether exclusively or not) and includes
(a) a guard-rail, toe-board, barrier or similar collective means of protection
(b) a working platform
(c) a net, airbag or other collective safe guard for arresting falls.
(d) personal fall protection system
(e) ladders

18.1.7 "working platform"
(a) means any platform used as a place of work or as a means of access to or egress from a place of work;
(b) includes any scaffold, suspended scaffold, cradle, mobile platforms, trestle, gangway, gantry and stairway which is so used.

18.2 Organisation and planning

The contractor shall ensure that work at height is

i) properly planned for any emergencies and rescue

ii) appropriately supervised; and

iii) carried out in a manner, which is reasonably practicable safe.

18.3 The contractor shall ensure that work at height is carried out only when the weather conditions do not jeopardise the health or safety of persons involved in the work.

18.4 Competence

The contractor shall ensure that no person engages in any activity, including organization, planning and supervision, in relation to work at height or work equipment for use in such work unless he is competent to do so or, if being trained, is being supervised by a competent person.

18.5 Avoidance of risks from work at height

The contractor shall ensure that work is not carried out at height where it is reasonably practicable to carry out the work safely otherwise than at height.

18.6 Where work is carried out at height, the contractor shall take suitable and sufficient measures as given below to prevent, so far as is reasonably practicable, any person falling a distance liable to cause personal injury.

(a) his ensuring that the work is carried out

(i) from an existing place of work; or

(ii) (in the case of obtaining access or egress) using an existing means, complying to the requirements as given in ***18.15*** where it is reasonably practicable to carry it out safely and under appropriate ergonomic conditions; and

(b) where it is not reasonably practicable for the work to be carried out in accordance with sub-paragraph (a), his providing sufficient work equipment for preventing, so far as is reasonably practicable, a fall occurring.

18.7 Where the measures taken under clause ***18.6*** do not eliminate the risk of a fall occurring, every contractor shall

(a) so far as is reasonably practicable, provide sufficient work equipment to minimise -

(i) the distance and consequences; or

(ii) where it is not reasonably practicable to minimise the distance, the consequences, of a fall; and

(b) Without prejudice to the generality of clause ***18.4***, provide such additional training and instruction or take other additional suitable and sufficient measures to prevent, so far as is reasonably practicable, any person falling a distance liable to cause personal injury.

18.8 Selection of 'work equipment' for work at height

1) the contractor, in selecting work equipment for use in work at height, shall

a) give collective protection measures priority over personal protection measures; and

b) take account of

i) the working conditions and the risks to the safety of persons at the place where the work equipment is to be used;

ii) in the case of work equipment for access and egress, the distance to be negotiated;

iii) the distance and consequences of a potential fall;

iv) the duration and frequency of use;

v) the need for easy and timely evacuation and rescue in an emergency; and

vi) any additional risk posed by the use, installation or removal of that work equipment or by evacuation and rescue from it;

(2) The contractor shall select work equipment for work at height which:

a) has characteristics including dimensions which:

(i) are appropriate to the nature of the work to be performed and the foreseeable loadings; and

(ii) allow passage without risk; and

b) is in other respects the most suitable work equipment, having regard in particular to the purposes specified in ***18.5*** and ***18.6.***

18.9 Fragile surfaces

18.9.1 The contractor shall ensure that no person at work passes across or near, or working on, from or near, a fragile surface where it is reasonably practicable to carry out work safely and under appropriate ergonomic conditions without his doing so.

18.9.2 Where it is not reasonably practicable to carry out work safely and under appropriate ergonomic conditions without passing across or near, or working on, from or near, a fragile surface, every contractor shall,

(a) ensure, so far as is reasonably practicable, that suitable and sufficient platforms, coverings, guard rails or similar means of support or protection are provided and used so that any foreseeable loading is supported by such supports or borne by such protection;

(b) where a risk of a person at work falling remains despite the measures taken under the preceding provisions of this regulation, take suitable and sufficient measures to minimise the distances and consequences of his fall.

18.9.3 Where any person at work may pass across or near, or work on, from or near, a fragile surface, every contractor shall ensure that

(a) prominent warning notices are so far as is reasonably practicable affixed at the approach to the place where the fragile surface is situated; or

(b) where that is not reasonably practicable, such persons are made aware of it by other means.

18.10 Falling objects

18.10.1 The contractor shall, where necessary to prevent injury to any person, take suitable and sufficient steps to prevent, so far as is reasonably practicable, the fall of any material or object.

18.10.2 Where it is not reasonably practicable to comply with the requirements of ***18.9***, every contractor shall take suitable and sufficient steps to prevent any person being struck by any falling material or object which is liable to cause personal injury.

18.10.3 The contractor shall ensure that no material or object is thrown or tipped from height in circumstances where it is liable to cause injury to any person.

18.10.4 Every Authority shall ensure that materials and objects are stored in such a way as to prevent risk to any person arising from the collapse, overturning or unintended movement of such materials or objects.

18.11 Danger areas

18.11.1 Without prejudice to the preceding requirements of these Regulations, every contractor shall ensure that

(a) where a workplace contains an area in which, owing to the nature of the work, there is a risk of any person at work

i) falling a distance; or

ii) being struck by a falling object,

which is liable to cause personal injury, the workplace is so far as is reasonably practicable equipped with devices preventing unauthorised persons from entering such area; and

(b) such area is clearly indicated.

18.12 Inspection of work equipment

18.12.1 The contractor shall ensure that, where the safety of work equipment depends on how it is installed or assembled, it is not used after installation or assembly in any position unless it has been inspected in that position.

18.12.2 The contractor shall ensure that work equipment exposed to conditions causing deterioration which is liable to result in dangerous situations is inspected

(a) at suitable intervals; and

(b) each time that exceptional circumstances which are liable to jeopardise the safety of the work equipment have occurred,

to ensure that health and safety conditions are maintained and that any deterioration can be detected and remedied in good time.

18.12.3 Without prejudice to paragraph ***18.12.1***, the contractor shall ensure that a working platform

(a) used for construction work; and

(b) from which a person could fall 2 metres or more,

is not used in any position unless it has been inspected in that position or, in the case of a mobile working platform, inspected on the site, within the previous 7 days.

18.12.4 The contractor shall ensure that the reports of all inspections are properly maintained and shown to the Authority as and when required.

18.12.5 In this clause "inspection",

(a) means such visual or more rigorous inspection by a competent person as is appropriate for safety purposes;

(b) includes any testing appropriate for those purposes,

18.13 **Inspection of places of work at height**

18.13.1 The contractor shall so far as is reasonably practicable ensure that the surface and every parapet, permanent rail or other such fall protection measure of every place of work at height are checked on each occasion before the place is used.

18.14 Duties of persons at work

18.14.1 Any workmen employed by the contractor shall report to the supervisor about any defect relating to work at height which he knows is likely to endanger the safety of himself or another person.

18.14.2 Every workmen shall use any work equipment or safety device provided to him for work at height by the contractor, in accordance with

(a) any training in the use of the work equipment or device concerned which have been received by him; and

(b) the instructions respecting that use which have been provided to him by the contractor as per the requirements of the Authority

18.15 Requirements for existing places of work and means of access or egress at height

Every existing place of work or means of access or egress at height shall

(a) be stable and of sufficient strength and rigidity for the purpose for which it is intended to be or is being used;

(b) where applicable, rest on a stable, sufficiently strong surface;

(c) be of sufficient dimensions to permit the safe passage of persons and the safe use of any plant or materials required to be used and to provide a safe working area having regard to the work to be carried out there;

(d) possess suitable and sufficient means for preventing a fall;

(e) possess a surface which has no gap

(i) through which a person could fall;

(ii) through which any material or object could fall and injure a person; or

(iii) giving rise to other risk of injury to any person, unless measures have been taken to protect persons against such risk;

(f) be so constructed and used, and maintained in such condition, as to prevent, so far as is reasonably practicable -

(i) the risk of slipping or tripping; or

(ii) any person being caught between it and any adjacent structure;

(g) where it has moving parts, be prevented by appropriate devices from moving inadvertently during work at height.

18.16 Requirements for guardrails, toe-boards, barriers and similar collective means of protection

i) Unless the context otherwise requires, any reference in this section to means of protection is to a guardrail, toe-board, barrier or similar collective means of protection.

ii) Means of protection shall

(a) be of sufficient dimensions, of sufficient strength and rigidity for the purposes for which they are being used, and otherwise suitable;

(b) be so placed, secured and used as to ensure, so far as is reasonably practicable, that they do not become accidentally displaced; and

(c) be so placed as to prevent, so far as is practicable, the fall of any person, or of any material or object, from any place of work.

iii) In relation to work at height involved in construction work

(a) the top guard-rail or other similar means of protection shall be at least 950 millimetres above the edge from which any person is liable to fall;

(b) toe-boards shall be suitable and sufficient to prevent the fall of any person, or any material or object, from any place of work; and

(c) any intermediate guardrail or similar means of protection shall be positioned so that any gap between it and other means of protection does not exceed 470 millimetres.

iv) Any structure or part of a structure which supports means of protection or to which means of protection are attached shall be of sufficient strength and suitable for the purpose of such support or attachment.

18.17 Requirements for all Working Platforms

i) Every working platforms requires a supporting structure for holding it

ii) Any surface upon which any supporting structure rests shall be stable, of sufficient strength and of suitable composition safely to support the supporting structure, the working platform and any loading intended to be placed on the working platform.

iii). Stability of supporting structure

Any supporting structure shall

(a) be suitable and of sufficient strength and rigidity for the purpose for which it is being used;

(b) in the case of a wheeled structure, be prevented by appropriate devices from moving inadvertently during work at height;

(c) in other cases, be prevented from slipping by secure attachment to the bearing surface or to another structure, provision of an effective anti-slip device or by other means of equivalent effectiveness;

(d) be stable while being erected, used and dismantled; and

(e) when altered or modified, be so altered or modified as to ensure that it remains stable.

(f) Have suitable base plates and properly footed thereby.

iv). Stability of working platforms

A working platform shall

(a) be suitable and of sufficient strength and rigidity for the purpose or purposes for which it is intended to be used or is being used;

(b) be so erected and used as to ensure that its components do not become accidentally displaced so as to endanger any person;

(c) when altered or modified, be so altered or modified as to ensure that it remains stable; and

(d) be dismantled in such a way as to prevent accidental displacement.

v) Safety on working platforms

A working platform shall

(a) be of sufficient dimensions to permit the safe passage of persons and the safe use of any plant or materials required to be used and to provide a safe working area having regard to the work being carried out there;

(b) possess a suitable surface and, in particular, be so constructed that the surface of the working platform has no gap

i) through which a person could fall;

ii) through which any material or object could fall and injure a person; or

iii) giving rise to other risk of injury to any person, unless measures have been taken to protect persons against such risk; and

(c) be so erected and used, and maintained in such condition, as to prevent, so far as is reasonably practicable

i) the risk of slipping or tripping; or

ii) any person being caught between the working platform and any adjacent structure.

vi) Loading

A working platform and any supporting structure shall not be loaded so as to give rise to a risk of collapse or to any deformation, which could affect its safe use.

vii) Additional requirements for scaffolding

Strength and stability calculations for scaffolding shall be carried out unless

(a) a note of the calculations, covering the structural arrangements contemplated, is available; or

(b) it is assembled in conformity with a generally recognised standard configuration.

viii) Depending on the complexity of the scaffolding selected, a competent person shall draw up an assembly, use and dismantling plan. This may be in the form of a standard plan, supplemented by items relating to specific details of the scaffolding in question.

ix) A copy of the plan, including any instructions it may contain, shall be kept available for the use of persons concerned in the assembly, use, dismantling or alteration of scaffolding until it has been dismantled.

x) The dimensions, form and layout of scaffolding decks shall be appropriate to the nature of the work to be performed and suitable for the loads to be carried and permit work and passage in safety.

xi) While a scaffold is not available for use, including during its assembly, dismantling or alteration, it shall be marked with general warning signs in accordance with and be suitably delineated by physical means preventing access to the danger zone.

xii) Scaffolding may be assembled, dismantled or significantly altered only under the supervision of a competent person and by persons who have received appropriate and specific training in the operations envisaged which addresses specific risks which the operations may entail and precautions to be taken, and more particularly in

(a) understanding of the plan for the assembly, dismantling or alteration of the scaffolding concerned;

(b) safety during the assembly, dismantling or alteration of the scaffolding concerned;

(c) measures to prevent the risk of persons, materials or objects falling;

(d) safety measures in the event of changing weather conditions which could adversely affect the safety of the scaffolding concerned;

(e) permissible loadings;

(f) any other risks which the assembly, dismantling or alteration of the scaffolding may entail.

18.18 Requirements for collective safeguards for arresting falls

i) Collective safeguard are a safety net, airbag or other collective safeguard for arresting falls

ii) A safeguard shall be used only if

(a) a risk assessment has demonstrated that the work activity can so far as is reasonably practicable be performed safely while using it and without affecting its effectiveness;

(b) the use of other, safer work equipment is not reasonably practicable; and

(c) a sufficient number of available persons have received adequate training specific to the safeguard, including rescue procedures.

iii) A safeguard shall be suitable and of sufficient strength to arrest safely the fall of any person who is liable to fall.

iv) A safeguard shall

(a) in the case of a safeguard which is designed to be attached, be securely attached to all the required anchors, and the anchors and the means of attachment thereto shall be suitable and of sufficient strength and stability for the purpose of safely supporting the foreseeable loading in arresting any fall and during any subsequent rescue;

(b) in the case of an airbag, landing mat or similar safeguard, be stable; and

(c) in the case of a safeguard, which distorts in arresting a fall, afford sufficient clearance.

v) Suitable and sufficient steps shall be taken to ensure, so far as practicable, that in the event of a fall by any person the safeguard does not itself cause injury to that person.

18.19 Requirements for personal fall protection systems

i) A personal fall protection system shall be used only if

(a) a risk assessment has demonstrated that

(i) the work can so far as is reasonably practicable be performed safely while using that system; and

(ii) the use of other safer work equipment is not reasonably practicable; and

(b) the user and a sufficient number of available persons have received adequate training specific to the operations envisaged, including rescue procedures.

ii) A personal fall protection system shall

(a) be suitable and of sufficient strength for the purposes for which it is being used having regard to the work being carried out and any foreseeable loading;

(b) where necessary, fit the user;

(c) be correctly fitted;

(d) be designed to minimise injury to the user and, where necessary, be adjusted to prevent the user falling or slipping from it, should a fall occur; and

(e) be so designed, installed and used as to prevent unplanned or uncontrolled movement of the user.

iii) A personal fall protection system designed for use with an anchor shall be securely attached to at least one anchor, and each anchor and the means of attachment thereto shall be suitable and of sufficient strength and stability for the purpose of supporting any foreseeable loading.

iv) Suitable and sufficient steps shall be taken to prevent any person falling or slipping from a personal fall protection system.

18.20 Requirements for Ladders

1) Every contractor shall ensure that a ladder is used for work at height only if a risk assessment has demonstrated that the use of more suitable work equipment is not justified because of the low risk and

i) The short duration of use; or

ii) Existing features on site, which he cannot alter.

2) Only metal ladders shall be allowed. Bamboo ladders are prohibited.

3) Any surface upon which a ladder rests shall be stable, firm, of sufficient strength and of suitable composition safely to support the ladder so that its rungs or steps remain horizontal, and any loading intended to be placed on it.

4) A ladder shall be so positioned as to ensure its stability during use

5) A suspended ladder shall be attached in a secure manner and so that, with the exception of a flexible ladder, it cannot be displaced and swinging is prevented.

6) A portable ladder shall be prevented from slipping during use by -

i) securing the stiles at or near their upper or lower ends;

ii) an effective anti-slip or other effective stability device; or

iii) any other arrangement of equivalent effectiveness.

7) A ladder used for access shall be long enough to protrude sufficiently above the place of landing to which it provides access, unless other measures have been taken to ensure a firm handhold.

8) No interlocking or extension ladder shall be used unless its sections are prevented from moving relative to each other while in use.

9) A mobile ladder shall be prevented from moving before it is stepped on.

10) Where a ladder or run of ladders raises a vertical distance of 9 metres or more above its base, there shall, where reasonably practicable, be provided at suitable intervals sufficient safe landing areas or rest platforms.

11) Every ladder shall be used in such a way that

(a) a secure handhold and secure support are always available to the user; and

(b) the user can maintain a safe handhold when carrying a load unless, in the case of a step ladder, the maintenance of a handhold is not practicable when a load is carried, and a risk assessment has demonstrated that the use of a stepladder is justified because of

(i) the low risk; and

(ii) the short duration of use.

19.0 Overhead protection

All contractors shall provide overhead protections as per Rule 41 of BOCWR

i) Overhead protection should be erected along the periphery of every building which is under construction and the building height shall be 15m or above after construction.

ii) Overhead protection shall be minimum 2m wide and the outer edge shall be 150mm higher than the inner edge and an angle not more than 200 to its horizontal sloping into the building.

iii) Overhead protection shall not be erected more than a height of 5m from the base of the building.

iv) Areas of inadvertent hazard of falling of material shall be guarded or barricaded or roped-off thereby by the contractor.

20.0 Slipping, Tripping, Cutting, Drowning and Falling Hazards

(i) As per Rule 42 of BOCWR,

(ii) All places should be free from dust, debris or similar materials.

(iii) Sharp projections or any protruding nails or similar objects shall be suitably guarded or shall even be avoided to make the place safe to work.

(iv) Contractor shall not allow workmen to work or use platforms, scaffolds/passageways or any walkways, which has water, or oil or similar substances spilt and has a slipping hazard, unless it is cleaned off or covered or sanded or saw dusted or make it safe with any suitable material.

(v) When workers are exposed to areas where fall into water is possible, the contractor shall provide suitable and adequate equipment for saving the workers from drowning and rescuing from such hazard. If the Authority considers, the contractor shall provide well-equipped boat or launch, manned with trained personnel at the work place.

i) Open side or opening where worker, equipment, vehicle or lifting appliance may fall at a building or outside shall be guarded suitably except in places of free access by reasons of nature of work.

ii) Suitable safety net shall be provided at places of material / man falling is possible in accordance with national standards.

21.0 Lifting Appliances and Gear

21.1 Lifting appliances means a crane, hoist machinery, derrick, winch, gin pole, sheer legs, jack, hoist drum, slewing machinery, slewing bearing fasteners, loffing machinery sheaves, pulley blocks, hooks or other equipment used for lifting materials, objects or building workers and lifting gears means ropes, chain slings, shackles, hooks, lifting lugs, wire ropes, lifting eyebolts and eyenuts and other accessories of a lifting appliance..

21.2 No machine shall be selected to do any lifting on a specific job until its size and characteristics are considered against:

i) the weights, dimensions and lift radii of the heaviest and largest loads

ii) the maximum lift height, the maximum lift radius and the weight of the loads that must be handled at each

iii) the number and frequency of lifts to be made

iv) how long the crane will be required on site

v) the type of lifting to be done (for example, is precision placement of loads important?

vi) the type of carrier required (this depends on ground conditions and machine capacity In its operating quadrants: capacity is normally greatest over the rear, less over the side, and non-existent over th e front

vii) whether loads will have to be walked or carried

viii) whether loads will have to be suspended for lengthy periods

ix) the site conditions, including the ground where the machine will be set up, access roads and ramps it must travel, space for erection and any obstacles that might impede access or operation

21.3 The contractor shall ensure that a valid certificate of fitness issued as per clause 21.5 is available for all lifting appliances including synchronised mobile jacks, pre-stressing hydraulic jacks, jacks fitted with launching girders etc. and Authority's approval before inducting to the site. Only after obtaining the approval from the Authority any lifting appliances and gear shall be used.

