

Annexure III – Terms of Reference (TOR)/Draft Agreement/Work Order

Description of rehabilitation/overlay

The Project comprises overlay and rehabilitation of existing bituminous pavement on main carriageway 27.300 KM (both directions LHS and RHS) and service roads for 27.05 km of length from km 1013.000 to km 1040.300. The procurement of material is under the scope of Contractor for rehabilitation and overlay works.

Broad strategy is as follows:

- a.** Overlay, as per the approval of Employer, Authority/Independent Engineer on main carriageway along with rehabilitation of few sections where severe distresses are observed.
- b.** Overlay will be carried out with Bituminous Concrete (BC) on LHS as well as RHS side of the Project after milling the existing bituminous pavement (wherever required).
- c.** Rehabilitation will be carried out with Dense Graded Bituminous Macadam (DBM) after milling the existing bituminous pavement.
- d.** 6 mm thick mastic asphalt sheet on top of existing structures deck slab after milling the existing bituminous layer.

Overlay chainages and proposed works shall be as per the BOQ enclosed. However, these may undergo change during the course of work and the Contractor would carry out the work as instructed by the employer in this context.

Site Visit:

The Bidder, at his own cost, responsibility and risk, is encouraged to visit, examine and familiarise himself with the site of works and its surroundings including source of borrow earth, water, road aggregates etc. and obtain all information that may be necessary for preparing the bid and entering into a contract for execution of the Periodic Maintenance. The costs of visiting the site shall be at the Bidder's own expense. He may contact the person whose contact details given above.

- a.** Mr. Amitav Chakraborty #093955 35351
- b.** Mr. Ajay Kumar #085878 28316

1. GENERAL CONDITIONS OF CONTRACT

1 GENERAL PROVISIONS

1.1 Definitions

Unless the context otherwise requires, the following terms whenever used in this Contract have the following meanings:

- (a) "Applicable Law" means the laws and any other instruments having the force of law in India, as they may be issued and in force from time to time.
- (b) "Contract" means the Work order signed by the Parties, to which these General & Special Conditions of Contract are attached, together with all the documents listed therein.
- (c) "GC" means these General Conditions of Contract.
- (d) "Effective Date" means the date on as defined in Clause GC 2.1.
- (e) "Employer" means **NHIT Eastern Projects Private Limited**
- (f) "Contractor" means _____
- (g) "Party" means the Employer the Contractors, as the case may be, and Parties means both of them.
- (h) "Personnel" means persons hired by the Contractors or it's Sub-Contractor as employees and assigned to the performance of the Services or any part thereof.
- (i) "Services" means the work to be performed by the Contractors pursuant to this Contract, as described in the to be read in conjunction with **Scope of Services** hereto.
- (j) "Third Party" means any person or entity other than the Employer, the Contractor or a Sub-Contractor.

1.2 Relation between the Parties

Nothing contained herein shall be construed as establishing a relation of master and servant or of principal and agent as between the Employer and the Contractor. The Contractor, subject to this Contract, have complete charge of Personnel, if any, performing the Services and shall be fully responsible for the Services performed by them or on their behalf hereunder.

1.3 Law Governing the Contract

This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Law.

1.4 Language

This Contract has been executed in the English language which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract.

1.5 Headings

The headings shall not limit, alter or affect the meaning of this Contract.

1.6 Authority for Notices, Approval and Consent

1.6.1 Any notice, request or consent required or permitted to be given or made pursuant to this Contract shall be in writing. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent by registered mail, telex, telegram or facsimile to such Party at the address as mentioned below:

For the Employer :

Correspondence Address :
Attention :

For the Contractor :
Correspondence Address :
Attention :

1.6.2 Notice will be deemed to be effective vide personal delivery or registered official email, on delivery.

1.6.3 A Party may change its address for notice hereabove by giving the other Party written notice of such change with respect to Clause GC 1.6.2.

1.7 Authorized Representatives

For day-to-day operations and correspondence other than matters requiring additional financial implications following officers are authorized from each party. For avoidance of doubt any additional financial implication other than agreed in this Contract a separate approval from Client shall be obtained as mentioned in cl no 1.6.1.

For the Employer :

For the Contractor :

1.8 Taxes and Duties

The amount payable to the Contractor under this Contract is inclusive of all the taxes (except GST, which shall be paid by the Client separately), if applicable.

1.9 Sufficiency of Offer

The Contractor shall be deemed to have satisfied himself before quoting as to the correctness and sufficiency of his enquiry for the services and of the rates and prices in the offer, which rates and prices shall, except in so far as it is otherwise provided in the Contract, cover all his obligations under the Contract and all matters and things necessary for the proper completion of the services. If the Contractor is not so satisfied, he must advise the Client immediately in writing before the award of work.

2. COMMENCEMENT, COMPLETION, MODIFICATION AND TERMINATION OF CONTRACT

2.1 Effective Date

The Contract Period shall be effective from date of signing of Contract and shall be valid up to 9 months and DLP of 3 years.

2.2 Commencement of Services

The Contractor shall begin carrying out the works from the Effective Date as mentioned in the Contract.

2.3 Completion of Services.

The Contractor shall complete the services as per the agreed schedule as mentioned in the Contract with the Employer from the date of issue of this Contract.

S.no	Particulars	Scheduled Completion
1	MCW Flexible Pavement	120 days from Effective date
2	MCW Structure Deck Portion Repair and Rehabilitation	120 days from Effective date
3	Overlay of Service Road	150 days from Effective date
4	MCW Rigid Pavement Repairing	210 days from Effective date
5	Construction of Entry and Exit at Service Road and Slip Road/ Improvement of Junction/Median opening	210 days from Effective date
6	Other Misc Activity	270 days from Effective date

2.4 Expiry of Contract

Unless terminated earlier pursuant to Clause 2.9 or extended as per CI 2.6 hereof, this Contract shall expire on completion of tenure of contract.