21.4 The laminated photocopies of fitness certificate issued by competent person, the Authority's approval letter, the operators' photo, manufacturer's load chart and competency certificate shall always be either kept in the operator cabin or pasted on the visible surface of the lifting appliances.

21.5 All lifting appliances and loose gears shall be clearly marked for its safe working load and identification by stamping or other suitable means.

21.6 The contractor shall also maintain a register containing a system of identification of all tools and tackles, its date of purchase, safe working load, competent person date of examination etc.

21.7 Test and periodical examination of lifting appliances and gears

21.7.1 All lifting appliances including all parts and gears thereof, whether fixed or movable shall be thoroughly tested and examined by a competent person once at least in every six months or after it has undergone any alterations or repairs liable to affect its strength or stability. Within the validity, if the lifting appliances are shifted to a new site, re-examination by the same competent person for ensuring its safety shall also be done.

21.7.2 Contractors can utilise the services of any competent person as defined in Factories Act, 1948 and approved by Chief Inspector of Factories with the permission of the

Authority.

21.7.3 All alarms and signals like automatic safe load indicators (SLI), boom angle indicators, boom extension indicators, over lift boom alarm, swing alarm, hydraulic safety valves, mechanical radius indicators, load moment indicators etc. shall be periodically examined and maintained always in working condition

21.8 Automatic safe load indicators

21.8.1 As stipulated in Rule 57 of DBOCW Rules, every lifting appliances and gears like cranes, hydras etc, if so constructed that the safe working load may be varied by raising or lowering of the jib or otherwise shall be attached with an automatic indicator of safe working loads approved by Bureau of Indian standards/ International certifying bodies which gives a warning to the operator and arrests further movements of the lifting parts.

21.9 Qualification of operator of lifting appliances and of signaller etc

21.9.1 The contractor shall not employ any person to drive or operate a lifting machine like crane, hydra etc whether driven by mechanical power or otherwise or to give signals to work as a operator of a rigger or derricks unless he

i) is above twenty-one years of age and possesses a valid heavy transport vehicle driving licence as per Motor Vehicle Act and Rules.

ii) is absolutely competent and reliable

iii) possesses the knowledge of the inherent risks involved in the operation of lifting appliances by undergoing a formal training at any institution of national importance acceptable to Authority

iv) is medically examined periodically as specified in schedule VII of BOCW Rules.

21.10 General requirements of appliances

21.10.1 Out-of level

21.10.1.1 One of the most severe effects of being out-of fit level is that side loads develop in the boom. Because of side loads all mobile cranes lose capacity rapidly as the degree of out-of-level increases and therefore

21.10.2 Boom

i) The boom is one of the more critical elements of the crane and must be in perfect condition at all time. No boom section with a bent lattice member shall be allowed

ii) All welds shall be crack and corrosion free

iii) No member of the boom shall be bent

iv) All telescopic boom shall be free from cracks, rust, flaking or cracked paint, bulges, greases or varnishes

21.10.3 The sweep area (work area) of the construction machinery shall be always free from obstructions.

21.10.4 All hydraulic piping and fittings shall be maintained leak proof.

21.10.5 The operator cab shall posses good and safe:

i) structure, windows and windshield wipers

ii) Drivers chair and foot rest

iii) Control handles

iv) Cab instrumentation

v) Telecommunication

vi) Cab out fitting

vii) wind indicator with an adjustable set point shall be in a position representative for the wind on the crane. The indicator shall give continuous information regarding constant speeds and gusts.

21.11 Mandatory rigging requirements

21.11.1 Rigging shall be done under experienced and qualified rigger only.

21.11.2 The primary requirement in rigging shall be to assess the weight of load before attempting any lift.

21.11.3 All hooks shall be fitted with Master Rings having certificate of fitness from the competent person, so that the hooks are subjected to balanced vertical loading only.

21.11.4 Only four legged slings shall be allowed which includes master link (ring), intermediate master link (ring) if necessary, chain / wire rope sling, sling hook or other terminal fitting.

21.11.5 Hand spliced slings up to 32mm diameter shall not be used at site for any lifting purpose.

21.11.6 No load shall be slewed over public areas without stopping the pedestrians and road traffic first.

21.11.7 Requirements of outriggers

i) All outriggers shall be fully extended and at all tyres are clear of the ground

ii) Heavy duty blocking having large bearing area shall be necessary to prevent sinking of floats

21.11.8 All loads shall have tag-lines attached in order to ensure that the load can be controlled at all times.

21.11.9 No close working to any live overhead power line is permitted without the operation of a strict Permit to Work.

21.11.10 Minimum lighting is to be ensured at all lifting operations.

21.12 Failure to do any of the above shall attract penalty from the Authority as per relevant clause

22.0 Launching Operation

22.1 As launching operation is one of the riskiest job, the contractor shall take utmost precaution at all stages like; planning, establishing casing yard, casting segments, transporting segments, fabrication and erection of launching girders, launching of segments, pre-stressing, auto launching of girders and dismantling of launching girders.

22.2 The contractor shall prepare a comprehensive Method Statement for the launching operation, adhering to the SHE conditions laid down in conditions of contract on SHE and project SHE manual. Particular reference shall be made to the provisions on working at height. As the entire process of launching has to be undertaken at an elevated level the safety of workers and the girder is paramount important. The following general guidelines shall be adhered throughout the launching operation.

i) Necessary 'working platforms' and fall protection anchorage arrangement shall be provided in the launching girder itself.

ii) Provisions for mounting light fittings shall also be made available in the launching girder.

iii) The casting yard shall be established ensuring the provision given in clause ***38.0***

iv) The workmen engaged in fabrication of reinforcement, concreting the segment shall be provided with necessary PPEs including compulsory hand protection gloves.

v) Casting and curing of segment shall be undertaken under the direct supervision of the responsible engineer of the contractor.

vi) Trucks with valid registration, licence, safe worthiness certificate, Authority's approval certificate, and pollution under check certificate shall only be used for transport of segments

vii) Drivers engaged for driving these trucks, shall be trained once in 6 months defensive driving.

viii) Drivers shall also have undergone proper medical examination as per relevant clause mentioned under 'Medical Facilities'.

ix) The segments shall rigidly secured to the truck with necessary wooden wedges and necessary red indicators/safety tapes provided so that the vehicle is clearly seen by other road users both in day / night time.

x) Every launching girder shall have a responsible engineer on duty all the time.

xi) All the time from erection to dismantling the area between the two piers wherein launching is in progress shall always be barricaded.

xii) Unloading of segments from trucks, lifting of segments, shifting of segments, gluing shall be done under the direct supervision of the approved engineer of the contractor.

xiii) Auto launching shall be done only after approval from the Authority. After every auto launching the stability of launching girder shall be ensured.

xiv) The vertical deflection of launching girder shall be monitored at all critical stages like with/without loads and after every auto launching.

xv) A register containing all important operational details from erection to dismantling of launching girders shall be maintained and made available to Authority whenever called for.

xvi) Test certificate for all lifting gears including Macalloy bars shall be maintained at a location closer to the launching girder itself so that it can be referred during all inspections.

xvii) Adequate lighting at all time shall be ensured in the entire area of operation.

xviii) Access to drinking water & toilet shall be ensured to all workmen engaged for launching process.

xix) Proper access ladders/stairways shall be maintained for safe ascending / descending of workmen / engineers.

22.3 Non-adherence to any of the clauses mentioned above shall be viewed seriously by the Authority and penalty levied as per relevant clause.

23.0 Construction machinery

23.1 Construction machineries may include dumpers and dump trucks, lift trucks and telescopic handlers piling rigs, vibro hammers, rail welding equipments, mobile elevating work platforms, cranes, tipper lorries, lorry loaders, skip wagons, 360° excavators, 180° backhoe loaders, crawler tractors, scrapers, graders, loading shovels, trenchers, side booms, pavers, planers, chippers, road rollers, locomotives, tankers and bowsers, trailers, hydraulic and mechanical breakers etc.

23.2 Safe worthiness certificate

23.2.1 Every construction equipment shall be in sound mechanical working condition and certified by either competent person under Factories Act or manufacturers' warranty in case of brand new equipments or authorized persons / firms approved by Authority before induction to any site.

23.2.2 Every such certificate shall have the date of purchase, main overhauling undertaken in the past, any accident to the equipment, visual examination details, critical components safety check, list of safety devises and its working condition, manufacturer's

maintenance checklist, past projects wherein the equipments were used etc as its minimum content.

23.3 **Reverse Horns**

23.3.1 All Vehicles shall be fitted with audible reverse alarms and maintained in good working condition. Reversing shall be done only when there is adequate rear view visibility or under the directions of a banksman.

23.4 General operating procedures

i) Drivers entering site shall be instructed to follow the safe system of work adopted on site. These shall be verbal instructions or, preferably, written instructions showing the relevant site rules, the site layout, delivery areas, speed limits, etc.

ii) No passengers shall be carried, unless specific seating has been provided in accordance with the manufacturers recommendations.

iii) Working on gradients beyond any equipments capability shall not be allowed.

iv) Prevention of dumper and dump truck accidents should be managed by providing wheel stops at a sufficient distance from the edges of excavations, spoil heaps, pits, etc.

v) The manufacturer's recommended bucket size must not be exceeded in excavators.

vi) If excavators operating on a gradient which cannot be avoided, it must be ensured that the working cycle is slowed down, that the bucket is not extended too far in the downhill direction, and that travel is undertaken with extreme caution. A large excavator must never be permitted to travel in a confined area, or around people, without a banksman to guide the driver, who should have the excavator attachment close in to the machine, with the bucket just clear of the ground. On wheeled excavators, it is essential that the tyres are in good condition and correctly inflated. If stabilizing devices are fitted, they should be employed when the machine is excavating.

vii) When the front shovel of the 180^0 backhoe loaders is being employed, the backhoe attachment shall be in its "travel" position, with the safety locking device in place.

viii) When operating the backhoe in poor ground conditions, the stabilisers tend to sink into the surface of the ground, reducing stability. Therefore frequent checks shall be made for the stability of the machine. The loading shovel should always be lowered to the ground to stabilise the machine when the backhoe is employed.

ix) The netting operation of the skip wagons should be carried out prior to lifting the skip to reduce the risks of working on the rear platform

x) If a tractor dozer is employed on clearing scrub or felling trees, it shall be provided with adequate driver protection.

xi) When two or more scrapers are working on the same job, a minimum distance of at least 25m shall be kept between them.

xii) Incase of hydraulic breakers, hydraulic rams and hoses shall be in good working condition

23.5 All wood working machines shall be fitted with suitable guards and devices such as top guard, riving knife, push stick, guards for drive belts and chains, and emergency stop switch easily accessible by the operator.

23.6 **Penalty**

23.6.1 If any of the above clauses are not adhered, penalty shall be imposed as per relevant clause depending upon the gravity of the unsafe act and or condition.

24.0 Machine and general area guarding

24.1 The contractor shall ensure at the construction site all motors, cogwheels, chains and friction gearing, flywheels, shafting, dangerous and moving parts of machinery are

securely fenced or legged. The fencing of dangerous part of machinery is not removed while such machinery is in motion or in use.

25.0 Manual lifting and carrying of excessive weight

25.1 The contractor shall ensure at his construction site of a building or other construction work that no building worker lifts by hand or carries overhead or over his back or shoulders any material, article, tool or appliances exceeding in weight as said below as per Rule 38 of BOCWR, Unless aided by another building worker or device.

Person	**Maximum weight in kg**.
Adult man	55
Adult woman	30

25.2 No building worker aided by other building worker shall lift or carry weight higher than or exceeding the sum of total of maximum limits set out for each building worker separately as mentioned in the table above.

26.0 Site Electricity

26.1 Competency of Electrical personnel:

26.1.1 The contractor shall employ qualified and competent electrical personnel as specified in general instruction ***NHIDCL/SHE/GI/001/MPR/2020.***

26.2 Assessment of power

26.2.1 The contractor shall assess the size and location of the electrical loads and the manner in which they vary with time during the currency of the contract.

26.2.2 The contractor shall elaborate as to how the total supply is to be obtained / generated. The details of the source of electricity, earthing requirement, substation / panel boards, distribution system shall be prepared and necessary approval from Authority obtained before proceeding of the execution of the job.

26.2.3 The main contractor shall take consideration, the requirements of the sub / petty contractors' electric power supply and arrive at the capacity of main source of power supply from diesel generators.

26.2.4 As the sub / petty contractors' small capacity generators create more noise and safety hazard, no small capacity diesel generators shall be allowed for whatsoever the type of job to be executed under this contract.

26.2.5 If any unsafe noise making small capacity diesel generators are found used by sub / petty contractors the main contractor shall only be penalised.

26.3 **Work on site**

26.3.1 The contractor shall also submit electrical single line diagram, schematic diagram and the details of the equipment for all temporary electrical installation and these diagrams together with the temporary electrical equipment shall be submitted to the Authority's for necessary approval. Failure to do so shall invite penalty as per relevant clause.

26.4 Strength and capability of electrical equipment

26.4.1 No electrical equipment shall be put into use where its strength and capability may be exceeded in such a way as may give rise to danger.

26.5 Adverse or hazardous environments

26.5.1 Electrical equipment which may reasonably foreseeably be exposed to-

(a) mechanical damage;
(b) the effects of the weather, natural hazards, temperature or pressure;
(c) the effects of wet, dirty, dusty or corrosive conditions; or
(d) any flammable or explosive substance, including dusts, vapours or gases, shall be of such construction or as necessary protected as to prevent, so far as is reasonably practicable, danger arising from such exposure.

26.6 Distribution system:

26.6.1 The contractor shall provide distribution system for control and distribution of electricity from a main AC supply of 50Hz for typical appliances,

i) Fixed plant – 400V 3 phase
ii) Movable plant fed via trailing cable over 3.75 kW – 400 3 phase
iii) Installation in site buildings – 230V single phase
iv) Fixed flood lighting – 230V single phase
v) Portable and hand tools – 115V single phase
vi) Site lighting - 115V single phase
vii) Portable hand lamps – 115V single phase

26.7 Electrical protection circuits

26.7.1 Precautions shall be taken, either by earthing or by other suitable means, to prevent danger arising when any conductor (other than a circuit conductor) which may reasonably foreseeable become charged as a result of either the use of a system, or a fault in a system, becomes so charged. A conductor shall be regarded as earthed when conductors of sufficient strength and current-carrying capability to discharge electrical energy to earth connect it to the general mass of earth.

If a circuit conductor is connected to earth or to any other reference point, nothing which might reasonably be expected to give rise to danger by breaking the electrical continuity or introducing high impedance shall be placed in that conductor unless suitable precautions are taken to prevent that danger.

26.7.2 Appropriate electrical protection shall be provided for all circuits, against over load, short circuit and earth fault current.

26.7.3 The contractor shall provide sufficient ELCBs (maintain sensitivity 30 mA) / RCCBs for all the equipments (including Potable equipments), electrical switchboards, distribution panels etc. to prevent electrical shocks to the workers.

26.7.4 All protection devices shall be capable of interrupting the circuit without damage to any equipments and circuits in case of any fault may occur.

26.7.5 Rating of fuses and circuit breakers used for the protection of circuits should be coordinate with equipment power ratings.

26.7.6 Protection against lightning shall be ensured to all equipment kept in open at sites.

26.8 Cables:

26.8.1 Cables shall be selected after full consideration of the condition to which they shall be exposed and the duties for which they are required. Supply cable up to 3.3 kV shall be in accordance with BS 6346.

26.8.2 For supplies to mobile or transportable equipment where operating of the equipment subjects the cable to flexing, the cable shall conform to any of these codes BS 6007 / BS 6500 / BS 7375.

26.8.3 Flexible cords with a conductor cross sectional area smaller than 1.5 mm^2 shall not be used and insulated flexible cable shall conform to BS 6500 and BS 7375.

26.8.4 Where low voltage cables are to be used, reference shall be made to BS 7375. The

following standards shall also be referred to particularly for under ground cables BS 6346 and BS 6708

26.8.5 Cables buried directly in the ground shall be of a type incorporating armour or metal sheath or both. Such cables shall be marked by cable covers or a suitable marking tape and be buried at a sufficient depth to avoid their being damaged by any disturbance of the ground. Cable routes shall be marked on the plans kept in the site electrical register.

26.8.6 Cabling passing under the walk way and across way for transport and mobile equipment shall be laid in ducts at a minimum depth of 0.6 meters.

26.8.7 Cables that need to cross open areas, or where span of 3m or more are involved, a catenary wire on poles or other supports shall be provided for convenient means of suspension. Minimum height shall be 6 m above ground.

26.8.8 Cables carrying a voltage to earth in excess of 65V other than supply for welding process shall have metal armour or sheath, which has been effectively earthed and monitored by the contractor. In case of flexible and trailing cables such earthed metal sheath and/or armour should be in addition to the earth core in the cable and shall not be used as the protective conductor.

26.8.9 Armoured cables having an over-sheath of polyvinyl chloride (PVC) or an oil resisting and flame retardant compound shall be used whenever there is a risk of mechanical damage occurring

26.9 **Plugs, socket-outlets and couplers:**

26.9.1 The contractor shall ensure plugs, socket-outlets, and couplers available in the construction site as "splash proof" type. The minimum degree of Ingress Protection should be of IP44 in accordance with BS EN 60529.

26.9.2 Only plugs and fittings of the weatherproof type shall be used and they should be colour coded in accordance with the Internationally recognised standards for example as detailed as follows:

(a) 110 volts : Yellow.
(b) 240 volts : Blue.
(c) 415 volts : Red.

26.10 **Connections**

26.10.1 Every joint and connection in a system shall be mechanically and electrically suitable for use to prevent danger. Proper cable connectors as per national/international standards shall only be used to connect cables.

26.10.2 No loose connections or tapped joints shall be allowed any where in the work site, office area, stores and other areas. Penalty as per relevant clause shall be put in case of observation of any tapped joints.

26.11 Portable and hand-held equipments:

26.11.1 The contractor shall ensure the use of double insulated or all-insulated portable electrical hand equipment may be used without earthing (i.e. two core cables), but they shall still be used only on 110V because of the risk of damage to trailing leads.

26.12 Other equipments:

26.12.1 All equipment shall have the provision for major switch/cut-off switch in the equipment itself.

26.12.2 All non-current carrying metal parts of electrical equipment shall be earthed through insulated cable

26.12.3 Isolate exposed high-voltage (over 415 Volts) equipment, such as transformer banks, open switches, and similar equipment with exposed energized parts and prevent unauthorised access.

26.12.4 Approved perimeter markings shall be used to isolate restricted areas from designated

work areas and entryways and shall be erected before work begins and maintained for entire duration of work. Approved perimeter marking shall be installed with either red barrier tape printed with the words "DANGER—HIGH VOLTAGE" or a barrier of yellow or orange synthetic rope, approximately 1 to 1.5 meter above the floor or work surface.

26.13 Work on or near live conductors

26.13.1 No person shall be engaged in any work activity on or so near any live conductor (other than one suitably covered with insulating material so as to prevent danger) that danger may arise unless-

a) it is unreasonable in all the circumstances for it to be dead; and

b) it is reasonable in all the circumstances for him to be at work on or near it while it is live; and

c) suitable precautions (including where necessary the provision of suitable protective equipment) are taken to prevent injury.

26.14 Inspection and Maintenance

26.14.1 All electrical equipment should be permanently numbered and a record kept of the date of issue, date of last inspection and recommended inspection period.

26.14.2 Fixed installations shall be inspected at least at three monthly intervals; routine maintenance being carried out in accordance with equipment manufactures recommendations.