2.5 Entire Agreement

This Contract constitutes a complete and exhaustive 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 authorized representative of Employer and authorized person of the Contractor in this behalf by the respective Parties. Any prior written or oral understandings offers or other communications of every kind pertaining to this Contract, or the subject matter hereof are abrogated and withdrawn.

2.6 Variation/Modification/Change of Scope

Modification of the terms and conditions of this Contract, including any modification of the scope of the Services, may only be made by written agreement between the Parties. However, each Party shall give due consideration to any proposals for modification made by the other Party.

2.7 Deleted.

2.8 Deleted

2.9 Termination

2.9.1 The Employer may, upon occurrence of any of the events specified in the paragraphs (a) thru' (f) of this clause, terminate this Contract by issuing written notice of not less than seven (7) days unless otherwise specified by the Employer in the notice:

(a) if the Contractor fails to remedy a failure in the performance of their obligations hereunder, as specified in a notice of suspension pursuant to Clause 2.8 hereinabove, within thirty (30) days of receipt of such notice of suspension or within such further period as the Employer may have subsequently approved in writing.

- (b) if the Contractor becomes insolvent or bankrupt or enter into any agreement with its creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary;
- (c) if the Contractor fails to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause 8 hereof;
- (d) if the Contractor submits to the Employer a statement which has a material effect on the rights, obligations or interests of the Employer and which the Contractors know to be false;
- (e) if the Concession Agreement is terminated by Authority for whatsoever reasons, the Employer shall terminate this Contract by giving 30 (thirty) days Termination Notice to the Contractor;
- (f) Failure to agree on key parameters of repairs and inspection details and schedule and difference in view as to the performance in relation to the same, this Contract shall stand terminated by giving a 30 (thirty) days Termination Notice;
- (g) The Employer decides it is in the best interest of the project to do so without assigning any reason whatsoever, the Contract will stand terminated by giving a 30 (thirty) days Termination Notice.

2.9.2 Cessation of Rights and Obligations

Upon termination of this Contract pursuant to Clause 2.9 hereof, or upon expiration of this Contract pursuant to Clause GC hereof, all rights and obligations of the Parties hereunder shall cease, except:

- i. such rights and obligations as may have accrued on the date of termination or expiration.
- ii. the obligation of confidentiality set forth in Clause GC 3.2 hereof;
- iii. any right which a Party may have under the Applicable Law including the Intellectual Property Rights.

2.9.3 Cessation of Services

Upon termination of this Contract by notice of either Party to the other pursuant to Clauses 2.9.1 or 2.9.2 hereof, the Contractor shall, immediately upon receipt of such notice, take all necessary steps to bring the Services to a close in a prompt and orderly manner. The Contractor will provide complete and total support to ensure the transfer of all activities, equipment, vehicles including but not limited to key third party personnel such that the project continues to run in a smooth manner after such Cessation. With respect to documents prepared by the Contractor along with the equipment and materials furnished by the Employer, the Contractor shall proceed as provided, respectively, by Clauses 3.5 hereof. The Contractor will provide full support to the Employer to ensure uninterrupted and proper take-over of all activities by the Employer or a Third Party, if so, instructed by the Employer.

2.9.4 Payment upon Termination

Upon termination of this Contract pursuant to Clauses 2.9.1 or 2.9.2 hereof, the Employer shall make payments to the Contractor pursuant to Clause 6 hereof for Services satisfactorily performed prior to the effective date of termination.

3. OBLIGATIONS OF THE CONTRACTOR

3.1 General

3.1.1 Standard of Performance

The Contractors shall perform the Services and carry out their obligations hereunder with due diligence, efficiency and economy, in accordance with best professional techniques and industry practices and as acceptable to the Employer and shall observe sound management practices. The Contractor shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisers to the Employer, and shall at all times support and safeguard the Employer's interests in any dealings with Third Parties.

3.1.2 Law Governing Services

The Contractor shall perform the Services in accordance with the Applicable Law and shall take all practicable steps to ensure that Personnel of the Contractor, comply with the Applicable Law.

3.2 Confidentiality

The Contractor and the Personnel of either of them shall not disclose any proprietary or confidential information relating to the Project, the Services, this Contract or the Employer's business or operations without the prior written consent of the Employer.

The Contractor shall not disclose such confidential information to any person, other than its own employees who need to know such information in relation to the Services to be provided to the Employer hereunder provided each such employee has executed in favour of the Employer a binding confidentiality in a format specified by the Employer. The Contractor shall not make any copy of the confidential information of the Employer.

The Contractor agrees that a breach or threatened breach of this term may irreparably harm the Employer and that monetary damages may not be an adequate compensation, and that Employer may, without prejudice to any other rights that it may have in this regard, be entitled to injunctive relief and specific performance of this Contract.

Upon the termination or expiry of this Contract or at any time requested by the Employer, the Contractor shall return all the confidential information back to the Employer and certify to the Employer in writing that any medium containing the confidential information of the Employer that could not be so returned has been destroyed in a manner that its subsequent retrieval is rendered impossible by any means.

3.3 Insurance to be taken by the Contractor

The Contractor shall procure and maintain at their own cost, adequate insurances pertaining to their manpower, materials and machinery assets deployed on the Project.

The Contractor shall submit the copies of insurance policy to the Employer and in case required by the Employer amend or modify the insurance policy to the satisfaction of the Employer, If the contractor fails to respond to the Employer's requirements, the Employer reserves the right to amend or modify the request at the contractor's risk and expense

In all the case, the above said liability towards the losses and claims shall remain with the Contractor and the Employer shall in no way and in any case be held responsible for the same.

3.4 Reporting Obligations

The Contractor shall submit to the Employer the reports and documents at each stage of work specified in Scope of Work/Services. The formats of the said reports shall be approved in writing after execution of this document.

3.5 Documents prepared and collected by the Contractor to be the Property of the Employer

The intellectual property rights including copy rights in all the reports and other documents materials prepared by the Contractor for the Employer under this Contract and data/information collected in performing the Services shall become and remain the property of the Employer and the Contractor shall, not later than upon termination or expiration of this Contract, deliver all such reports, documents, materials to the Employer. The Contractor shall not use such reports and other documents, materials developed for the Employer either for itself or in favour of any third party at any time.

The Contractor warrants that all designs, concepts, data and material and other assistance (referred to in this sub-clause as 'Materials') provided by it to the Employer in the course of providing Services under this Contract are either owned by it or is possessed by it under valid license with rights to provide it to the Employer under this Contract and the use, possession or distribution of the same to the Employer or any Contractor of the Employer in performing the obligations of the Employer under this Contract will not infringe the intellectual property rights or any proprietary rights of any third parties and Contractor agrees to hold the Employer fully indemnified and harmless and at all times keep the Employer indemnified against any loss, damages, costs and expenses including attorney's fees, which may be incurred as a result of any action or claim that may be made or initiated against it by any Third Parties alleging infringement of their intellectual property rights by the use, possession or distribution of the Materials by the Employer.

3.6 Contractor undertakes and warrants that:

a. Notwithstanding, any rights given hereunder to the Contractor in respect of deployment of its personnel, Contractor shall withdraw, on Employer's written notice, any of Contractor's Personnel and to forthwith provide appropriate replacements in lieu thereof, in the event:

(i) Any Person/Personnel of Contractor is/are found to be negligent or inefficient in any manner or is/are found engaging in any kind of misbehaviour, indiscipline or criminal or immoral activities.

(ii) Any Person/personnel of Contractor is/are found suffering from any chronic or contagious disease.

(iii) Any person(s) deployed by it is an impediment and against the interests of Employer's premises.

b. Contractor shall be fully responsible for the acts or omissions of the personnel deployed by it and shall indemnify and keep Employer harmless from time to time against any such loss and expenses thereby caused during the tenure of this Contract.

c. Employer shall not be responsible or liable for any theft, loss, damage or destruction due to any cause whatsoever of any property of Contractor or its Personnel lying at the site, except where such loss/damage is directly attributable to Employer or its employees or to their gross negligence or acts of wilful misconduct.

4. CONTRACTOR'S PERSONNEL AND SUB-CONTRACTORS

The Contractor shall employ and provide such qualified and experienced Personnel as are required to carry out the Services and as may be required to cope up with the work.

The Contractor shall not delegate or subcontract any or part of the works.

5. PAYMENT

Payments under this Contract shall be as per work done as per BOQ as instructed by the Employer is inclusive of all other taxes and fees (excluding GST, will be paid if applicable).

6.1 Currency of Payment

The Payment shall be made in Indian Rupees only.

6.2 Billing & Timeline for Payment:

Billing and payments in respect of the works shall be as set forth in this clause.

(a) Payment will be made on monthly work done measurements certified by Engineer in Charge. Seventy-five percent (75%) of the bill amount shall be paid within fifteen (15) days of the submission of duly certified and verified bills from the site.

(b) The balance twenty Five percent (25%) of the payment shall be made after the submission of RFI, proof of all statutory compliances and quality-related test reports

(c) All payments under this Contract shall be made to the account of the Contractors in Indian Rupees

7. FAIRNESS AND GOOD FAITH

7.1 Good Faith

The Parties undertake to act in good faith with respect to each other's rights under this Contract and to adopt all reasonable measures to ensure the realization of the objectives of this Contract.

8. SETTLEMENT OF DISPUTES

8.1 Amicable Settlement

The Parties shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or the interpretation thereof.

8.2 Dispute Settlement

Any dispute arising out of the RFP, which cannot be amicably settled between the parties, shall be referred to arbitration in accordance with the Arbitration and Conciliation Act, 1996 through a panel of three arbitrators, with each of NEPPL and the remaining disputing party(s) appointing one arbitrator and the two arbitrators so appointed appointing a third arbitrator. Provided that in the event that any disputing parties fail to appoint an arbitrator within 15 days from the dispute being referred to arbitration, the other parties shall be at liberty to appoint an arbitrator for such disputing party(s) and such appointment shall be final and binding on the other disputing parties. The venue of the arbitration shall be at New Delhi.

9. GENERAL

9.1 ASSIGNMENT

The Contractor shall not be entitled to assign the rights and obligations under this Contract without the prior written consent of the Employer.

9.2 TAKING OVER IN PART

During the progress of the Project, any completed portion of the work and the site where on the same has been undertaken may, in its discretion, be occupied by the Employer.

9.3 Deleted

9.4 CONTINUITY OF SERVICES

On execution of the Contract the Contractor must always have in place a detailed contingency and business continuity plan that covers situations where the Services cannot be provided by the Contractor including due to Force Majeure Event, malfunction or unavailability of Contractor personnel and resources and any other causes. Contractor must ensure that the contingency and business continuity plan and each update to, and revised version of, the contingency and business continuity plan is approved by the Employer. In the event that Contractor is unable to provide any Service for any reason including a Force Majeure Event, malfunction or unavailability of Contractor resources or any other cause, Contractor must immediately notify Employer and comply with the current approved contingency and business continuity plan to ensure continuity of the Services. Contractor confirms that its contingency and business continuity plan will be such that notwithstanding non availability of its resources for any reason whatsoever, Contractor is able to continue to provide the services in accordance with the agreed service levels and otherwise perform all its obligations under this Contract without interruption.

9.5 Audit

Contractor shall provide access to Employer, its internal and external auditors, inspectors, regulators and other representative that Employer may designate from time to time, at reasonable hours, to Contractor's personnel and to Contractor's records and other pertinent information, all to the extent relevant to the performance of Contractor's financial obligations under this Contract. Such access shall be provided for the purpose of performing audits and inspections to (i) verify the accuracy and completeness of Contractor's invoice; (ii) enable Employer to meet applicable legal, regulatory requirements. Contractor shall provide any assistance reasonable during the term and up to 4 (four) years thereafter.