27.0 Lighting:

27.1 The contractor shall provide sufficient site lighting, of the right type and at the right place for it to be properly effective. Lighting ought not to introduce the risk of electric shock. Therefore, 230V supplies should be used for those fittings, which are robustly installed, and well out of reach e.g. flood lighting or high-pressure discharge lamps.

27.2 Selection of Luminaries:

The contractor shall select the luminaries as per the area requirement indicated below:

Type of Lighting	**Area of Requirement**	**Luminaries**
Area Lighting	Workmen and vehicles to move about in safely.	i) Shovel type: non-symmetrical ii) Symmetrical or non-symmetrical tungsten halogen
Beam flood lighting	Concentrated light over an area from a relatively great distance.	i) Portable flood light (Conical beam) ii) Wide angle flood (fan shaped beam) iii) Medium or narrow angle flood (Conical beam)
Dispersive lighting	Lighting for indoor	i) Dispersive (Mercury florescent) ii) Cargo cluster iii) Florescent trough
Walkway lighting	Lighting for stairways, ladder ways, corridors, scaffold access routs, etc.	i) Well glass unit ii) Bulkhead unit (tungsten filament) iii) Bulk head unit (Florescent)
Local lighting	Lighting on sites and fittings are generally accessible to operatives	i) PAR (Parabolic Aluminised Reflector) lamp cluster ii) Festoons (with or without shades) iii) Adjustable florescent work lamp iv) Portable flood lamp (mounted on own cable drum)

27.3 The contractor shall ensure that luminaries should always be placed so that no person is required to work in their own shadow and so that the local light for one person is not

a source of glare for the others. Strongly made clamps should be available for attaching luminaries to poles and other convenient supports.

27.4 Luminaries should be robust, resistant to corrosion and rain proof especially at the point of the cable entry.

27.5 The correct type of lamp for each luminaries should always be used and when lamps need to be replaced if shall be in accordance with the supply voltage.

27.6 Lamp holders not fitted with a lamp should be capped off.

27.7 The contractor shall take every effort to illuminate the work site as per the Authority's requirement illustrated in general instruction ***NHIDCL/SHE/GI/0011/ILL/2020***.

28.0 Hand Tools and Power Tools

28.1 General

28.1.1 The contractor is wholly responsible for the safe condition of tools and equipment used by his employees and that of his sub-contractors.

28.1.2 Use of short / damaged hand tools shall be avoided and the contractor shall ensure all his hand tools used at his worksite are safe to work with or stored and shall also train his employees (including his sub-contractors) for proper use thereby.

28.1.3 All hand tools and power tools shall be duly inspected before use for safe operation.

28.1.4 All hand tools and power tools shall have sufficient grip and the design specification on par with national/international standards on anthropometrics.

28.2 Hand tools

28.2.1 Hand tools shall include saws, chisels, axes and hatches, hammers, hand planes, screw drivers, crow bars, nail pullers.

28.2.2 The contractor shall ensure that,

i) For crosscutting of hardwood, saws with larger teeth points (no. of points per inch) shall be preferred to avoid the saw jumping out of the job.

ii) Mushroom headed chisels shall not be used in the worksite where the fragments of the head may cause injury.

iii) Unless hatchet has a striking face, it shall be used as a hammer.

iv) Only knives of retractable blades shall be used in the worksite.

v) No screwdrivers shall be used for scraping, chiselling or punching holes.

vi) A pilot hole shall always be driven before driving a screw.

vii) Wherever necessary, usage of proper PPEs shall be used by his employees.

28.3 Power tools

28.3.1 Power tools include drills, planes, routers, saws, jackhammers, grinders, sprayers, chipping hammers, air nozzles and drills.

28.3.2 The contractor shall ensure that

i) Electric tools are properly grounded or / and double insulated.

ii) GFCIs/ RCCBs shall be used with all portable electric tool operated especially outdoors or in wet condition.

iii) Before making any adjustments or changing attachments, his workers shall disconnect the tool from the power source.

iv) When operating in confined spaces or for prolonged periods, hearing protection shall be required. The same shall also apply to working with equipments, which gives out more noise as mentioned in clause ***43.0*** of this contract document.

v) Tool is held firmly and the material is properly secured before turning on the tool.

vi) All drills shall have suitable attachments respective of the operations and powerful for ease of operation.

vii) When any work / operation need to be performed repeatedly or continuously, tools specifically designed for that work shall be used. The same is applicable to detachable tool bit also.

viii) Size of the drill shall be determined by the maximum opening of the chuck n case of drill bit.

ix) Attachments such as speed reducing screwdrivers and buffers shall be provided to prevent fatigue and undue muscle strain to his workers.

x) Stock should be clamped or otherwise secured firmly to prevent it from moving.

xi) Workers shall never stand on the top of the ladder to drill holes in walls / ceilings, which can be hazardous, instead standing on the fourth or fifth rung shall be recommended.

xii) Electric plane shall not be operated with loose clothing or long scarf or open jacket.

xiii) Safety guards used on right angle head or vertical portable grinders must cover a minimum of 180^0 of the wheel and the spindle / wheel specifications shall be checked.

xiv) All power tools / hand tools shall have guards at their nip points.

xv) Low profile safety chain shall be used in case of wood working machines and the saw shall run at high rpm when cutting and also correct chain tension shall be ensured to avoid "kickback".

xvi) Leather aprons and gloves shall be used as an additional personal protection auxiliary to withstand kickback.

xvii) Push sticks shall be provided and properly used to hold the job down on the table while the heels moves the stock forward and thus preventing kickbacks.

xviii) Air pressure is set at a suitable level for air actuated tool or equipment being used. Before changing or adjusting pneumatic tools, air pressure shall be turned off.

xix) Only trained employees shall use explosive actuated tools and the tool shall also be unloaded when not in use.

xx) Usage of such explosive actuated tools shall be avoided in case of places where explosive/flammable vapours or gases may be present.

xxi) Explosive actuated tools and their explosives shall be stored separately and be taken out and loaded only before the time of immediate use.

xxii) Misfired cartridges of explosive actuated tools must be placed in a container of water and be removed safely from the project.

xxiii) No worker shall point any power operated / hand tool to any other person especially during loading / unloading.

29.0 Welding, Gouging and Cutting

29.1 Gas cylinders in use shall be kept upright on a custom-built stand or trolley fitted with a bracket to accommodate the hoses and equipment or otherwise secured. The metal cap shall be kept in place to protect the valve when the cylinder is not connected for use.

29.2 Hose clamp or clip shall be used to connect hoses firmly in both sides of cylinders and torches.

29.3 All gas cylinders shall be fixed with pressure regulator and dial gauges

29.4 Non-return valve and Flashback arrester shall be fixed at both end of cylinder and torch.

29.5 Domestic LPG cylinders shall not be used for Gas welding and Cutting purpose.

29.6 DCP or CO_2 type Fire Extinguisher not less than 5 kg shall be fixed at or near to welding process zone in an easily accessible location. Fire Extinguisher should confirm to IS 2190: 1992.

29.7 Use firewatchers if there is a possibility of ignition unobserved by the operator (e.g. on the other side of bulkheads).

29.8 Oxygen cylinders and flammable gas cylinders shall be stored separately, at least 6.6 meters (20 feet) apart or separated by a fire proof, 1.6 meters (5 feet) high partition. Flammable substances shall not be stored within 50 feet of cylinder storage areas.

29.9 Transformer used for electrical arc welding shall be fixed with Ammeter and Voltmeter and also fixed with separate main power switch.

29.10 Welding grounds and returns should be securely attached to the work by cable lugs, by clamps in the case of stranded conductors, or by bolts for strip conductors. The ground cable will not be attached to equipment or existing installations or apparatus.

29.11 Use a low voltage open circuit relay device if welding with alternating current in constricted or damp places.

29.12 Take precautions against the risk of increased fume hazards when welding with chrome containing fluxed consumables or high current metal inert gas (MIG) or tungsten inert gas (TIG) processes.

29.13 Avoid being in contact with water or wet floors when welding. Use duckboards or rubber protection.

29.14 All electrical installations shall meet the IS: 5571: 1997 and NFPA 70 for gas cylinder storage area and other hazardous areas.

29.15 The current for Electric arc welding shall not exceed 300 A on a hand welding operation.

30.0 Dangerous and harmful environment

As per BOCWR Rule 40,

i) When internal combustion engines are to be used into a confined space or excavation or tunnel or any other workplace where neither natural or artificial ventilation system is inadequate to keep carbon monoxide below 50ppm, exposure of building workers shall be avoided unless suitable measures are taken and provided by the contractor.

ii) No worker shall be allowed into any confined space or tank or trench or excavation wherein there is given off any dust, fumes / vapours or other impurities which is likely to be injurious or offensive, explosive or poisonous or noxious or gaseous material or other harmful articles unless steps are carried out by the contractor and certified by the responsible person to be safe.

31.0 Fire prevention, protection and fighting system

31.1 The contractor shall ensure that construction site is provided with fire extinguishing equipment sufficient to extinguish any probable fire at construction site. An adequate water supply is provided at ample pressure as per national standard.

31.2 Recharging of fire extinguishers and their proper maintenance should be ensured and as a minimum should meet Indian National Standards

31.3 All drivers of vehicles, foreman, supervisors and managers shall be trained on operating the fire extinguishers and fire fighting equipment.

31.4 The contractor shall also give consideration to the provision of adequate fire fighting arrangements within the underground and tunnelling operations including the provision of Fire Service compatible hose connections and emergency lighting

31.5 As per the DBOCW Rules 2002, Rule 63(a)(vii), all lifting appliances' driver cabin should be provided with a suitable portable fire extinguisher.

31.6 Combustible scrap and other construction debris should be disposed off site on a regular basis. If scrap is to be burnt on site, the burning site should be specified and located at a distance no less than 12 metres from any construction work or any other combustible material.

31.7 Every fire, including those extinguished by contractor personnel, shall be reported to the Authority representatives.

31.8 Emergency plans and Fire Evacuation plans shall be prepared and issued. Mock drills should be held on a regular basis to ensure the effectiveness of the arrangements and as a part of the programme, the Telephone Number of the local fire brigade should be prominently displayed near each telephone on site.

32.0 Corrosive substances

32.1 As per BOCWR Rule 44, corrosive substances including alkalis and acids shall be stored and used by a person dealing with such substances at a building / construction site in a manner that it does not endanger the building worker and suitable PPE shall be provided by the contractor to the worker during such handling and work. In case of spillage of such substances on building worker, the contractor shall take immediate remedial measures.

33.0 Demolition

33.1 The Contractor shall ensure that

i) all demolition works be carried out in a controlled manner under the management of experienced and competent supervision.

ii) the concerned department of the Government or local authority be informed and permission obtained wherever required. Media shall also be informed regarding this concern.

iii) all glass or similar materials or articles in exterior openings are removed before commencing any demolition work and all water, steam, electric, gas and other similar supply lines are put-off and such lines so located or capped with substantial coverings so as to protect it from damage and to afford safety to the building workers and public..

iv) examine the walls of all structures adjacent to the structure to be demolished to determine thickness, method of support to such adjacent structures

v) no demolishing work be performed if the adjacent structure seems to be unsafe unless and until remedial measures life sheet piling, shoring, bracing or similar means be ensured for safety and stability for adjacent structure from collapsing.

vi) debris / bricks and other materials or articles shall be removed by means of

a) chutes
b) buckets or hoists
c) through openings through floors or
d) any other safe means

vii) no person other than building workers or other persons essential to the operation of demolition work shall be permitted to enter a zone of demolition and the area be provided with substantial barricades.

34.0 Excavation and Tunnelling:

34.1 Excavation

34.1.1 The contractor shall ensure

i) where any construction building worker engaged in excavation is exposed to hazard of falling or sliding material or article from any bank or side of such excavation which is more than one 1.5 m above his footing, such worker is protected by adequate piling and bracing against such bank or side.

ii) where banks of an excavation are undercut, adequate shoring is provided to support the material or article overhanging such bank.

iii) excavated material is not stored at least 0.65 m from the edge of an open excavation or trench and banks of such excavation or trench are stripped of loose rocks and the banks of such excavation or trench are stripped of loose rocks and other materials which may slide, roll or fall upon a construction building worker working below such bank

iv) metal ladders and staircases or ramps are provided, as the case may be, for safe access to and egress from excavation where, the depth of such excavation exceeds 1.5 m and such ladders, staircases or ramps comply with the IS 3696 Part 1&2 and other relevant national standards.

v) trench and excavation is protected against falling of a person by suitable measures if the depth of such trench or excavation exceeds 1.5 m and such protection is an improved protection in accordance with the design and drawing of a professional engineer, where such depth exceeds 4m.

34.2 Tunnelling

34.2.1 The contractor shall inform in writing to the Director General within 30 days, prior to the commencement of any tunnelling work.

34.2.2 The contractor shall appoint a responsible person for safe operation for tunnelling work as per Rule 121 & 125 of BOCWR.

34.2.3 The contractor shall ensure

i) every compressed air system in a tunnel is provided with emergency power supply for maintained continued supply of compressed air as per Rule 155 of BOCWR

ii) watertight bulkhead doors are installed at the entrance of a tunnel to prevent flooding.

iii) reliable and effective means of communication such as telephone or walkie-talkie are provided and maintained for arranging better effective communication at an excavation or tunnelling work as per Rule 136 of BOCWR.

iv) all portable electrical hand tools and inspection lamp used in under ground and confined space at an excavation or tunnelling work is operated at a voltage not exceeding 24V.

v) only flame proof equipment of appropriate type as per IS:5571:2000 and or other relevant national standard is used inside the tunnel

vi) petrol or LPG of any other flammable substances are not used, stored inside the tunnel except with prior approval from Authority, and also no oxy-acetylene gas is used in a compressed air environment in excavation or tunnelling

vii) adequate number of water outlets provided for fire fighting purpose, an audible fire alarm and adequate number and types of fire extinguishers are provided and maintained.

viii) temperature in any working chamber in an excavation or tunnelling work where workers employed does not exceed 29°C as per Rule 165 of BOCWR.

ix) all working areas in a free air tunnel are provided with ventilation system as approved by the Director General and the fresh air supplied in such tunnel is not less than 6 m^3/ min for each worker employed in tunnel as per Rule 153 of BOCWR.

34.3 Warning signs and notices:

34.3.1 The contractor shall ensure that

i) suitable warning signs or notices, required for the safety of building workers carrying out the work of an excavation or tunnelling, shall be displayed or erected at conspicuous places in Hindi and in a language understood by majority of such building workers at such building such excavation or tunnelling work

ii) such warning signs and notices with regard to compressed air working shall include

a) the danger involved in such compressed air work

b) fire and explosion hazard

c) the emergency procedures for rescue from such danger or hazards.

35.0 Work Permit system

35.1 The Contractor shall develop a Work Permit system, which is a formal written system used to control certain types of work that are potentially hazardous. A work permit is a document, which specifies the work to be done, and the precautions to be taken. Work Permits form an essential part of safe systems of work for many construction activities. They allow work to start only after safe procedures have been defined and they provide a clear record that all foreseeable hazards have been considered. Permits to Work are usually required in high-risk areas as identified by the Risk Assessments.

35.2 A permit is needed when construction work can only be carried out if normal safeguards are dropped or when new hazards are introduced by the work. Examples of high-risk activities include but are not limited to:

i) Entry into confined spaces
ii) Work in close proximity to overhead power lines and telecommunication cables.
iii) Hot work.
iv) To dig—where underground services may be located.
v) Work with heavy moving machinery.
vi) Working on electrical equipment
vii) Work with radioactive isotopes.
viii) Heavy lifting operations and lifting operations closer to live power line

35.3 The permit-to-work system should be fully documented, laying down:

i) How the system works;
ii) The jobs it is to be used for;
iii) The responsibilities and training of those involved; and
iv) How to check its operation;

35.4 A Work Permit authorisation form shall be completed with the maximum duration period not exceeding 12 hours.

35.5 A copy of each Permit To Work shall be displayed, during its validity, in a conspicuous location in close proximity to the actual works location to which it applies.

36.0 Traffic Management

36.1 The basic objective of the following guidelines is to lay down procedures to be adopted by contractor to ensure the safe and efficient movement of traffic and also to ensure the safety of workmen at construction sites.

36.2 All construction workers should be provided with high visibility jackets with reflective tapes as most of viaduct /tunnelling and station works or either above or under right-of-way. The conspicuity of workmen at all times shall be increased so as to protect from speeding vehicular traffic.

36.3 The guiding principles to be adopted for safety in construction zone are to

i) Warn the road user clearly and sufficiently in advance.

ii) Provide safe and clearly marked lanes for guiding road users.

iii) Provide safe and clearly marked buffer and work zones

iv) Provide adequate measures that control driver behaviour through construction zones.

36.4 Legal permission

36.4.1 In all cases, the contractor shall employ proper precautions. Wherever operations undertaken are likely to interfere with public traffic, specific traffic management plans shall be drawn up and implemented by the contractor in consultation with the approval of local police authorities and/or the concerned metropolitan/civil authorities as the case may be.

36.4.2 Such traffic management plans shall include provision for traffic diversion and selection of alternative routes for transport of equipment. If necessary, the contractor shall carry out road widening before commencement of works to accommodate the extra load

36.5 The primary traffic control devices used in work zones shall include signs, delineators, barricades, cones, pylons, pavement markings and flashing lights.

36.6 The road construction and maintenance signs which fall into the same three major categories as do other traffic signs, that are Regulatory Signs, Warning Signs and Direction (or guidelines) Signs shall only be used. The IRC: 67 (Code of Practice for Road Signs) provide a list of traffic signs. The size, colours and placement of sign shall confirm to IRC: 67.

36.7 Regulatory signs

36.7.1 Regulatory signs impose legal restriction on all traffic. It is essential, therefore, that they are used only after consulting the local police and traffic authorities.

36.8 Warning signs

36.8.1 Warning signs in the traffic control zone shall be utilised to warn the drivers of specific hazards that may be encountered.

36.8.2 The contractor shall place detour signage at strategic locations and install appropriate warning signs. In order to minimize disruption of access to residences and business, the contractor shall maintain at least one entrance to a property where multiple entrances exist.

36.8.3 A warning sign as given in general instruction ***NHIDCL/SHE/GI/012/WS/2020*** shall be installed an at all secondary road which merges with the primary road where the construction work is in progress at sufficient distance before it merges with the primary road so as to alert the road users regarding the 'NHIDCL Work in Progress'.

36.8.4 Materials hanging over / protruded from the chassis / body of any vehicle especially during material handling shall be indicated by red indicator (red light/flag) to indicate the caution to the road users.

36.9 Delineators

The delineators are the elements of a total system of traffic control and have two distinct purposes:

i) To delineate and guide the driver to and along a safe path

ii) As a taper to move traffic from one lane to another.

36.9.1 These channelizing devices such as cones, traffic cylinders, tapes and drums shall be placed in or adjacent to the roadway to control the flow of traffic. These should normally be retro-reflectors complying to IRC: 79 - Recommended Practice for Road Delineators.

36.9.2 Traffic cones and cylinders

36.9.2.1 Traffic cones of 500mm, 750mm and 1000mm high and 300mm to 500mm in diameter or in square shape at base and are often made of plastic or rubber and normally have retro-reflective red and white band shall be used wherever required.

36.9.3 Drums

36.9.3.1 Drums about 800mm to 1000mm high and 300mm in diameter can be used either as channelizing or warning devices. These are highly visible, give the appearance of being formidable objects and therefore command the respect of drivers.

36.9.4 Barricades

36.9.4.1 Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the working area from the risk of accidents due to speedy vehicular movement. Same the way barricades protect the road users from the danger due to construction equipment and other temporary structures.

36.9.4.2 The structure dimension of the barricade, material and composition, its colour scheme, NHIDCL logo and other details shall be in accordance with specifications laid down in tender document.

36.9.4.3 All barricades shall be erected as per the design requirements of the Authority, numbered, painted and maintained in good condition and also Barricade in-charge maintains a barricade register in site.

36.9.4.4 All barricades shall be conspicuously seen in the dark/night time by the road users so that no vehicle hits the barricade. Conspicuity shall be ensured by affixing retro reflective stripes of required size and shape at appropriate angle at the bottom and middle portion of the barricade at a minimum gap of 1000mm. In addition minimum one red light or red light blinker should be placed at the top of each barricade.

36.9.5 The contractor shall ensure that all his construction vehicles plying on public roads (like dump trucks, trailers, etc.) have proper license to ply on public roads from the State Transport Authority. Drivers holding proper valid license as per the requirements of Motor Vehicles Act shall drive these vehicles

36.9.6 The contractor shall not undertake loading and unloading at carriageways obstructing the free flow of vehicular traffic and encroachment of existing roads by the contractor applying the excuse of work execution.

36.9.7 **Tow away vehicle**

36.9.7.1 The contractor shall make arrangements keeping toe away van / manpower to tow away any breakdown vehicle in the traffic flow without loosing any time at his cost.

36.9.8 **Cleaning of roads**

36.9.8.1 The contractor shall ensure the cleanliness of roads and footpaths by deploying proper manpower for the same. The contractor shall have to ensure proper brooming, cleaning washing of roads and footpaths on all the time throughout the entire stretch till the currency of the contract including disposal of sweepage.

37.0 Work to adjacent railways

37.1 Whenever work is to be conducted in close proximity to the live railways then the following measures shall need to be addressed:

(a) The rules provided for in the Railway's manual shall be followed.

(b) No persons are allowed to encroach onto the railway unless specific authority has been given by the owner.

(c) Adequate protection in accordance with the railway owner's requirements shall be followed. (Provision of Block Inspectors, Flagmen and Lookouts)

(d) All persons shall wear high visibility clothing at all times.

(e) Any induction training requirements of the railways shall be strictly observed

38.0 Batching Plant / Casting Yard

i) The batching plant / casting yard shall be effectively planned for smooth flow of unloading and stacking the aggregates reinforcements and cement, batching plant, transport of concrete, casting the segment, stacking the segment and loading the segments to the trucks. As far as possible the conflicts should be avoided.

ii) The batching plant / casting yard shall be barricaded and made as a compulsory PPE zone

iii) If in case of material unloading area is not maintainable as PPE zone, the same shall be segregated properly and made as a non-PPE zone with appropriate barrications.

iv) Electrical system shall also be suitably planned so that location of diesel generator, if any, location of DBs, routing of cables and positioning of area lighting poles/masts does not infringe on any other utility and pose danger.

v) Drainage shall be effectively provided and waste water shall be disposed after proper treatment

vi) Time office, canteen, drinking water, toilet and rest place shall be suitably located for the easy access to workers. All the facilities shall be properly cleaned and maintained during the entire period of operation.

vii) Manual handling of cement shall be avoided to a larger extent. Whenever it is absolutely necessary the workmen shall be given full body protection, hand protection and respiratory protection as a basic measure of ensuring better health.

viii) The PPEs provided to cement handling workmen shall conform to international standards.

ix) Access roads and internal circulation roads shall be well laid and maintained properly at all time.

x) Non-adherence to any of the above provision shall be penalised as per relevant penalty clause.

39.0 Personal Protective Equipments (PPEs)

39.1 The contractor shall provide required PPEs to workmen to protect against safety and / or health hazards. Primarily PPEs are required for the following protection

i) Head Protection (Safety helmets)

ii) Foot Protection (Safety footwear, Gumboot, etc)
iii) Body Protection (High visibility clothing (waistcoat/jacket), Apron, etc)
iv) Personal fall protection (Full body harness, Rope-grap fall arrester, etc)
v) Eye Protection (Goggles, Welders glasses, etc)
vi) Hand Protection (Gloves, Finger coats, etc)
vii) Respiratory Protection. (Nose mask, SCBAs, etc)
viii) Hearing Protection (Ear plugs, Ear muffs, etc)

39.2 The PPEs and safety appliances provided by the contractor shall be of the standard as prescribed by Bureau of Indian Standards (BIS). If materials conforming to BIS standards are not available, the contractor as approved by the Authority shall procure PPE and safety appliances.

39.3 All construction workers should be provided with high visibility jackets with reflective tapes confirming to the requirement specified under BS EN 471: 1994 as most of viaduct /tunnelling and station works are executed either above or under right-of-way. The conspicuity of workmen at all times shall be increased so as to protect them from speeding vehicular traffic.

39.4 The contractor shall provide safety helmet, safety shoe and high visibility clothing for all employees including workmen, traffic marshal and other employees who are engaged for any work under this contract as per the following requirement.

All employees of the Contractor including workmen	**Traffic marshals**
i) Hard hat with company Logo ii) Safety boots iii) Hi-visibility **waistcoat** covering upper body and meeting the following requirements as per BS EN 471:1994: a) Background in fluorescent orange-red in colour b) Two vertical green strips of 5cm wide on front side, covering the torso at least 500 cm^2 c) Two diagonal strips of 5 cm wide on back in an 'X' pattern covering at least 570cm^2 d) Horizontal strips not less than 5cm wide running around the bottom of the vertical strip in front and 'X' pattern at back. e) The bottom strip shall be at a distance of 5cm from the bottom of the vest. f) Strips must be retro reflective and fluorescent g) Waistcoat shall have a side adjustable fit and a side and front tear-away feature on vests made of nylon.	i) Hard hat with reflective tape ii) Safety boots iii) Hi-visibility **jacket** covering upper body and meeting the following requirements as per BS EN 471:1994 : a) Background in fluorescent orange-red in colour b) Jackets with full-length sleeves with two bands of retro reflective material, which shall be placed at the same height on the garment as those of the torso. The upper band shall encircle the upper part of the sleeves between the elbow and the shoulder; the bottom of the lower band shall not be less than 5cm from the bottom of the sleeve. c) Two vertical green strips of 5cm wide on front side, covering the torso at least 500 cm^2 d) Two diagonal strips of 5 cm wide on back in an 'X' pattern covering at least 570cm^2 e) Horizontal strips not less than 5cm wide running around the bottom of the vertical strip in front and 'X' pattern at back. f) The bottom strip shall be at a distance of 5cm from the bottom of the vest.

	g) Strips must be retro reflective and fluorescent.

39.4.1 **Colour coding for helmets**

Safety Helmet Colour Code(Every Helmet should have the LOGO* affixed /painted)	Person to use
White	Authority (NHIDCL) and Authority Engineer's staffs
Grey	All Designers, Architect, Consultants, etc.
Violet	Main Contractors (Engineers / Supervisors)
Blue	All Sub-contractors (Engineers / Supervisors)
Red	Electricians (Both Contractor and Sub-contractor)
Green	Safety Professionals (Both Contractor and Sub-contactor)
Orange	Security Guards / Traffic marshals
Yellow	All workmen
White (with "VISITOR" sticker)	Visitors

Note: LOGO*

1. Logo shall have its outer dimension 2"X2" and shall be conspicuous
2. Logo shall be either painted or affixed
3. No words shall come either on Top / Bottom of Logo

Logo of the corresponding main contracting company for their employees and sub-contracting company for their employees shall only be used.

39.5 In addition to the above any other PPE required for any specific jobs like, welding and cutting, working at height, tunnelling etc shall also be provided to all workmen and also ensure that all workmen use the PPEs properly while on the job.

39.6 The contractor shall not pay any cash amount in lieu of PPE to the workers/sub-contractors and expect them to buy and use during work.

39.7 The contractor shall at all time maintain a minimum of 10% spare PPEs and safety appliances and properly record and show to the Authority during the inspections. Failing to do so shall invite appropriate penalty as per the provisions of the contract.

39.8 It is always the duty of the contractor to provide required PPEs for all visitors. Towards this required quantity of PPEs shall be kept always at the security post.

40.0 Visitors to site

40.1 No visitor is allowed to enter the site without the permission of the Authority. All authorised visitors should report at the site office. Contractor shall provide visitor's helmet (White helmet with visitor sticker) and other PPEs like Safety Shoe, reflective jacket, respiratory protection etc. as per requirement of the site.

40.2 All Visitors shall be accompanied at all times by a responsible member of the site personnel.

40.3 The contractor shall be fully responsible for all visitors' safety and health within the site.

PART – C: OCCUPATIONAL HEALTH AND WELFARE

41.0 Physical fitness of workmen

41.1 The contractor shall ensure that his employees/workmen subject themselves to such medical examination as required under the law or under the contract provision and keep a record of the same.

41.2 The contractor shall not permit any employee/workmen to enter the work area under the influence of alcohol or any drugs.

42.0 Medical Facilities

42.1 Medical Examination

42.1.1 The contractor shall arrange a medical examination of all his employees including his sub-contractor employees employed as drivers, operators of lifting appliances and transport equipment before employing, after illness or injury, if it appears that the illness or injury might have affected his fitness and, thereafter, once in every two years up to the age of 40 and once in a year, thereafter.

i) The Contractor shall maintain the confidential records of medical examination of all his employees.

ii) No building or other construction worker is charged for the medical examination and the cost of such examination is borne by contractor employing such building worker.

iii) The medical examination shall include: -

Full medical and occupational history.

a) Clinical examination with particular reference to

i) General Physique;

ii) Vision: - Total visual performance using standard orthorator like Titmus Vision Tester should be estimated and suitability for placement ascertained in accordance with the prescribed job standards.

iii) Hearing: - Persons with normal must be able to hear a forced whisper at twenty-four feet. Persons using hearing aids must be able to hear a warning shout under noisy working conditions.

iv) Breathing: - Peak flow rate using standard peak flow meter and the average peak flow rate determined out of these readings of the test performed. The results recorded at pre-placement medical examination could be used as a standard for the same individual at the same altitude for reference during subsequent examination.

v) Upper Limbs: - Adequate arm function and grip

vi) Spine: - Adequately flexible for the job concerned.

vii) Lower Limbs: - Adequate leg and foot concerned.

viii) General: - Mental alertness and stability with good eye, hand and foot coordination.

c) Any other tests which the examining doctor considers necessary

42.1.2. If the contractor fails to get the medical examination conducted as mentioned above, the Authority will have the right to get the same conducted by through an agency with intimation to the contractor and deduct the cost and overhead charges.

42.2 **Occupational Health Centre**

42.2.1 The contractor shall ensure at a construction site an occupational health centre, mobile or static is provided and maintained in good order. Services and facilities as per the scale lay down in Schedule X of BOCWR. A construction medical officer appointed in an occupational health centre possess the qualification as laid down in Schedule XI of BOCWR.

42.3 **Ambulance van and room**

42.3.1 The contractor shall ensure at a construction site of a building or other construction work that an ambulance van and room are provided at such construction site or an arrangement is made with a nearby hospital for providing such ambulance van for transportation of serious cases of accident or sickness of workers to hospital promptly and such ambulance van and room are maintained in good repair and is equipped with standard facilities specified in Schedule IV and Schedule V of BOCWR.

42.4 **First-aid boxes**

42.4.1 The contractor shall ensure at a construction site one First-aid box for 100 workers provided and maintained for providing First-aid to the building workers. Every First-aid box is distinctly marked "First-aid" and is equipped with the articles specified in Schedule III of BOCWR.

42.5 **HIV/ AIDS/ COVID-19 prevention and control**

42.5.1 The contractor shall adopt the Authority's Policy on "HIV / AIDS/ COVID-19 Prevention and Control for Workmen Engaged by Contractors" and the copy of the policy is given in Attachment No.: 4.

42.5.2 The Authority will engage a professional agency for implementing the guidelines laid down in the policy and communicate to the contractor.

42.5.3 The Contractor shall extend necessary support to the appointed agency by deputing the workmen to attend the awareness creation programmes.

42.5.4 The contractor shall also extend necessary organizational support to the appointed agency for the effective implementation of the Authority's workplace policy on HIV/AIDS/COVID-19 for workmen of the Contractors.

42.5.5 As laid down in the policy the contractor shall identify peer educators (1 for every 100 workers) and refer them for professional training to the Authority's appointed agency for the purpose.

42.5.6 The peer educators on completion of the training shall serve as the focal point for any information, education and awareness campaign among the workmen throughout the contract period.

42.5.7 The peer educators will be paid a monthly honorarium as fixed by the Authority for rendering his services in addition to his regular duty.

42.5.8 The total number of peer educators (1 for 100 workers) shall always be maintained by the contractor.

42.5.9 In case if these peer educators leave the contractor by creating vacancy, then the contractor at his own expense train the new replacement peer educator from the Authority's appointed agency for the purpose.

42.5.10 It is suggested to the contractor that due care should be taken to select the peer educators from among the group of workmen so that they remain with the contractor throughout the contract period.

42.6 Prevention of mosquito breeding

42.6.1 Measures shall be taken to prevent breeding at site. The measures to be taken shall include:

i) Empty cans, oil drums, packing and other receptacles, which may retain water shall be deposited at a central collection point and shall be removed from the site regularly.

ii) Still waters shall be treated at least once every week with oil in order to prevent mosquito breeding.

iii) Contractor's equipment and other items on the site, which may retain water, shall be stored, covered or treated in such a manner that water could not be retained.

iv) Water storage tanks shall be provided.

42.6.2 Posters in both Hindi and English, which draw attention to the dangers of permitting mosquito breeding, shall be displayed prominently on the site.

42.6.3 The contractor at periodic interval shall arrange to prevent mosquito breeding by fumigation / spraying of insecticides. Most effective insecticides shall include SOLFAC WP 10 or Baytex, The Ideal Larvicide etc.

42.7 Alcohol and drugs

42.7.1 The contractor shall ensure at all times that no employee is working under the influence of alcohol / drugs which are punishable under Govt. regulations.

42.7.2 Smoking at public worksites by any employee is also prohibited as per Govt. regulations.

43.0 Noise

43.1 The Contractor shall consider noise as an environmental constraint in his design, planning and execution of the Works and provide demonstrable evidence of the same on Authority's request. The Contractor shall, at his own expense, take all appropriate measures to ensure that work carried out by the Contractor and by his sub-Contractors, whether on or off the Site, will not cause any unnecessary or excessive noise which may disturb the occupants of any nearby dwellings, schools, hospitals, or premises with similar sensitivity to noise.

43.1.1 Without prejudice to the generality of the foregoing, noise level reduction measures shall include the following:

i) The Contractor shall ensure that all powered mechanical equipment used in the Works shall be effectively sound reduced using the most modern techniques available including but not limited to silencers and mufflers.

ii) The Contractor shall construct acoustic screens or enclosures around any parts of the Works from which excessive noise may be generated.

43.1.2 The Contractor shall ensure that noise generated by work carried out by the Contractor and his sub-Contractors during daytime and night time shall not exceed the maximum permissible noise limits, whether continuously or intermittently, as given in the project SHE Manual. The same may be varied from time to time by and at the sole discretion of the Authority, In the event of a breach of this requirement, the Contractor shall immediately re-deploy or adjust the relevant equipment or take other appropriate measures to reduce the noise levels and thereafter maintain them at levels which do not exceed the said limits. Such measures may include without limitation the temporary or permanent cessation of use of certain items of equipment.

43.1.3 The noise monitoring requirements including monitoring locations are given in the project SHE Manual.

43.2 Control Requirements

43.2.1 Construction material should be operated and transported in such a manner as not to create unnecessary noise as outlined below:

i) Perform Work within the procedures outlined herein and comply with applicable codes, regulations, and standards established by the Central and State Government and their agencies.

ii) Keep noise to the lowest reasonably practicable level. Appropriate measures will be taken to ensure that construction works will not cause any unnecessary or excessive noise, which may disturb the occupants of any nearby dwellings, schools, hospitals, or premises with similar sensitivity to noise. Use equipment with effective noise-suppression devices and employ other noise control measures as to protect the public.

iii) Schedule and conduct operations in a manner that will minimize, to the greatest extent feasible, the disturbance to the public in areas adjacent to the construction activities and to occupants of buildings in the vicinity of the construction activities.

iv) The Contractor shall submit to the Authority a Noise Monitoring and Control Plan (NMCP) under contract specific Site Environmental Plan. It shall include full and comprehensive details of all powered mechanical equipment, which he proposes to use during daytime and night time, and of his proposed working methods and noise level reduction measures. The NMCP shall include detailed noise calculations and vibration levels to demonstrate the anticipated noise generation and vibrations by the Contractor.

v) The NMCP prepared by the Contractor shall guide the implementation of construction activity. The NMCP will be reviewed on a regular basis and updated as necessary to assure that current construction activities are addressed. It may appear as a regular agenda item in project coordination meetings, if noise is an issue at any location in the contract.

43.3 Occupational Noise

i) Protection against the effects of occupational noise exposure should be provided when the sound levels exceeds the threshold values as provided in Project SHE Manual.

ii) When employees are subjected to sound levels exceeding those listed in the Table, feasible administrative or engineering controls should be utilized as given in this document and NHIDCL's Project SHE Manual.

iii) If such controls fail to reduce sound levels within the levels of the table, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

iv) When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. Exposure to different levels for various periods of time shall be computed according to the formula and sample computation as given in project SHE Manual.

43.4 Vibration Level

43.4.1 In locations where the alignment is close to historical / heritage structures, the contractor shall prepare a monitoring scheme prior to construction at such locations. This scheme for monitoring vibration level at such historical / heritage sites shall be submitted to Authority for his approval. This scheme shall include:

i) Monitoring requirements for vibrations at regular intervals throughout the construction period.

ii) Pre-construction structural integrity inspections of historic and sensitive structures in project activity.

iii) Information dissemination about the construction method, probable effects, quality control measures and precautions to be used.

iv) The vibration level limits at work sites adjacent to the alignment shall conform to the permitted values of peak p velocity as given in article project SHE Manual.

44.0 Ventilation and illumination

44.1 Ventilation

44.1.1 The contractor shall ensure at a construction site of a building or other construction work that all working areas in a free tunnel are provided with ventilation system as approved and the fresh air supply in such tunnel is not less than $6m^3$/min for each building worker employed underground in such tunnel and the free air flow movement inside such tunnel is not less than 9m/min.

44.1.2 The oxygen level shall not be less than 19.5% in the working environment.

44.2 Illumination

44.2.1 The contractor shall take every effort to illuminate the work site as per the Authority's requirement illustrated in general instruction ***NHIDCL/SHE/GI/0011/ILL/2020***.

44.2.2 The contractor shall conduct a monthly illumination monitoring by lux meter for all the locations and the report shall be sent to the Authority within 7th of the next month and the same shall be reviewed during the monthly SHE committee meeting.

45.0 Radiation

45.1 The use of radioactive substances and radiating apparatus shall comply with the Govt. regulatory requirements and all subsidiary legislation

45.2 Operations involving ionising radiation shall only be carried out after having been reviewed without objection by the Authority's representative and shall be carried out in accordance with a method statement.

45.3 each area containing irradiated apparatus shall have warning notices and barriers, as required by the Regulations, conspicuously posted at or near the area.

45.4 Radioactive substances will be stored, used or disposed shall be strictly in accordance with the Govt. Enactments.

45.5 The contractor shall ensure that all site personnel and members of the public are not exposed to radiation.

46.0 Welfare measures for workers

46.1 Latrine and Urinal Accommodation

46.1.1 The contractor shall provide one latrine seat for every 20 workers up to 100 workers and thereafter one for every additional 50 workers. In addition one urinal accommodation shall be provided for every 100 workers.

46.1.2 When women are employed, separate latrine and urinals accommodation shall be provided on the same scale as mentioned above.