9.6 Without prejudice to any other term contained herein, Contractor shall comply in all respects with the provision of all applicable laws statutes, ordinances, rules and regulations applicable to it/and or its employees, and shall obtain all such Municipal and other Government permits, license and inspection as may be necessary and shall pay at its own cost all charges in connection therewith and in particular and without limitation, Contractor shall obtain registration and license under the Contract Labour (Regulation and Abolition) Act, 1970 and the Rules made there under and also comply with the provisions of the Minimum Wages Act, 1948 and the provisions of the Workmen's Compensation Act, 1923 Employees state Insurance Act, 1948, Employees Provident funds & Miscellaneous Provisions Act, 1952, and such other Acts, rules and regulations as may be applicable and imposed by appropriate authorities. This clause shall survive the termination of this Contract. Contractor shall hold Employer harmless and indemnified against consequence of any default or breach or non-compliance of any such laws, ordinance, rules, etc.

9.7 LIABILITY

Notwithstanding any other provision of this Contract, the Parties agree and acknowledge that any and all liabilities of the Contractor under or arising from this Contract, shall not exceed the Contract Price, except where such damages arise from:

a) Wilful Misconduct; or

b) any liability arising due to non-compliance of the Contractor with Applicable Laws, Approvals.

In no event shall Employer be liable to Contractor for any indirect, incidental, consequential, special or exemplary damages, nor for any damages as to lost profit, data, goodwill or business, nor for any reliance or cover damages arising out of either the performance or non-performance of any terms of this Contract by Employer

or enforcement of any rights of Employer under this Contract, even if Employer was advised about the possibility of the same.

2. SPECIAL CONDITIONS

SI No	Item Description	Particulars
1	Contract Price	<p>Contract Price is Rs. _____/- excluding GST.</p> <p>Contract Price shall be as per detailed BOQ attached herewith for the Scope of Works.</p> <p>GST shall be paid as per actual along with the RA Bills. However, if the Contractor fail to submit the GST returns filing within the specified timeline the same shall be recovered in the next RA Bill.</p>
2	Period of Contract	The said works shall be completed within 9 months from the date of Effectiveness of Contract.
3	Program for execution /Work Programme	Contractor shall prepare in close co-ordination with Employer a detailed work schedule ("Work Programme") in line with agreed milestones to be submitted within 10 days from the date of Effectiveness of Contract for Employer approval. The Contractor shall deploy the resources and execute the works as per the Work Programme duly approved by Employer.
4	Rates	<p>Rates will be valid for period of Contract. There will be no change in Rates on account of any reason.</p> <p>The Rates quoted in the BOQ are inclusive of all labour, material & machinery, HSD, licenses, taxes, duties, levies, Royalty/ Seigniorage/ Cess charges, Labour welfare Cess and Insurance (which includes CAR policy), fulfilment of statutory requirements (which include provident fund, workmen compensation Act, Employer state insurance and others) and all applicable permits & licenses for entire tenure of the project.</p>
5	Performance Security	The Contractor shall provide 5% of the Contract Price (i.e. Rs. _____/-) within 15 days of issuance of letter of award (LOA)/ Work order/ Notice To Proceed in the form of an irrevocable and unconditional bank guarantee ("Performance Security"). This will be valid till 30 days after expiry of DLP and shall be released within 30 days of expiry of DLP on successful discharge of Contractor's obligations and clearance of dues if any of Contractor. The format for the Performance Security shall be provided by the Employer and shall be binding on the Contractor.
6	Quantity Variations.	Quantities mentioned in the BOQ are only indicative. Contractor shall execute all the quantities within time period irrespective of any quantity variations. However, these varied quantities shall also be executed at the quoted Rates in BOQ. The Quantities mentioned in BoQ may vary up to $\pm 25\%$ of original BoQ quantity of single BoQ item subject to maximum of $\pm 10\%$ of original Contract Value.
7	Extra Item of Work	The Contractor is liable to execute and complete all the extra item of Work, within the Contract period or extended period (as extended as per the provisions of this Contract), assigned by Employer. The rates for such extra item of Work shall be derived from the similar item of this contract and will be determined by Employer.
8	Mobilization Advance Payment	The Authority shall make an interest-bearing advance payment (the "Advance Payment") equal in amount to 10 (Ten) percent of

		the Contract Price for mobilization expenses and for acquisition of equipment. The advance payment shall be made in two instalments each equal to 5% (Five percent) of the Contract Price. The advance payment would be deemed as interest bearing advance at an interest rate of 12% (twelve) per annum, to be compounded quarterly. The interest would be recovered along with recovery of advance payment
9	Recovery of Mobilization of Advance Payment	The recovery of Advance Payment shall be on percentage basis from Interim Payment Certificates. Recovery shall start once the total of interim payment certified reached 20% (twenty percent) of Contract Price. The percentage of deduction for the advance payment will be such that the entire amount of advance shall be recovered up to certification of interim bill up to 80% of the Contract Price.
10	Retention Money	Retention Money @ 5% of the Gross Amount of Interim Payment Certificate/RA Bills shall be recovered during each Running Account /Interim Bill. The Contractor, at his option, can substitute the Retention Money with an equivalent Bank Guarantee and the validity of such BGs shall be 30 days after the expiry of the Defects Liability Period. All the Retention Money/Bank Guarantee shall be released upon satisfactory completion and thirty (30) days after Defects Liability Period.
11	Defects Liability Period (DLP)	DLP of 36 Months from the date of Completion Certificate issued by Employer.
12	Taxes	GST will be paid as per actual. Income Tax shall be deducted at applicable rates, at source from the payments as per Income Tax Act and TDS Certificate shall be issue to the Contractor. If the Contractor fails to submit the proof of submission of returns and remittance of tax to the Sales Tax Department, the Employer reserves the right to deduct the necessary / applicable Tax from the payments due to the Contractor and shall be refunded by the Contractor on receipt of the refund if any from appropriate Tax Department. It is the responsibility of the Contractor to pay all the taxes/ Royalty/ Seigniorage charges prevailing as of now and any new taxes that may be levied in future.
13	Quality Control /Tests	The Contractor shall be required to maintain site laboratory facilities and adequate laboratory staff for testing the material used for execution of the works. Contractor shall ensure that all the testing material & equipment is properly calibrated and certified by the concerned authorities. The Contractor shall adopt all measures necessary to maintain the Quality Control Standards and the frequency of tests to be carried out as per latest IS Codes / MoRTH 5 th revision Specifications / IRC Specifications / Technical Specifications and execute the Work as per the approved standards as approved by the Employer or their Authorized Representatives / Authority/ IE.

		<p>Contractor shall provide office space for Employer staff including furniture at Contractors Lab or Camp.</p> <p>Contractor shall ensure that the Surface roughness of the Project Highway on completion of construction shall be <2000 mm/km as per measured by laser profilometer. The cost of the same shall be borne by Contractor.</p> <p>The cost for collection of samples, transporting the same to the laboratory, payments if any to the third-party accredited laboratory shall be borne by the Contractor.</p> <p>In the event that results of any tests conducted establish any defects or deficiencies in the Works, the Contractor shall carry out remedial measures and furnish a report to the Employer in this behalf. The Employer shall require the Contractor to carry out tests to determine that such remedial measures have brought the Works into compliance with the Specification & Schedules, shall be repeated until such Works conform to the Specification & Schedules. For the avoidance of doubt, it is agreed that tests shall be undertaken in addition to and independently of the tests that shall be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice. It is also agreed that a copy of the results of such tests shall be sent by the Contractor to the Employer forthwith. The cost of undertaking such tests/works shall be entirely borne by the Contractor.</p>
14	Payments of RA Bills	<p>The Contractor shall raise one Running Account bill every month with supporting RFIs, necessary Test report and documents etc. The Employer shall check the RA Bill in detail for its correctness.</p> <p>(a) Payment will be made on monthly work done measurements certified by Engineer in Charge. Seventy-five percent (75%) of the bill amount shall be paid within fifteen (15) days of the submission of duly certified and verified bills from the site.</p> <p>(b) The balance twenty five percent (25%) of the payment shall be made after the submission of RFI, proof of all statutory compliances and quality-related test reports</p>
15	Measurement	The actual executed works shall be measured jointly by the Contractor and Employer representative. The quantity for payment shall be arrived based on actual work executed
16	Technical Specifications	Contractor shall follow the Technical specifications, IS & IRC codes (MORTH 5th Edition, IRC: 29, IRC: 37, IRC: 95 & IRC: SP-53, IRC: SP 83 etc.) as specified in the Contract and instructions given by the Employer, IE/Authority and carry out the work to their satisfaction.
17	Insurance	The Contractor shall insure its equipment, machinery, manpower etc. at its own cost. Contractor shall submit all copies of such licenses to Employer before commencement of the work.
18	Quality, Health, Safety and Environment	Contractor shall follow the highest standard of Quality, Health, Safety and Environment in the project as detailed in the CA and the approved EHS Plan, Contract conditions and best industry practices and Employer SOPs/policy to this regard during

		<p>construction period and till completion of the Defects Liability Period.</p> <p>Contractor shall follow the Safety guidelines during Construction as per IRC: SP 55-, MoRTH Specifications and Work Zone Safety Manual. Rates of various items quoted deemed to be included of all measures required for Labour camps, safety of working areas and traffic plying on the road.</p>
19	Liquidity Damages	<p>If the Contractor fails to complete the works within the time for completion, then the Contractor shall pay to Employer a sum calculated at 0.5% of the Contract Value for every week of delay as Liquidity Damage for such default subject to a maximum of 10% of the Contract Price.</p>
20	Approvals	<p>All approvals including source approvals, JMF, QC Approvals, RFI Approvals, Traffic Management Plan, Traffic diversion & safety, Interaction with Employers / Authority/ IE, Work Completion Certificate, etc are to the scope of Contractor. All necessary approvals from State Pollution Control Board and other Competent Authorities shall be obtained by the Contractor. CTE & CTO for the establishment of hot mix plant shall be obtained by the contractor</p>
21	NOC from Mining Department	<p>Upon completion of work, Contractor shall get NOC from Mining Department to the effect no payment due of Royalty / Seignorage charges</p>
22	Traffic Management	<p>Contractor shall be responsible for safety and Traffic Management during construction. The Contractor should submit a detailed Traffic Management Plan prior to commencement of work and get approval from the Employer. A typical diversion plan attached herewith in Annexure-1, shall be strictly followed. Failure to comply with this will result in stoppage of work. No time extension will be considered on this account.</p>
23	Force Majeure Event	<p>Natural Calamity including but not limited to floods, drought, earthquake and epidemics Act of any govt, domestic or foreign, including war, declared or undeclared quarantines, embargoes etc.</p>
24	Termination Clause	<p>The Employer reserves the right to terminate the contract in event of non-performance of the Contractor, and if the performance of the contractor is significantly slower than the desired pace</p>
25	Work Completion Certificate	<p>The Contractor shall request the Employer to issue a Certificate of Completion of the Works and the Employer will do so upon deciding that the Work is completed.</p>

Annexure IV –Detailed Scope of Work

- a. Overlaying of the entire main carriageway & existing service road/ slip road (flexible pavement) of the Highway, with Bituminous Concrete (BC) using VG 40 for rehabilitation of the flexible pavement after milling and rehabilitation with Dense Bituminous Macadam (DBM) using VG 40 wherever required and all other allied works as per the BOQ attached, in line with terms & conditions, technical specifications (MORTH 5th edition). For the avoidance of doubt any change in layer thickness of bituminous, rates shall remain same as per quoted BOQ rates by contractor.
- b. Repair & rehabilitation work rigid pavement that work including full depth replacement of existing PQC panel, repair & replacement of old Joints Sealant, Seal with epoxy of rigid pavement crack location, Diamond Grinding with texturing and all other allied works as per the BOQ attached, in line with terms and conditions, technical specifications (IRC SP 83-2018).
- c. Construction/ modification of entry & exist arrangement at 4 locations.
- d. 3 Nos Redesign of minor junction as per attached drawing, construction of acceleration and Deceleration Lane at 6 nos junction location and construction of 3 nos new minor junctions.
- e. Construction of new median opening, Storage length construction of existing median opening and close of median opening with new jersey crash barrier.
- f. Other miscellaneous activity related to the pavement like Kerb construction, Kerb & Crash Barrier painting, thermoplastic road marking, fixing of road stud, fixing of metal beam crash barrier, Installation of Pedestrian guard rail and fixing of distance marking stone.
- g. Contractor shall submit all details design and drawing for approval.