46.1.3 Latrine and urinals shall be provided as per Section 33 of BOCWA and maintained as per Rule 243 of BOCWR and shall also comply with the requirements of public health authorities

46.1.4 Moving sites

46.1.4.1 In case of works like track laying, the zone of work is constantly moving at elevated level or at underground level. In such cases mobile toilets with proper facility to drain the sullage shall be provided at reasonably accessible distance.

46.1.5 In case if the contractor fail to provide required number of urinals and latrines or fail to maintain it as per the requirements of Public Health laws, the Authority shall have the right to provide/maintain through renowned external agencies like "Sulabh" at the cost of the contractor.

46.2 **Canteen:**

46.2.1 In every workplace wherein not less than 250 workers are ordinarily employed the contractor shall provide an adequate canteen conforming to Section 37 of BOCWA, Rule 244 of BOCWR and as stipulated in Rule 247 of BOCWR the changes for food stuff shall be based on 'no profit no loss' basis. The price list of all items shall be conspicuously displayed in such canteen.

46.3 **Serving of tea and snacks at the workplace:**

46.3.1 As per Rule 246 of BOCWR, at a building or other construction work where a workplace is situated at a distance of more than 200 m from the canteen provided under Rule 244(1) of BOCWR, the contractor employing building works shall make suitable arrangement for serving tea and light refreshment to such building works at such place.

46.4 **Drinking water**

46.4.1 As per Section 32 of BOCWA the contractor shall make in every worksite, effective arrangements to provide sufficient supply of wholesome drinking water with minimum quantity of 5 litres per workman per day. Quality of the drinking water shall conform to the requirements of national standards on Public Health.

46.4.2 While locating these drinking water facilities, due care shall be taken so that these are

easily accessible within a distance of 200m from the place of work for all workers at all location of work sites.

46.4.3 All such points shall be legible marked "Drinking Water" in a language understood by a majority of the workmen employed in such place and such point shall be situated within six metres of any washing places, urinals or latrines.

46.5 **Labour Accommodation**

46.5.1 The contractor shall provide free of charges as near as possible, temporary living accommodation to all workers conforming to provisions of Section 34 of BOCWA. These accommodations shall have cooking place, bathing, washing and lavatory facilities.

46.6 **Creches**

46.6.1 In every workplace where in more than 50 female workers are ordinarily employed, there shall be provided and maintained a suitable room for use of children under age of 6 yrs, conforming to the provisions of Section 35 of BOCWA.

PART - D: ENVIRONMENTAL MANAGEMENT

47.0 Air Quality

47.1 The Contractor shall take all necessary precautions to minimise fugitive dust emissions from operations involving excavation, grading, and clearing of land and disposal of waste. He shall not allow emissions of fugitive dust from any transport, handling, construction or storage activity to remain visible in atmosphere beyond the property line of emission source for any prolonged period of time without notification to the Authority.

47.2 The Contractor shall use construction equipment designed and equipped to minimise or control air pollution. He shall maintain evidence of such design and equipment and make these available for inspection by Authority.

47.3 If after commencement of construction activity, Authority believes that the Contractor's equipment or methods of working are causing unacceptable air pollution impacts then these shall be inspected and remedial proposals shall be drawn up by the Contractor, submitted for review to the Authority and implemented.

47.4 In developing these remedial measures, the Contractor shall inspect and review all dust sources that may be contributing to air pollution. Remedial measures include use of additional/ alternative equipment by the Contractor or maintenance/modification of existing equipment of the Contractor.

In the event that approved remedial measures are not being implemented and serious impacts persist, the Authority may direct the Contractor to suspend work until the measures are implemented, as required under the Contract.

47.5 Contractor's transport vehicles and other equipment shall conform to emission standards fixed by Statutory Agencies of Government of India or the State Government from time to time. The Contractor shall carry out periodical checks and undertake remedial measures including replacement, if required, so as to operate within permissible norms.

47.6 The Contractor shall establish and maintain records of routine maintenance program for internal combustion engine powered vehicles and equipment used on this project. He shall keep records available for inspection by Authority.

47.7 The Contractor shall cover loads of dust generating materials like debris and soil being transported from construction sites. All trucks carrying loose material should be covered and loaded with sufficient free- board to avoid spills through the tail board or side boards.

47.8 The Contractor shall promptly transport all excavation disposal materials of whatever kind so as not to delay work on the project. Stockpiling of materials will only be allowed at sites designated by the Authority. The Contractor shall place excavation materials in the dumping/disposal areas designated in the plans as given in the specifications.

47.9 The temporary dumping areas shall be maintained by the Contractor at all times until the excavate is re-utilised for backfilling or as directed by Authority. Dust control activities shall continue even during any work stoppage.

47.10 The Contractor shall place material in a manner that will minimize dust production. Material shall be minimized each day and wetted, to minimize dust production. During dry weather, dust control methods must be used daily especially on windy, dry days to prevent any dust from blowing across the site perimeter.

47.11 The Contractor shall water down construction sites as required to suppress dust, during handling of excavation soil or debris or during demolition. The Contractor will make water sprinklers, water supply and water delivering equipment available at any time that it is required for dust control use. Dust screens will be used, as feasible when additional dust control measures are needed specially where the work is near sensitive receptors.

47.12 The Contractor shall provide a wash pit or a wheel washing and/or vehicle cleaning facility at the exits from work sites such as construction depots and batching plants. At such facility, high-pressure water jets will be directed at the wheels of vehicles to remove all spoil and dirt.

47.13 The Contractor shall design and implement his blasting techniques so as to minimise dust, noise, vibration generation and prevention fly rock.

47.14 Blasting technique should be consistent not only with nature and quaintly of rock to be blasted but also the location of blasting.

47.15 The contractor shall give preference to explosives with better environmental characteristics.

47.16 The Contractor shall protect structures, utilities, pavements roads and other facilities from disfiguration and damage as a result of his activities. Where this is not possible, the contractor shall restore the structures, utilities, pavements, roads and other facilities to their original or better, failing which the rectification/restoration work shall be carried out at the risk and cost of the contractor.

47.17 The Contractor shall submit to the Authority an Air Monitoring and Control Plan (AMCP) under contract specific Site Environmental Plan to guide construction activity insofar as it relates to monitoring, controlling and mitigating air pollution.

48.0 Water Quality

48.1 The Contractor shall comply with the Indian Government legislation and other State regulations in existence insofar as they relate to water pollution control and monitoring. A drainage system should be constructed at the commencement of the Works, to drain off all surface water from the work site into suitable drain outlet.

48.2 The Contractor shall provide adequate precautions to ensure that no spoil or debris of any kind is pushed, washed, falls or deposited on land adjacent to the site perimeter

including public roads or existing stream courses and drains within or adjacent to the site. In the event of any spoil or debris from construction works being deposited or any silt washed down to any area, then all such spoil, debris or material and silt shall be immediately removed and the affected land and areas restored to their natural state by the Contractor to the satisfaction of the Authority.

48.3 Due to lowering of potable water supplies and subsequent contamination of ground water, the Contractor is not allowed to discharge water from the site without the approval of the Authority. The Contractor must comply with the requirements of the Central Ground Water Board for discharge of water arising from dewatering. Any water obtained from dewatering systems installed in the works must be either re-used for construction purposes and this water may subsequently be discharged to the drainage system or, if not re-used, recharged to the ground water at suitable aquifer levels. The Contractor must submit his proposals for approval of Authority, on his proposed locations of dewatering of excavation and collection of water for either construction re-use or recharge directly to aquifers. The Contractor's recharge proposals must be sufficient for recharging of the quantity of water remaining after deduction of water re-used for construction. During dewatering, the contractor shall monitor ground water levels from wells to ensure that draw down levels do not exceed allowable limits. The Contractor will not be permitted to directly discharge, to the drainage system, unused ground water obtaining from the excavation without obtaining approval of Authority or the Agency controlling the system.

48.4 The Contractor shall ensure that earth, bentonite, chemicals and concrete agitator washings etc. are not deposited in the watercourses but are suitably collected and residue disposed off in a manner approved by local authorities.

48.5 All water and waste products (surface runoff and wastewater) arising on the site shall be collected and removed from the site via a suitable and properly designed temporary drainage system and disposed off at a location and in a manner that will cause neither pollution nor nuisance.

48.6 Any mud slurry from drilling, tunnelling, diaphragm wall construction or grouting etc. shall not be discharged into the drainage system unless treatment is carried out that will remove silt, mud particles, bentonite etc. The Contractor shall provide treatment facilities as necessary to prevent the discharge of contaminated ground water.

48.7 The Contractor shall discharge wastewater arising out of site office, canteen or toilet facilities constructed by him into sewers after obtaining prior approval of agency controlling the system. A wastewater drainage system shall be provided to drain wastewater into the sewerage system.

48.8 The bentonite mixing, treatment and handling system shall be established by the contractor giving due regard to its environmental impacts. The disposal of redundant bentonite shall be carefully considered whether in bulk or liquid form. The disposal location will be advised and agreed with the relevant authorities.

48.9 The Contractor shall take measures to prevent discharge of oil and grease during spillage from reaching drainage system or any water body. Oil removal / interceptors shall be provided to treat oil waste from workshop areas etc.

48.10 The Contractor shall apply to the appropriate authority for installing bore wells for water supply at site.

49.0 Archaeological and Historical Preservation

49.1 The contractor shall seek to accommodate archaeological and historical preservation concerns that may arise due to the construction of the project especially in close vicinity of such areas where such monuments may be located.

49.2 The contractor shall consult the Archaeological Survey of India (ASI) and other parties, on the advise of the Authority, to identify and assess construction effects and seek ways to avoid, minimize or mitigate adverse effects on such monuments.

49.3 Adverse effects may include reasonably foreseeable effects caused by the construction that may occur later in time, be farther removed in distance or those that alter, howsoever temporarily, the significance of the structure.

50.0 Landscape and Greenery

50.1 As far as is reasonably practicable, the Contractor shall maintain ecological balance by preventing deforestation and defacing of natural landscape. In respect of ecological balance, the Contractor shall observe the following instructions.

50.2 The Contractor shall, so conduct his construction operations, as to prevent any avoidable destruction, scarring or defacing of natural surrounding in the vicinity of work.

50.3 Where destruction, scarring, damage or defacing may occur as a result of operations relating to Permanent or Temporary works, the same shall be repaired, replanted or otherwise corrected at Contractor's expense. All work areas shall be smoothened and graded in a manner to conform to natural appearance of the landscape as directed by the Authority.

50.4 A suggested list of trees/shrubs suitable for planting and landscaping is found in Authority's Project SHE Manual.

51.0 Felling of Trees

51.1 The contractor shall identify the number and type of trees that are required to be felled as a result of construction of works and facilities related to NHIDCL's Project and inform the Authority.

51.2 All trees and shrubbery, which are not specifically required to be cleared or removed for construction purposes, shall be preserved and shall be protected from any damage that may be caused by Contractor's construction operations and equipment. The contractor shall not fell, remove or dispose of any tree or forest produce in any land

handed over to him for the construction of works and facilities related to NHIDCL except with the previous permission obtained from the Forest Department.

51.3 The Authority shall arrange permission from the forest department for trees to be felled or transplanted. The Authority will permit the removal of trees or shrubs only after prior approval.

51.4 Special care shall be exercised where trees or shrubs are exposed to injuries by construction equipment, blasting, excavating, dumping, chemical damage or other operation and the Contractor shall adequately protect such trees by used of protective barriers or other methods approved by the Authority. Trees shall not be used for anchorage.

52.0 Fly Ash

52.1 The Authority may require the contractor to use fly ash as a percentage substitution of cement, in concrete for certain structures and works.

52.2 In all such uses of Fly Ash, the contractor shall maintain a detailed record of usage of Fly Ash. The contractor shall also collect related details and provide to the Authority.

52.3 The reporting details on consumption of Fly Ash are found in Authority's SHE Manual.

53.0 Waste

53.1 The contractor is required to develop, institute and maintain a Waste Management Programme (WMP) during the construction of the project for his works, which may include: -

i) Identification of disposal sites.
ii) Identification of quantities to be excavated and disposed off.
iii) Identification of split between waste and inert material
iv) Identification of amounts intended to be stored temporarily on site location of such storage.
v) Identification of intended transport means and route.
vi) Obtaining permission, where required, for disposal.

53.2 Such a mechanism is intended to ensure that the designation of areas for the segregation and temporary storage of reusable and recyclable materials are incorporate into the WMP. The WMP should be prepared and submitted to the Engineer for approval.

53.3 The Contractor shall handle waste in a manner that ensures they are held securely without loss or leakage thus minimizing potential for pollution. The Contractor shall maintain and clean waste storage areas regularly.

53.4 The Contractor shall remove waste in a timely manner and disposed off at landfill sites after obtaining approval of Local Authority for its disposal.

53.5 Burning of wastes is prohibited. The Contractor shall not burn debris or vegetation or construction waste on the site but remove it in accordance with ***50.1*** above.

53.6 The Contractor shall make arrangement to dispose of metal scrap and other saleable waste to authorized dealer and make available to the Authority on request, records of such sales.

54.0 Hazardous Waste Management

54.1 If encountered or generated as a result of Contractor's activity, then waste classified as hazardous under the "Hazardous Wastes (Management & Handling) Rules, 1989, amendments 2000, 2003" shall be disposed off in a manner in compliance with the procedure given in the rules under the aforesaid act.

54.2 Chemicals classified as hazardous chemicals under "Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 of Environment (Protection) Act, 1986 shall be disposed off in a manner in compliance with the procedure given in the rules under the aforesaid act.

54.3 The contractor shall identify the nature and quantity of hazardous waste generated as a result of his activities and shall file a 'Request for Authorisation' with Pollution Control Committee along with a map showing the location of storage area.

54.4 Outside the storage area, the contractor shall place a 'display board', which will display quantity and nature of hazardous waste, on date. Hazardous Waste needs to be stored in a secure place

54.5 It shall be the responsibility of the contractor to ensure that hazardous wastes are stored, based on the composition, in a manner suitable for handling, storage and transport. The labelling and packaging is required to be easily visible and be able to withstand physical conditions and climatic factors.

54.6 The contractor shall approach only Authorised Recyclers of Hazardous Waste for disposal of Hazardous Waste, under intimation to the Authority.

54.7 Submittal of all environment related documents and records pertaining to monitoring and trend analysis on key parameters such as but not limited to consumption/efficient use of resources such as energy, water, material such as cement, fly ash, iron and steel, recycle/reuse of waste etc that shall have demonstrated continual improvement in the implementation of Environmental management System. Failure to do so the Authority shall impose appropriate penalty as indicated under penalty clause.

55.0 Energy Management

55.1 The contractor shall use and maintain equipment so as to conserve energy and shall be able to produce demonstrable evidence of the same upon Authority's request.

55.2 Measures to conserve energy include but not limited to the following:

i) Use of energy efficient motors and pumps

ii) Use of energy efficient lighting, which uses energy efficient luminaries

iii) Adequate and uniform illumination level at construction sites suitable for the task

iv) Proper size and length of cables and wires to match the rating of equipment

v) Use of energy efficient air conditioners

55.3 The contractor shall design site offices maximum daylight and minimum heat gain. The rooms shall be well insulated to enhance the efficiency of air conditioners and the use of solar films on windows may be used where feasible.

PART - E: PENALTY AND AWARDS

56.0 Charges to be recovered from contractor for unsafe act or condition

56.1 NHIDCL has built an image of safety conscious organisation meticulously over a period of seven years. Any reportable accident (fatality / injury) results in loss of life and/or property damage. These accidents not only result in loss of life but also damage the reputation of NHIDCL. Most of the accidents are avoidable and caused preliminary due to contractors' negligence. Hence NHIDCL shall recover the cost of damages from the contractors for every reportable incident (fatality / injury).

56.2 In addition every NHIDCL work site is exposed to public scrutiny as the work is executed just on the right-of-way. Any unsafe act / unsafe condition observed by public further damages our reputation. Because of the non-voluntary compliance of contractors to the condition of contract on SHE and project SHE manual, NHIDCL has been forced to establish safety-enforcing organisation. The cost of established such organisation is to be recovered from contractors for all observed safety violations at sites.

56.3 The following table indicates the Safety, Health and Environment violation (unsafe act / unsafe condition) and charges to be recovered from contractors.

SL. NO.	TOPIC	UNSAFE ACT/UNSAFE CONDITION	DEDUCTIBLE AMOUNT
1.	SHE Policy & Plan	i) SHE policy a) non-compliance of clause 4.1 b) Inadequate coverage, not signed c) Not displayed at prominent locations	Rs.5,000 per single violation, compounded to a maximum of Rs.25,000 at any single instance.
		ii) SHE plan: a) Not as per Authority's content and coverage b) Delay in submission c) Not updated as per Authority's instruction as per clause 4.4 d) Copies not provided to all required supervisors / engineers	Rs.1,00,000 per single violation, compounded to a maximum of Rs.2,00,000 at any single instance.
2.	SHE Organisation	i) Not complying to the minimum manpower requirements as mentioned in General Instruction NHIDCL/SHE/001/MPR/2020 ii) Not filling up the vacancies created due to SHE personnel leaving the contractor within 14 days. iii) SHE organisation not provided with required Audio-visual and other equipments as per General Instruction NHIDCL/SHE/012/AVE/2020 iv) Employing through outsourcing agencies and SHE personal are not in the payroll of the main contractor	i) Rs.1,00,000 per month for first month and Rs.2,00,000 for subsequent months ii) Rs.50,000 per month for first month and Rs.1,00,000 for subsequent months For items iii), iv), v) and vi) Rs.50,000 for first violation and Rs.1,00,000 for subsequent violations

		v) Disobedience / Improper conduct of any SHE personnel. vi) Chief SHE Manager not reporting directly to CPM/PD of contractor.	
3.	SHE committee	i) Failed to formulate or conduct SHE Committee meeting for any month ii) Contractor and Sub-contractor representatives not attending SHE Committee meetings iii) Failed to conduct Site inspection before conducting SHE Committee meeting iv) Failed to send SHE Committee Meeting minutes or Agenda to Authority in time v) Non-adherence of clause 7.7.1 vi) Non-adherence of clause 7.9	i) Rs.1,00,000 for the first violation and Rs.5,00,000 for the subsequent violations ii) Rs.5,000 to the contractor of the member who had not attended the meeting for first violation and Rs.25,000 for subsequent violations. For item iii), iv), v) and vi) Rs.25,000 for first violation and Rs.50,000 for subsequent violations
4.	ID card	i) Non-adherence of clause 8.1, 8.2 and 8.3	Rs.1,00,000 for first violation and Rs.2,00,000 for subsequent violations
5.	SHE Training	i) Not complying to the requirements as mentioned in conditions of contract on SHE and project SHE manual with regard to: a) Induction training not given b) Supervisor/engineer/manager training not conducted as per clause 9.6 c) Refresher training as per clause 9.7 and 9.11 not conducted d) Tool-box talk not conducted as per clause 9.8 e) Skill development training not conducted as clause 9.9 f) Daily Safety Oath not conducted as per clause 9.10 g) Top management behaviour based SHE training conducted	For item 1 a) to g) Rs.50,000 for first violation on and Rs.1,00,000 for subsequent violations
6.	SHE Inspection	i) Not complying to the requirements as mentioned in conditions of contract on SHE and project SHE manual as per clause 10.0 ii) Non compliance of clause 10.3.6	Rs.50,000 for first violation and Rs.1,00,000 for subsequent violations

7.	SHE audit	Internal Audit: MARS i) Not conducted as per SHE Plan ii) Report not sent to Authority iii) Action not taken for any month	For item i) to iii) Rs.50,000 for first violation and Rs.1,00,000 for subsequent violations.
		External Audit iv) Not conducted as per SHE Plan v) Report not sent to Authority vi) Action not taken for any quarter	For item iv) to vi) Rs.1,00,000 for first violation and Rs.2,00,000 for subsequent violations.
8.	SHE Communication	i) Important days to be observed for SHE awareness as furnished by Authority not observed ii) Posters as furnished by Authority not printed and displayed	i) Rs.10,000 for first violation and Rs.50,000 for subsequent violations ii) 2,00,000 per contract
9.	SHE Submittals	i) Non compliance of clause 13.1 ii) Non compliance of clause 13.2 iii) Non compliance of clause 13.3	For item i) Rs.50,000 for first violation and Rs.1,00,000 for subsequent violations For item ii) and iii) Rs.1,00,000 for first violation and Rs.2,00,000 for subsequent violations
10.	Injury and Incidence reporting	i) Fatal accidents ii) Injury accident iii) Abnormal delay in reporting accidents or wilful suppression of information about any accidents / dangerous occurrence as per clause 14.1.4 iv) Delay in informing about any accidents / dangerous incidents. v) Non-compliance of the clause 14.4	i. Rs.5,00,000 for first fatality and Rs.10,00,000 for every subsequent fatality. ii. Rs.1,00,000 for first grievously injured person and Rs.2,00,000 for every subsequent grievously injured person (Grievous Injury as defined by Workmen Compensation Act) iii. Rs.1,00,000 for first violation and Rs.2,00,000 for subsequent violations For items iv) and v) Rs.50,000 for first violation and Rs.1,00,000 for subsequent violations
11.	Emergency preparedness Plan	Non-compliance of the clause 15.1,15.2, 15.3, 15.4, 15.5 and 15.6	Rs.1,00,000 for non-compliance of any of the clauses
12.	Housekeeping	i) Housekeeping maintenance register not properly maintained up to date ii) Surrounding areas of drinking water tanks / taps not hygienically cleaned / maintained	Rs.10,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance

		iii) Office, stores, toilet / urinals not properly cleaned and maintained. iv) Required dustbins at appropriate places not provided / not cleaned. v) Stairways, gangways, passageways blocked. vi) Lumber with protruding nails left as such vii) Openings unprotected viii) Excavated earth not removed within a reasonable time. ix) Truck carrying excavated earth not covered / tyres not cleaned. x) Vehicles / equipments parked / placed on roads obstructing free flow of traffic xi) Unused surplus cables / steel scraps lying scattered xii) Wooden scraps, empty wooden cable drums lying scattered xiii) Water stagnation leading to mosquito breeding	
13.	Working at Height / Ladders and Scaffolds	i) Not using or anchoring Safety Belt ii) Not using Safety Net iii) Absence of life line or anchorage point to anchor safety belt iv) Non-compliance of clause 18.17 v) Using Bamboo ladders vi) Painting of ladders vii) Improper usage (less than 1m extension above landing point, not maintaining 1:4 ratio) viii) Aluminium ladders without base rubber bush ix) Usage of broken / week ladders x) Usage of re-bar welded ladders xi) Improper guardrail, toe board, barriers and other means of collective protection xii) Improper working platform xiii) Working at unprotected fragile surface xiv) Working at unprotected edges	Rs.10,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance
14.	Lifting appliances and gear	i) Non availability of fitness certificate as per clause 21.3 ii) Documents not displayed on the	Rs.50,000 per single violation Compounded to a maximum of Rs.5,00,000 at any single

		machine or not available with the operator as per clause 21.4 iii) Maximum Safe Working Load not written on the machine as per clause 21.5 iv) Non-compliance of 21.6 v) Non-compliance of 21.7 vi) Automatic safe load indicator not provided or not in working condition as per clause 21.8 vii) Age of the operator less than 21 years or without any licence and non-compliance of other item as per clause 21.9 viii) Non-compliance of 21.10 ix) Non-compliance of any of the items mentioned regarding rigging requirements as per clause 21.11 x) Failure to submit method statement in case of all critical lifting xi) Person riding on crane. xii) Creating more noise and smoke xiii) Absence of portable fire extinguisher in driver cabin xiv) Fail to guard hoist platform xv) No fencing of hoist rope movement area xvi) Hoist platform not in the horizontal position	instance
15.	Launching operation	Non-adherence of any of the provisions mentioned in clause 22.2	Rs. 50,000 for first violation and Rs.1,00,000 for subsequent violations .
16.	Site Electrical safety	i) Non-compliance of clause 26.1.1 ii) Non-compliance of clause 26.2.4, 26.2.5 iii) Non-compliance of clause 26.3.1 iv) Non-compliance of clause 26.7, 26.8 and 26.9.1 v) Non-compliance of clause 26.10 and 26.13 vi) Non-compliance of clause 28.3.2 vii) Exposed electric lines (fermentative damage) and circuits in the workplace. viii) Inserting of bare wires into the socket ix) Improper grounding for the electrical appliances	Rs.10,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance

		x) Electrical cables running on the ground xi) Non-compliance clause 27.0	
17.	Hand tools and Power tools	i) Non-compliance of clause 28.0	Rs.10,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance
18.	Gas Cutting	ii) Wrong colour coding of cylinder. iii) Cylinders not stored in upright position. iv) Flash back arrester, non-return valve and regulator not present or not in working condition. v) Fail to put cylinders in a cylinder trolley. vi) Damaged hose. vii) Using domestic LPG cylinders viii) Fail to store cylinder 6.6m away from fire prone materials ix) Fail to use hose clamps x) Fire extinguisher not placed in the vicinity during operation	Rs.10,000 per single violation Compounded to a maximum of Rs.50,000 at any single instance
19.	Welding	i) Voltmeter and Ammeter not working ii) Improper grounding and return path. iii) Damaged welding cable iv) Bare openings in the cable. v) Non-availability of separate switch in the transformer vi) Non-availability of main switch control to switch off power to the welding unit. vii) Usage of reinforcement rod as return conductor viii) Damaged holder ix) Fire extinguisher not placed in the vicinity during operation	Rs.10,000 per single violation Compounded to a maximum of Rs.50,000 at any single instance
20.	Fire precaution	i) Smoking and open flames in fire prone area ii) Using more than 24V portable electrical appliances in the fire prone area iii) Not proper ventilation in cylinder storage area. iv) Absence of fire extinguishers	Rs.5,000 per single violation Compounded to a maximum of Rs.25,000 at any single instance.

		v) Fire extinguishers not refilled once in a year. vi) Fire extinguisher placed in a not easily accessible location	
21.	Excavation, Tunnelling and confined space	i) Non-compliance of clause 34.1.1 ii) Non-compliance of clause 34.2.3 iii) Non-compliance of clause 34.3	For any item from i) and ii) Rs.10,000 per single violation Compounded to a maximum of Rs.50,000 at any single instance. For item iii) Rs.10,000 per first violation and Rs.50,000 for subsequent violations
22.	Work permit system	i) Non-compliance of clause 35.2 ii) Non-compliance of clause 21.11.9	For item i) and ii) Rs.50,000 per first violation and Rs.1,00,000 for subsequent violations
23.	Traffic Management	i) Non-compliance of clause 36.4.1 ii) Non-compliance of clause 36.8.3 iii) Non-compliance of clause 36.9.2 iv) Non-compliance of clause 36.9.3 v) Non-compliance of clause 36.9.7 vi) Non-compliance of clause 36.9.8	Rs.1,00,000 per first violation and Rs.2,00,000 for subsequent violations
		a) Barricades i) Not Cleaned ii) Not in alignment iii) Not numbered iv) Not painted v) Red lights / reflectors not working vi) Damages not repaired vii) Not secured properly viii) Barricade inspector not employed ix) Protruding parts / portions repaired x) Barricades maintaining register not properly maintained up to date	Rs.25,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance
		b) Contractor Vehicles i) Over loading of vehicles ii) Unfit drivers or operators iii) Unlicensed vehicles iv) Absence of traffic marshals v) Absence of reversing alarm vi) Absence of fog light (at winter) vii) Power / hand brakes not in working condition.	Rs.25,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance

		c) Splashing of Bentonite on roads / non-cleaning of tyres of dumpers and transit mixers i) Mishandling of bentonite like splashing of bentonite outside specified width of barricading ii) Non-cleaning of tyres of dumpers and transit mixers before leaving the site and thereby creating a traffic safety hazard to road users.	For item i) and ii) a) Rs.1,00,000 on first observation. b) Rs. 2,00,000 on second observation c) Rs. 3,00,000 on third and subsequent observations
24.	Batching plant / Casting yard	Non-adherence of any of the provisions mentioned in clause 38.0.	Rs. 10,000 for single violation compounded to a maximum of Rs.1,00,000 at any single instant.
25.	PPE	i) Not having ii) Not wearing (or) using and kept it elsewhere iii) Using damaged one iv) Using wrong type v) Using wrong colour helmet or helmet without logo vi) Using for other operation (e.g. Using safety helmet for storing materials or carrying water from one place to other) vii) Not conforming to BIS standard viii) Non-compliance of clause 39.6, 39.7 and 39.8	From item i) to vi). Rs.200 per single violation For item vii) Rs.10,000 for first violation and Rs.50,000 for subsequent violations For item viii) Rs.50,000 for first violation and Rs.1,00,000 for subsequent violations
26.	Occupational Health	i) Fail to conduct Medical examination to workers ii) Absence of ambulance van & room iii) Workers not having ID card iv) Inadequate number of toilets v) Toilets not cleaned properly vi) Absence of water facilities for toilets and washing places vii) Toilet placed more than 500m from the work site viii) Absence of drinking water ix) Absence of first-aid person in work site. x) Absence or inadequacy of first-aid box. xi) Misuse of first-aid box. xii) First-aid box not satisfy the minimum Indian standard.	Rs.10,000 per single violation Compounded to a maximum of Rs.1,00,000 at any single instance

		xiii) Smoking inside the construction site xiv) Drink and drive or work xv) Excessive noise and vibration xvi) Canteen not provided xvii) Food stuff not served on no loss no profit basis xviii) Creche not provided xix) Accommodation not provided as per BOCWA xx) Fumigation / insecticides not sprayed to prevent Mosquito breeding xxi) Non-compliance of clause 44.1 and 44.2	
27.	Labour Welfare measures	i) Non adherence of Labour welfare provisions of BOCWA ii) Fail to register establishment and display the registration certificate at workplace iii) Absence of workers register and records iv) Absence of muster roll and wages register v) Fail to display an abstract of BOCWA and BOCWR	Rs.10,000 per single violation Compounded to a maximum of Rs.50,000 at any single instance
28.	Environmental Management	i) Tyre wash facility not provided ii) Spillage from vehicles not arrest iii) Air monitoring not practiced iv) Noise monitoring not practiced v) The values of air monitoring and noise monitoring not with in acceptable limits vi) Dust control measures at sites not practiced vii) Improper disposal of debris / residues	Rs.10,000 per single violation Compounded to a maximum of Rs.50,000 at any single instance

56.4 Without limiting to the unsafe acts and or conditions mentioned above in clause 56.3 the Authority shall have the right to deduct charges for any other unsafe act and or condition depending upon the gravity of the situation on a case-to-case basis. The charges shall be in comparison with that of the similar offence indicated in clause 56.3.

57.0 Stoppage of work

57.1 The Authority shall have the right to stop the work at his sole discretion, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and / or property, and / or equipments. In such cases, the contractor shall be informed in writing about the nature of hazards and possible injury / accident.

57.2 The contractor shall not proceed with the work until he has complied with each direction to the satisfaction of Authority

57.3 The Contractor shall not be entitled for any damages / compensation for stoppage of work, due to safety reasons and the period of such stoppage of work shall not be taken as an extension of time for Completion of the Facilities and will not be the ground for waiver of levy of liquidated damages.

58.0 Awards

The following categories will be considered for awards as per the scheme in practice of Authority

i) For every safe million man hour working without any reportable incidents
ii) Zero fatality contracts
iii) 100% adherence to voluntary reporting of all accidents throughout the currency of contract
iv) Safest project team of the year.
v) Best SHE team of the year.
vi) Safest Contractor of the year.

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	ATTACHMENT NO.: 1

Memorandum of Understanding between National Highways & Infrastructure Development Corporation Limited (NHIDCL) and the Contractor for safe execution of contract work

This Memorandum of Understanding is made and executed by and between National Highways & Infrastructure Development Corporation Limited (NHIDCL), a Company registered under the Companies Act 1956 and having its office at PTI Building, 4-Parliament Street, Sansad Marg, New Delhi-110001 or their authorized representative(s), hereinafter referred to as "AUTHORITY" (which expression shall wherever the context so requires or admits be deemed to mean and include its successors in business and assigns) of the one party

AND

M/s _____ having its registered office at _____ hereinafter referred to as the "CONTRACTOR" (which expression shall wherever the context so requires or admits be deemed to mean and include its successors in business and assigns) of the other party

WITNESSETH THAT

WHEREAS the AUTHORITY gives highest importance to the occupational safety, health and environment during execution of work, seeks cooperation from the CONTRACTOR in this endeavour.

Thus, this Memorandum of Understanding is for promoting the safety, health and environment aspects required to be followed at workplace/site and will be applicable to any site job to be done by the CONTRACTOR

AND

WHEREAS the CONTRACTOR has read all the terms and conditions of the AUTHORITY and whereas the CONTRACTOR has studied the following documents:

(a) Request for Proposal, including Notice Inviting Tender, draft Contract Agreement,
(b) Conditions of Contract on Safety, Health and Environment and Project Safety, Health and Environment Manual.
(c) Building and Other Construction Workers (Regulations of Employment and Conditions of Service) Act 1996, Central Rules 1998 and subsequent Delhi Government Rules 2002, Building and Other Construction Workers Welfare Cess Act 1996 and Rules 1998 and Building and Other Construction Workers' Welfare Board Rules and
(d) Indian Electricity Act 2003 and Rules 1956.
(e) Corresponding International / Bureau of Indian Standard Codes.

The amendments to any of the above rules and any other rules & regulations or procedures, circulars, notices & advices laid down by the AUTHORITY from time to time.

Now it is hereby AGREED AND DECLARED by and between the AUTHORITY and the CONTRACTOR as follows:

Clause - I The CONTRACTOR shall abide by the terms and conditions stipulated in Condition of Contract on Safety, Health & Environment and Project Safety, Health & Environment Manual.

Clause - II The CONTRACTOR shall undertake full responsibility for safe execution of job at work place/site and safety of his personnel and adjoining road users during work.

Clause - III Without giving any prior notice, the AUTHORITY shall from time to time

be entitled to add/or amend any or all terms and conditions with a view to improving safety and occupational health of personnel and safety of work, with immediate effect and the same shall be binding on the CONTRACTOR. The contractor agrees to implement all such amendments, which shall be laid down by the AUTHORITY.

Clause - IV Besides following the guidelines, safety rules and regulations, safety codes given in various safety procedures/documents mentioned above, the CONTRACTOR shall also prepare detailed method statement which includes job safety analysis wherever there are complicated and hazardous/high risk working involved and get it approved from Authority before execution of work.

Clause - V Any negligence or violation in implementing any of the provision of the conditions of contract on Safety, Health & Environment and DMRC project Safety, Health & Environment Manual shall be viewed seriously and the contractor is liable to compensate the Authority for the loss of reputation. The cost of damage shall be fixed on case-to-case basis.

In witness thereof the Parties hereto by representatives duly authorised have executed this Memorandum of Understanding on _____ day of _____ 2020.

Signed on	Signed on
For and on behalf of NHIDCL	For and on behalf of (Contractor)
_____	_____
Signature:	Signature:
Name:	Name:
Title:	Title:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

ATTACHMENT NO.: 2

Safety, Welfare and Occupational Health requirements as per BOCW Act 1996 and Rules 1998 and DBOCW Rules 2002.

(This list has been prepared in chronological order with primary importance to **S**ection of Act and secondary importance to **R**ules)

S - Refers relevant **S**ections in BOCWA
R - Refers relevant **R**ules in BOCWR
C - Refers relevant **C**hapter No. in BOCWR

Sl. No.	Items	Relevant Sections / Rules in BOCWA and BOCWR and DBOCWR
1.	Registration of establishment	S – 7, R – 23 to 27
2.	Display of registration certification at workplace	R – 26 (5)
3.	Hours of work	S – 28 R – 234 to 237
4.	Register of overtime	S – 28; S – 29 R – 241(1) Form XXII
5.	Weekly rest and payment at rest	R – 235
6.	Night shift	R – 236
7.	Maintenance of workers registers and records	S – 30 R – 238
8.	Notice of commencement and completion	S – 46 R – 239
9.	Register of persons employed as building workers	R – 240
10.	Muster roll and wages register	R – 241(1) (a); Form XVI and XVII
11.	Payment of wages	R – 248
12.	Display of notice of wages regarding	R – 249
13.	Register of damage or loss	R – 241(1)(a); Form XIX, XX, XXI
14.	Issue of wages book	R – 241(2)(a); Form XXIII
15.	Service certificate for each workers	R – 241(2)(b); Form XXIV
16.	Display an abstract of BOCWA and BOCWR	R – 241(5)
17.	Annual return	R – 242; Form XXV
18.	Drinking water	S – 32
19.	Latrines and Urinals	S – 33 R - 243
20.	Accommodation	S – 34
21.	Creches	S – 35
22.	First-aid boxes	S – 36 R – 231 and Schedule III
23.	Canteens	S – 37 R – 244
24.	Food stuff and other items served in the canteens	R – 245
25.	Supply of tea and snacks in work place	R – 246
26.	Food charges on no loss no profit basis	R - 247
27.	Delhi BOCW welfare Board Rules	R – 250 to 296

28.	Safety committee	S – 38 R – 208
29.	Safety officer	S – 38 R – 209 and Schedule VII
30.	Reporting of accidents and dangerous occurrences	S – 39 R – 210
31.	Procedure for inquiry in to the causes of accidents	R – 211
32.	Responsibility of employer	S - 44 R – 5
33.	Responsibility of Architects, Project engineer and Designers	R – 6
34.	Responsibility of workmen	R – 8
35.	Responsibility for payment of wages and compensation	S – 45
36.	Penalties and Procedures	S – 47; S – 55
37.	Excessive noise, vibration etc	R – 34
38.	Fire Protection	R – 35
39.	Emergency action plan	R – 36
40.	Fencing of motors	R – 37
41.	Lifting of carrying of excessive weight	R – 38
42.	Health, Safety and Environmental Policy	R – 39
43.	Dangerous and Harmful Environment	R – 40
44.	Overhead protection	R – 41
45.	Slipping, Tripping, Cutting, Drowning and Falling Hazards	R – 42
46.	Dust, Gases, Fumes, etc	R – 43
47.	Corrosive substance	R – 49
48.	Eye Protection	R – 45
49.	Head Protection and other protection apparel	R – 46; R – 54
50.	Electrical Hazards	R – 47
51.	Vehicular traffic	R – 48
52.	Stability of structure	R – 49
53.	Illumination	R – 50; R – 124
54.	Stacking of materials	R – 51
55.	Disposal of debris	R – 52
56.	Numbering and marking of floors	R – 53
57.	Lifting appliances and gears	C – VII; R – 55 to 81
58.	Runways and Ramps	C – VIII; R – 82 to 85
59.	Working on or adjacent to water	C – IX; R – 86 & 87
60.	Transport and earthmoving equipments	C – X; R – 88 to 95
61.	Concrete work	C – XI; R – 96 to 107
62.	Demolition	C – XII; R – 108 to 118
63.	Excavation and Tunnelling works	C – XIII; R – 119 to 168
64.	Ventilation	R – 153
65.	Construction, repair and maintenance of step roof	C – XIV; R – 169 to 171
66.	Ladders and Step ladders	C – XV; R – 172 to 174
67.	Catch platform and hoardings, chutes, safety belts and nets	C – XVI; R – 175 to 180
68.	Structural frame and formworks	C – XVII; R – 181 to 185