1.1 Setting of Base Camp:

Mobilization and remobilization and commissioning required Plant and equipment with all accessories, experienced highly skilled / skilled / semiskilled / unskilled manpower with all necessary tools & tackles, consumables required for successful execution of job.

Setting up of base camp for Crusher, Hot Mix Plant (HMP), offices, laboratory, weighbridge, material (bitumen, aggregate, lime, etc.) storage. The land for such erection of Base Camps shall be identified by the Contractor in consultation with the Employer. All the necessary environmental and legal licenses/compliances shall be done by the Contractor.

1.2 Milling of Existing Surface:

This work consists of removal (milling) of existing pavement surface (identified locations only) up to a prescribed cutting depth (As mentioned in the BOQ) using milling machine including carrying and disposal of waste material as per the Technical Specifications and as directed by the Employer. The milled surface shall be cleaned up to the satisfaction of the Employer by means of mechanical broom and labours.

1.3 Production of Bituminous Mix:

This shall consist of production of different type of bituminous mix (like Bituminous Concrete, Dense Bituminous Mix, etc.) as per the Job Mix Formula provided by the Contractor and decided by the Employer in consultation with Contractor. It shall include the erection of Hot Mix Plant (as mentioned in Technical Specifications) as well as operation and maintenance of the same.

All applicable resources (manpower, fuel, generator, spare parts etc.) required for erection, maintenance and operation of HMP shall also be in Contractor's Scope.

1.4 Transportation of Bituminous Mix:

This shall consist of providing tippers for transporting material from Hot Mix Plant facility (i.e. the base camp) to the paver at the working site within stipulated time.

Resources (fuel, tipper cover etc.) and necessary manpower that need to be provided should be in the scope of the contractor.

The procedures include loading the bituminous mix from the Hot Mix Plant into the tipper, weighing and ticketing, protecting the mix from cooling and rain by providing covering material over the mix, transporting to the job site, dumping into the paver hopper and returning the truck to the Hot Mix Plant facility.

Transportation of Bitumen from approved refineries to HMP locations is also in the scope of Contractor.

1.5 Spraying of Tack Coat

The work shall consist of application of a single coat of low viscosity liquid bituminous material to existing bituminous surface. The tack coat should be applied by a self-propelled or towed bitumen pressure sprayer, equipped for spraying the material uniformly at a specified rate. Hand spraying will not be permitted except in small areas, inaccessible to the distributor or narrow strips shall be sprayed with a pressure hand sprayer.

Other general specifications for Tack Coat with bituminous emulsion should be as per Technical Specification after proper scarification of the existing surface. Surface for Tack Coat should be properly cleaned with mechanical broom to the level of satisfaction of the Employer, to obtain flat surface with no loose elements.

1.6 Laying of Bituminous Mix

Laying consists of execution of paving and laying work of different bituminous mix as per the Technical Specifications. It also includes providing all the paving and laying equipment like Sensor Paver Finisher (9m width), tandem roller, pneumatic roller, Air Compressor, Water Tanker etc of type mentioned in Technical Specifications and all the manpower required like bituminous labours, supervisors, Quality Engineers, machinery operators.

1.7 Compaction

It consists of rolling of newly laid bituminous surface with help of vibratory and pneumatic rollers to achieve a desired field density/void ratio as per the Technical Specifications.

1.8 Removal of Debris from Site

Proper disposal of bituminous and other waste should be undertaken on a day-to-day basis. In case of failure, the Employer shall remove the same at the Contractors cost.

1.9 MCW Rigid Pavement Repairing

1.9.1 Existing PQC Slab removed and replaced with new PQC Slab:

Location: As mentioned in BOQ

❖ Marking the Area for Repair

Mark the area to be repaired based on inspections using sound testing, straight-edge measurements, or core tests. This ensures the exact damaged portion is targeted for repair.

❖ Cutting and Removing the Damaged Portion

Saw Cuts: Saw cuts are made around the perimeter of the damaged area, typically to one-quarter to one-third of the slab thickness. This creates a buffer zone to prevent undercut spalling. Full-depth cuts are then made for removing the slab.

Buffer Benefits: The buffer minimizes the risk of damaging adjacent areas during slab removal.

The concrete within the marked area is broken and removed.

❖ Inspection of Sub-base and Layers

After removal, inspect the sub-base and any underlying layers (DLC, sub-drainage system) for cracks or damage. Core tests may be conducted to verify the integrity. If the sub-base is unsatisfactory, it should be replaced.

❖ Installation of Dowel Bars and Reinforcement

Drilling Holes: Holes are drilled for dowel or tie bars using dowel-drilling rigs to ensure alignment. Pneumatic drills are preferred for speed. The hole diameter should be slightly larger than the bar to accommodate epoxy or cement-based anchoring material.

Cleaning Holes: Clean the drilled holes using compressed air, ensuring no moisture or oil is present.

Epoxy Injection: Epoxy is injected into the holes before inserting the dowel bars to ensure proper anchoring without voids.

Reinforcement Placement: If the repair area exceeds a length-to-width ratio of 1.5, reinforcement bars (10 mm diameter) are installed 75 mm below the surface.

❖ Preparation for Concrete Pouring

Surface Preparation: A cement-sand slurry (1:1 ratio) with a water-cement ratio of 0.4 to 0.62 is applied on the sides and bottom of the repaired area to enhance bonding before the concrete pour.

Concrete Pouring: Fresh M-40 grade concrete is poured into the prepared area. The concrete is evenly distributed and compacted using vertical vibrators.

❖ Finishing and Curing

Surface Finishing: The surface is screeded and finished, ensuring minimal hand finishing to avoid surface undulations.

Texture Application: A wire-brush or tined texture is applied to match the texture of the surrounding pavement.

Curing: Curing compounds are applied immediately after finishing to ensure proper hydration and prevent surface cracking.

❖ Opening to Traffic

The repaired section must achieve a minimum compressive strength of 32 MPa before opening to traffic. Laboratory tests should be conducted to ensure the mix design meets this requirement.

1.9.2 Existing Joint of Rigid Pavement are to be repair by carrying out Joint Filling & Replacement of Joint Sealant in accordance with IRC SP: 83-2018

Location: As mentioned in BOQ

1.9.3 Diamond Grinding and Grooving

❖ Diamond grooving is a specialized method used to enhance the skid resistance of concrete pavement. It helps reduce wet weather accidents, improve traction, and prevent hydroplaning (where water forms a layer between the vehicle tires and the pavement, causing a loss of control).

❖ Grooving is an effective solution to combat aquaplaning on high-speed expressways. The process involves creating cuts with diamond-impregnated blades or cylindrical rings. The grooves, typically cut transversely, are 3 to 5 mm deep and 3 to 4 mm wide, spaced 10 to 40 mm apart. These grooves help channel water away from beneath vehicle tires, reducing the risk of aquaplaning. This technique is particularly useful for pavements prone to wet-weather accidents, especially around curves or junctions.

❖ Surface grooving involves the following:

- (i) All joints must be properly sealed to prevent the entry of sawing slurry.
- (ii) Measures are taken to ensure that sawing slurry does not flow into surface water drains.
- (iii) The surface is textured by sawing randomly spaced grooves that are 3 mm wide and at least 4 mm deep.
- (iv) Any slurry deposits are flushed away and removed from the pavement surface.

This method is highly effective in areas prone to wet-weather accidents, such as high-speed expressways, and helps in water expulsion, improving road safety by increasing friction and preventing hydroplaning.

Other miscellaneous activity related to the pavement like Kerb construction, Kerb & Crash Barrier painting, thermoplastic road marking, fixing of road stud, fixing of metal beam crash barrier, Installation of Pedestrian guard rail and Fixing of distance marking stone

1.10 Construction/ modification of entry & exist arrangement at 4 locations.

The entry /exit arrangements at following location shall be constructed/modified as per fig. 2.1 of IRC: SP: 84 – 2019.

Table 22 Exit/ Entry Arrangements of Service Road

S. No	Chainage (Km)	Side	Location	Improvement Proposal
1	1027+935	LHS	Entry of Service road	Entry/ Exit Improvement
2	1027+965	RHS	Exit of Service road	Entry/ Exit Improvement
3	1038+155	LHS	Entry of Service road	Entry/ Exit Improvement
4	1038+165	RHS	Exit of Service road	Entry/ Exit Improvement

Refer: Refer Appendix-A for Entry/ Exit Improvement.

1.11 Junction improvement

1.11.1 Redesign of Junction

The Contractor shall improve the following junctions as per details given

below and specifications & Standards given in IRC: SP: 84- 2019

Table 23 Redesign of Junction

S. No	Chainage (Km)	Side	Improvement Proposal
1	1029+200	RHS	Refer Appendix-B
2	1034+710	RHS	Refer Appendix-B
3	1038+815	BHS	Refer Appendix-B

Note: Refer Appendix-B for Redesign of Junctions

1.11.2 Construction of Acceleration and Deceleration Lane

The Contractor shall construct 90 m Acceleration and Deceleration Lane following junctions as per details given below and specification & standard given in IRC SP: 84-2019

S. No	Chainage (Km)	Side	Improvement Proposal
1	1015+070	RHS	Provide 90m Acceleration and 90m Deceleration Lane
2	1017+860	BHS	Provide 90m Acceleration and 90m Deceleration Lane
3	1023+880	BHS	Provide 90m Acceleration and 90m Deceleration Lane
4	1026+210	RHS	Provide 90m Acceleration and 90m Deceleration Lane
5	1029+020	RHS	Provide 90m Acceleration and 90m Deceleration Lane
6	1031+290	RHS	Provide 90m Acceleration and 90m Deceleration Lane

Note: Refer Appendix-C for Acceleration and Deceleration Lane

1.11.3 New Minor Junction

The Contractor shall construct new minor junctions following location as per details given below and specification & standard given in IRC SP: 84-2019

S. No	Chainage (Km)	Side	Improvement Proposal
1	1019+365	LHS	Pave up to 30m
2	1025+160	RHS	Pave up to 30m
3	1026+500	LHS	Pave up to 30m

Note: Refer Appendix-D for New Minor Junction.

1.12 Median Opening

1.12.1 New median opening

The Contractor shall construct new median opening following location as per details given below and specification & standard given in IRC SP: 84-2019

S. No	Chainage (Km)		Length (m)	Improvement Proposal
	From	To		
1	1017+850	1017+870	20	New Median Opening with Storage Lane
2	1022+540	1022+560	20	New Median Opening with Storage Lane
3	1029+240	1029+260	20	New Median Opening with Storage Lane
4	1039+990	1040+010	20	New Median Opening with Storage Lane

1.12.2 Closure of median opening

The Contractor shall close the median opening construct following locations

S. No	Chainage (Km)		Length (m)	Improvement Proposal
	From	To		
1	1016+250	1016+275	25	Close Median Opening by New Jersey Crash Barrier
2	1017+710	1017+730	20	Close Median Opening by New Jersey Crash Barrier
3	1022+705	1022+725	20	Close Median Opening by New Jersey Crash Barrier
4	1026+340	1026+350	10	Close Median Opening by New Jersey Crash Barrier
5	1026+990	1027+015	25	Close Median Opening by New Jersey Crash Barrier
6	1029+115	1029+135	20	Close Median Opening by New Jersey Crash Barrier
7	1040+170	1040+195	25	Close Median Opening by New Jersey Crash Barrier