69.	Stacking and unstacking	C – XVIII; R – 186 & 187
70.	Scaffold	C – XIX; R – 188 to 205
71.	Cofferdams and Caissons	C – XX; R – 206 to 211
72.	Explosives	C – XXI; R – 212 & 213
73.	Piling	C – XXII; R – 214 to 222
74.	Medical Examination for building and other construction worker, Crane operator an Transport vehicle drivers	R – 81; R – 223(a)(iii) and Schedule XII
75.	Medical examination for occupational health hazards	R – 233(a)(iv)
76.	Charging of workers for Medical Examination	R – 223(b)
77.	Occupational health centres and Medical officers	R – 225 and Schedule X & XI
78.	Ambulance van & room	R – 226 & 227 and Schedule IV & V
79.	Stretchers	R – 228
80.	Occupational health service for building workers	R – 229
81.	Medical examination for occupational health hazards	R – 223(a)(iv)
82.	Emergency care services and emergency treatment	R – 232
83.	Panel of experts and agencies	Central Rule 250 Delhi Rule 297
84.	Power of inspectors	Central rule 251

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	ATTACHMENT NO.: 3

SITE SHE PLAN	
Contractor Name	
Project Name	

1	**Project Highlights** i. Title of the content ii. Contractor Number iii. Brief scope of work iv. Location map/ key plan v. Period of the project
2	**SHE Policy**
3	**Site Organisation Chart** Chart indicating reporting of SHE personnel
4	**Roles & Responsibility** Individual responsibility of the i. Project Manager ii. Construction Manager iii. Construction Supervisors iv. SHE Committee Members v. SHE Incharge vi. Site Engineers vii. First Line Supervisors viii. Sub-contractors
5	**SHE Committee** i. Details - Chairman, Members, Secretary and Authority's representative, ii. Procedures for effective conduct of meeting
6	**SHE Training**
7	**Subcontractor Evaluation, Selection and Control**
8	**SHE Inspection**
9	**SHE Audit**
10	**Accident Investigation And Reporting Procedures**
11	**Occupational Health Measures**
12	**Labour Welfare Measures**
13	**Risk assessment and mitigation procedures**

14	**Safe Work Procedures** i. Work at Height ii. Structural Steel Erection iii. Launching of segments iv. Floor, Wall Openings and Stairways v. Welding, Cutting and Bracing vi. Lifting appliances vii. Work Permit Systems viii. Electrical Equipments ix. Mechanical Equipments x. Excavation xi. Fire Prevention xii. Hazardous Chemicals and Solvents xiii. Ionising Radiation xiv. Lighting xv. Abrasive Blasting
15	**Work Permit System**
16	**List of standard job specific PPEs to be used in the site**
17	**Maintenance of Regime for construction Equipment and Machinery**
18	**Traffic management**
19	**Housekeeping**
20	**Environmental Management**
21	**Emergency Management**
22	**Visitors and Security arrangement**

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	ATTACHMENT NO.: 4

WORKPLACE POLICY ON HIV/AIDS/COVID-19 PREVENTION & CONTROL FOR WORKMEN ENGAGED BY CONTRACTORS

"Being mobile in and of itself is not a risk factor for HIV infection. It is the situations encountered and the behaviours possibly engaged in during mobility or migration that increase vulnerability and risk regarding HIV / AIDS."

UNAIDS, Technical update on 'Population, Mobility and AIDS', February 2001, p.5

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (NHIDCL) recognizes HIV / AIDS as a developmental challenge and realizes the need to respond to it by implementing regular HIV / AIDS prevention programmes and creating a non-discriminatory work environment for HIV infected workmen engaged by contractors. For the purpose of making conscientious, sensitive and compassionate decision in addressing the realities of HIV / AIDS, NHIDCL has established these guidelines based on ILO code of practice on HIV / AIDS.

- Creating awareness through professional agency using IEC (Information, Education and Communication) package specially designed for migrant workers.
- Institutional capacity building by training the project implementation team, Safety, Health & Environment (SHE) Managers, establishing linkages for efficient diagnosis and treatment of the affected workers, effective monitoring of implementation and documentation for further learning.
- Establishing peer educators by selecting them in consultation with contractors and training them through professional agencies so that they become focal point for any information, education and awareness campaigns among the workmen throughout the contract period.
- Promotion of social marketing of condoms through State Aids Control Society.

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (NHIDCL) also recognizes COVID-19 as a developmental challenge and realizes the need to respond to it by implementing regular COVID-19 prevention programmes. The Contractor must follow the guidelines of Appropriate Authorities in containing and managing the spread of the COVID-19.

MINIMUM MANPOWER REQUIREMENTS OF SHE ORGANIZATION BASED ON CONTRACT VALUE

	1	2	3	4	5	6
Awarded Contract value (in Cr.)	**Chief SHE Manager**	**Senior SHE Manager**	**Junior SHE Manager**	**Safety Steward**	**Senior SHE (Electrical) Engineer**	**Junior SHE (Electrical) Engineer**
Upto 100	-	-	1	Refer Note 1	-	Refer Note 2
Upto 500	-	1	Refer Note 1		-	
Upto 1000	1	Refer Note 1			1	
More than 1000	1				1	

	7	8	9	10	11	12	13
Awarded Contract value (in Cr.)	***Junior SHE (Fire) Manager / **Senior SHE (Fire) Manager**	**Occupational Health officer** with Necessary Nursing Assistants (Refer Note3)	**Environmental Manager**	**Senior SHE (Traffic) Engineer** (Refer Note4)	**Barricade Maintenance Squad** (Refer Note4)	**House Keeping Squad**	**Labour Welfare Officer**
Upto 100	-	-	-	-	Refer Note 5	Refer Note 6	-
Upto 500	-	1 (PT)	1	-			1
Upto 1000	1*	1 (PT)	1	1			1
More than 1000	2**	2(FT)	1 with support staff	1			1 with support staff

Note 1: Adequate, qualified and trained SHE Professionals with required support staff to be deployed at each worksite at each shift.

Note 2: Adequate, qualified and trained Electrical Engineers / supervisors to be deployed at each worksite at each shift.

Note 3: (PT) means Part-Time and (FT) means Full-time.

Note 4: Senior SHE (Traffic) Engineer Post and Barricade Manager (including the staff) Posts are applicable to contracts where the work has to be executed either below or over the right-of-way like Viaduct/Bridge/RoB, Tunnel Contracts wherein erection and maintenance of barricades are paramount important.

Note 5: One Barricade Manager supported by required supervisors and workmen.

Note 6: One Housekeeping Manager supported by required supervisors and workmen.

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	General Instruction : NHIDCL/SHE/GI/002/QE/2020

MINIMUM QUALIFICATION AND EXPERIENCE FOR (SHE) SAFETY, ELECTRICAL, ENVIRONMENTAL, TRAFFIC ENGG. AND OCCUPATIONAL HEALTH PROFESSIONALS

Sl. No	Designation	Qualification	Experience (in years)
1	Chief SHE Manager	The Chief SHE Manager shall have qualified in any of the following degree/diploma: i) Post Graduate Diploma in Industrial Safety & Environmental Management (PGDISEM) from National Institute of Industrial Engineering, Mumbai ii) M.E. in Industrial Safety from NIT, Trichy, Tamil Nadu iii) M.E. in Industrial Safety from Mepco Schlenk Engineering College, Sivakasi, Tamil Nadu iv) B.E. in Fire and Safety Engg. From Cochin University of Science and Engg. Cochin, Kerala v) B.E. with advanced Safety Management Diploma from CLI / RLI Mumbai / Chennai / Kolkata and Kanpur. vi) B.E / B.Arch., with one year Full Time advanced Safety diploma from NICMAR, Hyderabad. vii) B.E/B.Tech with any other equivalent State and Central Govt. recognized full time Degree / Diploma in Safety. viii) International qualifications like CSP (Certified Safety Professional), NEBOSH, MIOSH, MSISO etc.	2 {for all category except (iv) and 5yrs for category (iv)}
2	Senior SHE Manager (Refer Note 3)	As stated in Sl. No:1 and in addition the following categories: i) B.Sc.(Physics/Chemistry/Maths) with one year Full Time advanced Safety diploma from NICMAR, Hyderabad ii) B.Sc. / Diploma in Engg. with advanced Safety Management Diploma from CLI / RLI / Mumbai / Chennai / Kolkata and Kanpur. iii) B.Sc. (Physics/Chemistry/Maths) with One year Full Time diploma in Safety Engineering offered by West Bengal State Technical Education Departments and similar courses by other states. iv) Any Graduate or diploma holder with 7 years of work experience in full fledged SHE department of any Public Sector / Leading Private Sector / MNC / with prior approval of employer on a case to case basis	2 {for category (i), (ii) and (iii) only}
3	Junior SHE Manager (Refer Note 3)	i) Degree in Science / Diploma in Engineering with Govt. recognized safety diplomas from Correspondence course of NICMAR, Annamalai University, National and State Productivity Councils, Other State Technical Education Boards etc. ii) Any Graduate or diploma holder with 5 years of	2 (for category (i) only)

		work experience in full fledged SHE department of any Public Sector / Leading Private Sector / MNC / with prior approval of employer on a case to case basis	
4	Safety Steward (Refer Note 3)	Any basic qualification with any SHE related certificate courses.	2
5	Senior SHE (Electrical) Manager	Degree in Electrical Engineering + Govt. recognized Electrical Licence holder	2
6	Junior SHE (Electrical) Manager	Diploma in Electrical Engineering + Govt. recognized Electrical Licence holder	1
7	Senior SHE (Fire) Manager	i) B.E. (Fire) from National Fire Service College, Nagpur ii) B.E (Fire & Safety) from Cochin University iii) Graduate with any Govt. recognized diploma in Fire Safety with 5 years of experience	2 (for category (i) and (ii) only)
8	Junior SHE (Fire) Manager	Any Diploma holder with any Govt. recognized diploma in Industrial Fire Safety.	1
9	Occupational Health Officer	MBBS with Govt. recognized degree/diploma in Industrial/ occupational health	1
10	Environment Manager	Govt. recognized PG Degree / PG Diploma / Degree in Environmental Engineering / Science	2
11	Senior SHE (Traffic) Engineer	Govt. recognized PG Degree / Degree / Diploma in Traffic/Transportation Engineering or Planning	1
12.	House Keeping Squad - Manager	Any Diploma in Engineering	1
13	Barricade Manager	Any Diploma in Engineering	1
14	Labour Welfare Officer	Any Degree with Govt. Recognized Degree / Diploma / P G Diploma in Labour Welfare related fields like Law, Personnel / Industrial Relations etc.	2

Note 1:In some extraordinary cases where the candidate had earlier worked in NHIDCL Projects they can be considered for the following posts:

i) Senior SHE Manager
ii) Junior SHE Manager
iii) Safety Steward

depending upon the qualification and no. of years of experience on a case to case basis even if they do not possess the prescribed qualification as listed above.

Note 2:In all other cases other than listed under note 3 (i), (ii) and (iii) irrespective their earlier experience with NHIDCL projects the candidates shall qualify as specified above.

MINIMUM REQUIREMENTS OF SHE MONITORING AND AUDIO-VISUAL EQUIPMENTS

1. For the purpose of minimum requirements of Audio-visual and Other equipment the contracts are categorized into the following groups:

Contract Value (Initial awarded value of contract)	Group
Upto 100 Cr	A
Upto 500 Cr	B
Upto 100 Cr	C
More than 1000 Cr	D

2. Every contractor falling into the above groups shall provide the following minimum required audio visual aids for conducting weekly review, monthly safety committee and other post review meeting of all fatal and major incidences effectively. These audio-visual equipments are a must for conducting periodical in-house safety presentations in the training programmes.
3. In addition to the above portable hand held digital sound level meter (SLM) and portable hand held digital lux meter are also to be provided.

Sl.No	SHE monitoring and Audio-Visual Equipment details	SHE monitoring and Audio-Visual equipment required for			
		Group A Contract	Group B Contract	Group C Contract	Group D Contract
1.	Portable hand held Digital Sound Level Meter (SLM)	1	1	1	1
2.	Portable hand held Digital Lux Meter	1	1	1	1
3.	Laptop Computer with standard configuration including multi media facilities	1	1	1	1
4.	Colour Printer	1	1	1	1
5.	Computer projector with screen	-	1	1	1
6.	Overhead projector	1			
7.	• 35mm Camera (For taking accident investigation photos in which case the images can not be easily altered)	1	1	1	1
8.	• Digital camera with flash of minimum 4 mega pixel and video facility	1	1	1	2
9.	• Digital still camera with flash of minimum 4 mega pixel	1	2	4	6
10.	Portable loudspeaker (for tool-box talk and emergency purpose)	1	1	2	6
11.	Communication facility like mobile phone, walky-talky etc	For all supervisors and managers/engineers working in Safety, Health & Environment			
12.	Accident investigation Kit containing the following:	1	1	1	2
a)	Chalk piece for marking				

b)	Measuring tape for measuring Flexible tape – 2m length Metal Foot long scale and Metal tape – 30m				
c)	Equipment tags				
d)	Multipurpose Flash light				
e)	Barrier tape of 20m length				
f)	Accident investigation Forms and checklists				
g)	Enough Paper for witness recording and other noting				
h)	Emergency Phone Numbers list				

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	General Instruction : NHIDCL/SHE/GI/004/OT/2020

Topics for First day at work SHE orientation training of Workmen

1. Hazard Identification Procedure

Hazards on site:

- Falls
- Earthing work
- Electricity
- Machinery
- Handling materials
- Transport
- Site housekeeping
- Fire

2. Personal Protective Equipment

- What is available?
- How to obtain it?
- Correct use and care.

3. Health

- Site welfare facilities
- Potential health hazards
- First Aid/CPR

4. Duties of the contractor

- Brief outline of the responsibilities of the Contractor by law
- Details of Contractor's accident prevention policy
- NHIDCL's SHE manual
- Building and other Constructions Welfare Law

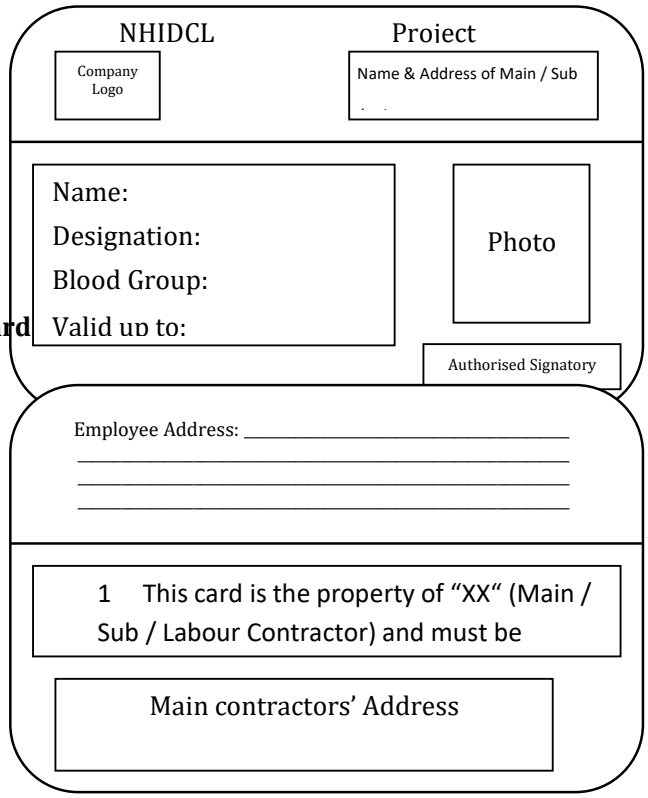
5. Employee's Duties

- Brief outline of responsibilities of employee under law
- Explanation of how new employees fit into the Contractor's plan for accident prevention. (induction and orientation).

ID Card Format

(85 mm x 55mm)

Front side of ID Card:



Backside of ID Card

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	General Instruction : NHIDCL/SHE/GI/006/TMS/2020

SHE Training details for Managers and Supervisors

1. The Law and Safety	**2. Policy and Administration**
Statutory requirement Appropriate regulations Duties of employer and employee	Effect of incentive on accident prevention Human relations Consultation Safety Officer: duties, aims, objectives
3. Safety and the Supervisor	**4. Principles of Accident Prevention**
Safety and efficient production go together Accidents affect morale and public relations	Attitudes of management, supervision and operations Methods of achieving safe operations Accident and injury causes
5. Site Inspection	**6. Human Behavior**
The role of management Hazard Identification Procedure Records results Follow-up procedures Feedback	Motivating agencies Individual behavior Environmental effects Techniques of persuasion
7. Site housekeeping	**8. Health**
Site organization Relationship of site housekeeping to accident occurrence Site access Equipment storage Material stacking Materials handling	Medical examination Hazard to health on site Sanitation and welfare Protective clothing First Aid/CPR
9. Personal Protective Equipment	**10. Electricity**
Eye, face, hands, feet and legs Respiratory protective equipment Protection against ionizing radiation	Appreciation of electrical hazards Power tools Arc welding Low voltage system Lighting and power system on sites ELCB, RRCB, Grounding/Ground fault circuit interrupters (GFCIs)
11. Oxygen and Acetylene Equipment	**12. Equipment**
Cylinder storage and maintenance Condition and maintenance of valves, regulators, and gauges Condition and maintenance of hoses and fittings	Accidents related to moving parts of machinery Appreciation of principles of guarding Importance of regular maintenance

Pressures	

13. Transportation	**14. Excavations**
Transport to and from site Hazard connected with site transport Competent drivers Dumpers Tipping trucks Movement near excavations	Method of shoring Precautions while shoring Precautions at edge of excavations Removal of shoring Sheet steel piling
15. Working platforms, Ladders, and Scaffolding	**16. Cranes and other Lifting Machines**
Hazards connected with the use of ladders Maintenance and inspection Type of scaffold Overloading Work on roofs Fragile material Openings in walls and floors Use of safety belts and nets	Licensing, certification and training required for operation of cranes Slinging methods Signaling Access to crane(s) Maintenance and examination Ground conditions Hazards and accident prevention methods connected with the use of different types of cranes/heavy equipment Crane Lift Plan for all lifts
17. Lifting Tackle	**18. Fire Prevention and Control**
Slings - single and multi-legged Safe working loads (SWLs) Safety hooks and eyebolts Cause of failure Maintenance and examination	Principle causes determining fire Understanding fire chemistry Fire fighting equipment Fire fighting training
19. Communications	
Effective methods of communication (particular interest to non-English speaking workers) Method and preparation of reports Safety committees Safety meeting	

SHE Training Matrix

	Management																		Supervisor											Specific															
	SHE Orientation	SHE Leadership	SHE Plan	SHE Improvement Plan	Management of Change	SHE Audit & Inspection	SHE Emergency Response & Preparedness	Incident/Accident Investigation & Reporting	SHE Communication	SHE Promotion & Incentives	Traffic Management	Hazard Identification & Risk Analysis	Permit to Work System	Confined space entry	scaffolding	Waste Management	Environment Monitoring	Labour welfare measures	Behavioral Based Safety Management (BBSM)	Job/Task Safety Analysis (JSA)	Safety Training Observation Programme (STOP)	Industrial First Aid & CPR	Incident / Accident Investigation & Reporting	Fire fighting	Confined Space Testing & Certification	Scaffold Erection & Inspection	Rigging	Wire Rope Inspection	Crane Inspection	Electrical/Mechanical Isolation	Permit to Work System	Confined Space Working	Explosive Handling & Control	Heavy Lifting Operation	Radiography (X-Ray)	HAZMAT Handling & Control	Welding, Cutting & Bracing	Power Actuated Hand Tool	Electrical/Mechanical Isolation	Roofing Work	Steel erection work	Scaffold Erection/Dismantling	False work Erection/ Dismantling	Painting in Confined Area
Project Manager	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			•																					
Sr. Construction Managers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			•					•							•									
Quality Manager	•	•	•	•	•		•	•	•		•	•	•	•	•	•		•	•	•	•	•																					

Planning engineer	•	•	•		•	•	•	•	•			•		•								•																				
Construction Managers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•	•	•	•	•										
Construction Supervisors	•		•	•	•	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Construction Foreman	•		•				•		•			•	•				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Machinery Operators	•						•				•					•						•		•			•																
Material Handlers	•						•					•	•		•							•	•	•			•																
Station Building Work	•						•						•		•	•						•		•							•			•		•		•		•	•	•	•

ers																																											
Steel workers	•						•						•		•	•						•		•			•				•			•		•	•			•	•	•		
Mechanical workers	•						•									•						•		•			•				•	•		•		•			•	•		•		•
Other Civil workers	•						•									•						•		•			•				•	•	•	•		•			•	•		•	•	•
Electrical workers	•						•									•						•		•			•				•	•		•		•			•	•		•		•
Radiographers	•						•									•						•		•							•	•			•	•						•		
Transportation Drivers	•						•				•					•						•		•																				
Security Officers	•						•	•			•	•	•		•	•						•	•	•																				
Clerical Staff	•						•									•						•		•																				

| | | |

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	General Instruction : NHIDCL/SHE/GI/008/DAY/2020

DAYS TO BE OBSERVED FOR CREATING SHE AWARENESS

1st Monday to Sunday of January	Road Safety Week (Subjected to confirmation from Ministry of Road Transport, Govt. of India every year.)
16th February	Kyoto Protocol Day
March	Red Cross Month
May 1 to 7	Emergency Preparedness Week
4th March	National Safety Day
7th April	World Health Day
14th April	Fire Safety Day
April 18 to 22	Earth Week
20th April	Earth Day
20th April	Noise Awareness Day
28th April	ILO World Day for Safety and Health at Work Day
5th June	World Environmental Day
12th June	World Day against Child Labours
9th July	Occupational Health Day
17th October	World Trauma Day
1st December	World AIDS Day

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	General Instruction : NHIDCL/SHE/GI/009/PS/2020

Minimum Requirements of SHE Communication Posters / Signages Video

1. For the purpose of Minimum requirements of SHE Communication Posters / Signages / Video the contracts are categorized into the following groups:

Contract Value (Initial awarded value of contract)	Group
Upto 100 Cr	A
Upto 500 Cr	B
Upto 1000 Cr	C
More than 1000 Cr	D

2. Every contractor falling into the above groups shall prepare a SHE Communication Plan as a part of site specific SHE Plan and shall include the following minimum requirement of Posters / Signages / Video as applicable. In case readymade posters are available in any of the category from National Safety Council, Loss Prevention Association of India or any other safety related organisations they may procure the same and display it. In case the same is not available then the contractors' shall make necessary arrangements to get the posters designed and printed on their own.

   All the above are to be detailed in the Site SHE Plan and get an approval from the Employer before displaying the posters.

Table No.: 1 - Minimum No. of Posters

Sl.No	SHE Poster Title	Minimum No. of concepts in each title	No. of Posters / Signage / Video			
			Group A Contract	Group B Contract	Group C Contract	Group D Contract
1.	Safety Culture	5	Each 10	Each 50	Each 75	Each 100
2.	Daily Safety Oath	1 English &1 Hindi	Each 100	Each 200	Each 500	Each 1000
3.	Mandatory PPE Usage					
a)	**Signages** to display the	2 types of	Each 25	Each 50	Each 75	Each 200

	messages like PPE ZONE, NO PPE ZONE, HARD HAT AREA etc.	sizes made up of **metal** sheet to be mounted at different locations				
b)	Helmet	5	Each 25	Each 50	Each 75	Each 200
c)	Shoe	5	Each 25	Each 50	Each 75	Each 200
d)	Goggles & Ear Protection	5	Each 25	Each 50	Each 75	Each 200
e)	Full Body Harness	5	Each 25	Each 50	Each 75	Each 200
f)	Hi-Vi Jacket	5	Each 25	Each 50	Each 75	Each 200
4.	Emergency Management Plan	5	Each 25	Each 50	Each 75	Each 200
5.	Working at Heights	10	Each 25	Each 50	Each 75	Each 200
a)	Ladder, Stairway, Scaffold - **Signages** to display the messages like SAFE, UNSAFE, FIT FOR USE, AVOID USE etc.	5 types of sizes made up of **metal** sheet to be mounted at different locations	Each 25	Each 50	Each 75	Each 200
6.	Site Electricity	5	Each 25	Each 50	Each 75	Each 200
7.	Crane Safety	5	Each 25	Each 50	Each 75	Each 200
8.	Slings	5	Each 25	Each 50	Each 75	Each 200
9.	Rigging Procedures	5	Each 25	Each 50	Each 75	Each 200
10.	Excavation	5	Each 25	Each 50	Each 75	Each 200
11.	Occupational Health (Mosquito Control, HIV/AIDS awareness, Dust Control, Noise Control, No Smoking/Spitting, etc.)	10	Each 25	Each 50	Each 75	Each 200
12.	First – Aid	3	Each 25	Each 50	Each 75	Each 200
13.	Labour Welfare Measures (Payment of Minimum Wages, Avoidance of Child	5	Each 25	Each 50	Each 75	Each 200

	labour, Signing in the Muster Roll, In case of accidents-what to do? etc					
14.	Importance of "Safety Handbook"	1	25	50	75	200
15.	Traffic Safety (Speed limit, safe crossing and working within barricaded area etc.)	5	Each 25	Each 50	Each 75	Each 200
16.	Environmental Monitoring (Spillage of Muck, hazardous material, Improper drainage, water spray for dust containment etc.)	5	Each 25	Each 50	Each 75	Each 200
17.	Video in Hindi on PPE usage – 15 minutes duration	1	-	-	-	1

Note 1: Items mentioned under 17 is **video**. Items under 3 (a) and 5 (a) are **metal signage boards** and all other items are **posters**.

Table No.: 2 – Size of Posters / Signages

Sl.No	Item	Size
1.	Posters – Standard	17"x22" –135 GSM 4 Colour Printing
2.	Posters – Special (Wherever required)	17"x22" card laminated FA Poster
3.	Posters - Mega size (Wherever required)	32"x40" Flex FA Poster
4.	First-Aid Booklet	6"x4"
5.	Safety Handbook	6"x4"
6.	Signages	Small : 12"x6" Big : 24"x12"
7.	Road Traffic Sign Boards	Strictly as per Indian Road Congress (IRC) specifications

Table No.: 3 – Safety Signage Colour (as per IS 9457)

Sl.No	Type of signage	Colour
1	Mandatory	Blue
2	Danger	Yellow

3	Prohibitory	Red
4	Safe conditions	Green

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	General Instruction : NHIDCL/SHE/GI/010/AE/2020

Experts / Agencies for SHE Services

Sl. No.	Organisation	Services
1.	Bureau Veritas India Pvt. Ltd., B-21 & 22, First Floor, Sector-16, NOIDA-201 301 (U.P.) Phone: 0120 - 2515055 Fax: 0120 - 2515248 E-mail: enp.delhi@in.bureauveritas.com	• External SHE Audit • SHE Management / Technical Training
2.	Central Labour Institute Post box no: 17851 N.S.Monkikar Marg Sion , Mumbai- 400 022 Tel.: 022- 4092203 Fax: 022 – 4071986 E-mail: cli@dgfasli.nic.in	• SHE Management / Technical Training
3.	Construction Industry Development Council 801, 8th Floor, Hemkunt Chambers, 89, Nehru Place, New Delhi – 110 019	• SHE Management / Technical Training
4.	Delhi Productivity Council 1E/10, Swami Ramtirath Nagar New Delhi – 110 055 Tel.: 23522835	• SHE Management / Technical Training
5.	Det Norske Veritas AS, 203, Savitri Sadan 1, 11 Preet Vihar Community Centre, New Delhi-110 092 Phone: 011-2253 1502/2253/1503, 2242 7688/2253 1278 Fax: 011-2253 0247 Website: www.dnv.com	• External SHE Audit • SHE Management / Technical Training
6.	Dr. A. V. Baliga Memorial trust Link House Bagadur Shah Zafar Marg Press Area New Delhi – 110 002 Phone: 011 – 23311119	• HIV / AIDS awareness
7.	DuPont Safety Resources, E.I. DuPont India Private Limited, Arihant Nitco Park 6th Floor, 90, Dr. Radhakrishnan Salai, Mylapore, Chennai-600 004 Phone: 044-2847 2800, 2847 3752	• SHE Management Training

	Fax: 044-2847 3800 Mobile: 9381201040 Website: in.dupont.com	
8.	EQMS INDIA PVT. LTD. E-49, 1st Floor, Dazzle House, Jawahar Park, Main Vikas Marg, Laxmi Nagar, Delhi-110 092 Phone: 91-11-220 17639/2204 4754 Fax: 91-91 2201 5150 E-mail: eqms@eqmsindia.org Website: www.eqmsindia.com	• ISO Certification • SHE Management / Technical Training
9.	Green Cross Consultants 59, 7th Cross, 1st Floor, Jai Bharath Nagar, Banglore-560 033 Phone: 080-2549 6782 E-mail: etgrangan@yahoo.com	• SHE Management / Technical Training
10.	HSRTC, PENTASAFE, 201, 2nd Floor, Town Centre, Andheri Kurla Road, Marol, Andheri (East), Mumbai-400 059 Phone: 022-2850 2210/20/50 Fax: 022-2850 2260 E-mail: training@penta-safe.com Website: www.penta-safe.com	• SHE Practical Field Training for Height Safety
11.	Institute of Driving Training & Research, Wazirabad Road, Adjoining Loni Road flyover. New Delhi – 110 094 Phone: 011 – 22813474, 22815833 Fax: 011 - 22811131	• SHE Technical Training for Vehicle Drivers.
12.	Institute for Research, Development & Training of Construction Trades & Management, An Educational Institute, Society and Trust, 1st Floor, UVCE Alumni Association Building, K.R. Circle, Banglore-560 001 Phone: 080-22294291/22243257 Fax: 080-22243257 E-mail: ubrco@vsnl.com Website: www.instructindia.org	• SHE Technical /Field Training
13.	International Engineering Company K – 10, South Extension, Part – 2, New Delhi – 110 049 Phone: 011 – 26254761, 26258130 Mobile: 9312260130 E-mail: ashok@intenco.net	• Crane and Lifting appliances and Gears Certification • SHE Practical Field Training for Crane Safety
14.	L & T Eutectic 32, Sivaji Marg New Delhi – 110 015 Phone: 011 - 51419538, 51419539 Fax: 011 - 51419600 Website: www.lnteutecticwelding.com	• SHE Practical Field Training for Welding Safety
15.	Loss Prevention Association of India Ltd.	• SHE Management /

	Warden House, Sir P.M. Road, Mumbai – 400 001 Website: www.lpaindia.org	Technical Training
16.	MFA Crucial Moments Healthcare Pvt. Ltd., 42, Okhla Industrial Estate, Phase – II New Delhi – 110 020 Phone: 011 – 55624000 Fax: 011 – 55624010 E-mail: contact@crucialmoments.net	• First-aid Training
17.	Modicare Foundation 4 Community Centre, New Friends Colony, New Delhi – 110 065 Phone: 011 – 5167235059 Fax: 011 – 26915469 E-mail: nivedita@modi.com nivedita@gmavil.com Website: www.modicarefoundation.org	• HIV / AIDS awareness
18.	National Safety Council HQ and Institute Building 98A, Sector 15, industrial Area C.B.D Belapur, Navi Mumbai – 400614 Phone: 27579924	• SHE Management / Technical Training
19.	NICMAR (National Institute of Construction Management and Research) 910,9th Floor, Hemkunt Chambers, 89, Nehru Place, New Delhi – 110 019 Phone: 011 – 51618415, 51618417, 51618418 Fax: 011 – 51618416	• SHE Management / Technical Training
20.	Quality Growth Services Pvt. Ltd. H-13, Kirti Nagar, New Delhi – 110 015 Fax: 011 – 25431737 / 25438598 / 25918332 E-mail: qgs@qgspl.com Website: www.qgspl.com	• ISO Certification
21.	Safety Engineers Association / Safety Educational Trust – India 2/257, First Floor, Dr. Ambedkar Nagar, Manapakkam, Chennai – 600 116 Phone: 044 – 22523461 E-mail: safetrustindia@rediffmail.com	• SHE Management / Technical Training
22.	SHE Management Consultancy & Support Services, 145 A, Pocket-VI, (DDA Flats), Kondli Gharoli, Mayur Vihar-II, Delhi-110 096 Fax: 011-2262 5015, Mobile: 9811153873 E-mail: r_k_p@vsnl.net	• SHE Management / Technical Training
23.	St. Johns' Ambulance Red Cross Road New Delhi – 110 001	• First-aid Training

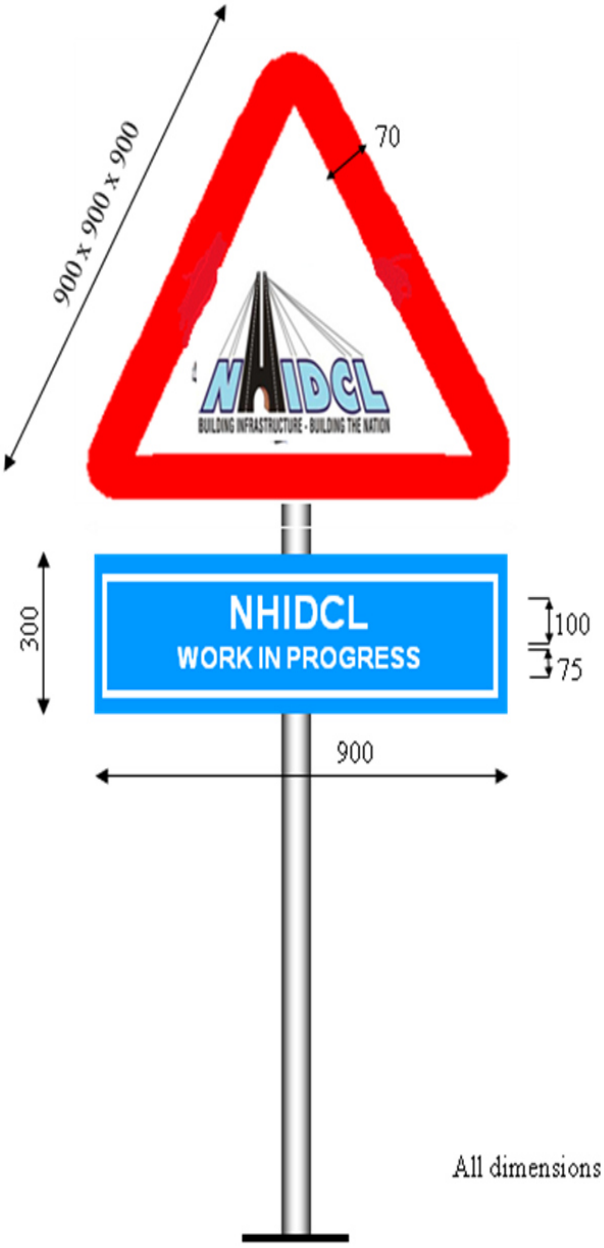
24.	Vexil Business Process Services Pvt. Ltd. 208, A/4, Savitri Nagar, New Delhi – 110 017 Mobile: 9350232714, 98102832201, 9350232716 E-mail: info@vexilbps.com Website: www.vexilbps.com	• Emergency Preparedness Mock drill • SHE Management / Technical Training
25.	Welding Research Institute Bharat Heavy Electricals Ltd. (BHEL) Trichirappalli, Tamil Nadu – 620 014 Phone: 0431 – 2577029, 2577283 Fax: 0431 – 2520770 E-mail: wri@bheltry.co.in	• SHE Practical Field Training for Welding Safety

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	General Instruction : NHIDCL/SHE/GI/011/ILL/2020

MINIMUM LIGHTING REQUIREMENTS

S.N.	- Facility or Function	Luminance – Ix (lm/ft²)
1.	Administrative areas (offices, drafting and meeting rooms, etc.)	540 (50)
2.	- Construction areas - general indoor - general outdoor - tunnel and general underground work areas (minimum 110 lux required at tunnel and shaft heading during drilling, mucking and scaling)	 55 (5) 33 (3) 55 (5)
3.	- Access ways - exit ways, walkways, ladders, stairs	 110 (10)
4.	- Maintenance / Operating areas / shops - vehicle maintenance shop - carpentry shop - outdoors field maintenance area - refueling area, outdoors - shops, fine details work - shops, medium detail work - welding shop	325 (30) 110 (10) 55 (5) 55 (5) 540 (50) 325 (30) 325 (30)
5.	Mechanical/electrical equipment rooms	110 (10)
6.	Hoists, Elevators, freight and passenger	215 (20)
7.	- Warehouses and storage rooms/area - indoor stockroom, active/bulk storage - indoor rack storage - outdoor storage	110 (10) 270 (25) 33 (3)
8.	Health Centers and First aid stations and infirmaries	325 (30)
9.	Toilets, wash and dressing rooms	110 (10)
10.	Work areas – general (not listed above)	325 (30)
11.	Parking areas	33 (3)
12.	Visitor areas	215 (20)
13.	Laboratories	540 (50)

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	General Instruction : NHIDCL/SHE/GI/012/WS/2020



All dimensions are in "mm"

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	FORM No. : SF/001

FORMATION OF SITE SHE COMMITTEE	
Contract No	
Contractor Name	
Project Name	

CIRCULAR

Committee

The following SHE Committee is constituted with immediate effect:
Chairman:
Members:
1)
2)
3)
Secretary:

Periodicity

The committee will meet at least once in a month on the day (specify date).

Agenda

Secretary will circulate agenda of the meeting at least two days in advance of the schedule date of the meeting.

Circulation

Gist of the meeting will be minuted in the standard format and circulated to the following under the signature of the secretary

1. Chairman
2. Members
3. Authority's Representatives
5. Others concerned

Date: Signed By: ----------

CHAIRMAN

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.	
	FORM No. : SF/002

MINUTES OF SHE COMMITTEE MEETING			
Contract No.			
Contractor Name			
Project Name			
Meeting No.		Date of Meeting	
Location of Meeting			

REPORT SENT TO

MEMBERS PRESENT		INVITEES		MEMBERS ABSENT	
No. of Copies	**Name / Dept.**	**No. of Copies**	**Name / Dept.**	**No. of Copies**	**Name / Dept.**

Prepared by: Location: Date:

MINUTES OF SHE MEETING

Item No.	Description of Discussion	Action By	Target	Remarks
1	Complaints received from Authority and corrective and preventive action			
2	Review of MOM of previous meeting			
3	NCR's / Observation from third party			
4	First - Aid cases / Reportable accident cases			
5	Future jobs and specific requirement			
6	Status of implementation of Safety plan			
7	Sub-contractor performance			
8	Analysis of first-aid cases			
9	Need for any specific system / training / PPE's / resources			

10	Observation of SHE committee during last walk down			

Next SHE Meeting is scheduled on:

Date:	**Chief SHE Manager (Signature & Name)**
Date:	Project Manager **(Signature & Name)**

***** **End of the Document** *****