1.12.3 Construction of storage length at median opening

The Contractor shall provide the storage length of existing median opening following location as per details given below and specification & standard given in IRC SP: 84-2019

S. No	Chainage (Km)		Length (m)	Improvement Proposal
	From	To		
1	1015+475	1015+500	25	Provide Storage Lane on BHS on Median
2	1019+715	1019+735	20	Provide Storage Lane on BHS on Median
3	1026+215	1026+235	20	Provide Storage Lane on BHS on Median
4	1027+635	1027+655	20	Provide Storage Lane on BHS on Median
5	1035+500	1035+525	25	Provide Storage Lane on BHS on Median
6	1037+345	1037+370	25	Provide Storage Lane on BHS on Median
7	1038+790	1038+810	20	Provide Storage Lane on BHS on Median

1.13 Other miscellaneous activity

1.13.1 Thermoplastic Road marking

Road marking shall be provided throughout the project highway including main carriageway, Service/slip roads, Ramps, junction etc. as per IRC:35-2015 & IRC: SP:84-2019.

The Transverse Thermoplastic Bar Marking shall be provided as per NHAI Circular (105/2012) issued vide letter no. 11041/218/2007-Admn, dated- 11th June 2012 and IRC:99-2018, at the hazardous locations including but not limited to the locations, Median openings (U-Turn Facilities), Toll Plaza approaches, Approaches to At Grade junctions, Exit ramps and downside of the approach of the flyovers for both carriageways of Main Highway etc.

These works are involved in thermoplastic road marking item.

Preparation of the Surface:

- Surface Cleaning: After scraping, the surface needs to be thoroughly cleaned to remove all dust, debris, and loose particles. This ensures proper adhesion of the primer and the new marking paint. Cleaning methods may include sweeping, air blasting, or washing with water, depending on the level of cleanliness. required and the specific conditions of the pavement.

Application of Primer

- **Application of Thermoplastic Road Marking Paint:** This is the final step, where thermoplastic paint is applied. Thermoplastic markings are known for their durability, reflectivity, and resistance to wear, making them suitable for high-traffic areas. The application is typically done using specialized equipment that heats the thermoplastic material to the required temperature before it is sprayed or extruded onto the pavement.

Costing Implications

- **Inclusive Rate:** The rate for road marking should be comprehensive, covering all the preparatory work (scraping of existing markings and surface cleaning), primer application, and the actual application of thermoplastic paint.

Quality and Compliance:

- Ensuring that each step is carried out to a high standard is essential for compliance with MoRTH (Ministry of Road Transport and Highways, India V Revision) guidelines and standards, such as those specified in IRC: 35-2015 and other relevant documents.

Warranty:

- **Durability Requirement:** The road markings should have a functional life of at least two years. This implies that the materials used, and the application technique must be robust enough to withstand traffic and environmental conditions for this period without significant degradation.
- **Performance Parameters:** These are likely metrics related to the visibility, reflectivity, skid resistance, and possibly the wear resistance of the road markings. The standard (IRC: 35-2015) you mentioned will specify the minimum acceptable levels for these parameters to ensure that the road markings remain effective and safe for road users.
- **Warranty Period:** During this period, the contractor or the entity responsible for the road markings must ensure that all performance parameters meet or exceed the specified thresholds. Any failure to maintain these standards may require remedial work to be undertaken at the contractor's expense.
- **Monitoring and Inspection:** Inspections are to be conducted twice a year to assess whether the road markings meet the required standards. These inspections should be performed by the Employer or the Independent Engineer (IE). The methodology for these inspections should follow the procedures outlined in Section 15 of IRC: 35-2015. This section would detail how to measure each performance parameter, the equipment to use, and how to interpret the results.
- **Random Section Testing:** The specific sections of the road network where the testing is to be done are selected randomly. This approach ensures that the evaluation is unbiased and representative of the overall condition of the road markings across the network

1.13.2 Kerb painting and existing crash barrier painting

The below works involves in Kerb painting & Crash Barrier painting work

Preparation of the Surface:

- **Surface Cleaning:** After scraping, the surface needs to be thoroughly cleaned to remove all dust, soil, debris, and loose particles. This ensures proper adhesion of the primer and the new paint. Cleaning methods may include sweeping, air blasting, or washing with water, depending on the level of cleanliness.

Application of Primer and Painting:

The contractor shall apply of 1 coat primer and 2 coats of synthetic enamel paint in the approved shade to the Kerb & Crash Barrier surfaces

1.13.3 Metal Beam Crash Barrier

The contractor shall provide the Metal beam crash barrier at following locations

The quantity of metal beam crash barrier (Reference to MORT&H's specification 811).

Table 33 Location of Proposed Metal Beam Crash Barrier

S. No.	Chainage (km)		Side	Length (m)	Location	Remarks
	From	To				
1	1014+650	1014+700	LHS	50	Shoulder	Embankment with High fill
2	1015+075	1015+175	LHS	100	Shoulder	Embankment with High fill
3	1015+325	1015+380	LHS	55	Shoulder	Structure approach
4	1015+390	1015+420	LHS	30	Shoulder	Structure approach
5	1015+575	1015+625	LHS	50	Shoulder	Sharp curves
6	1015+700	1015+760	LHS	60	Shoulder	Sharp curves
7	1016+375	1016+475	LHS	100	Shoulder	Embankment with High fill
8	1019+940	1020+000	LHS	60	Shoulder	Embankment with High fill
9	1024+210	1024+240	LHS	30	Shoulder	Damaged Crash Barrier
10	1026+150	1026+200	LHS	50	Shoulder	Embankment with High fill
11	1026+900	1027+000	LHS	100	Shoulder	Embankment with High fill
12	1027+475	1027+600	LHS	125	Shoulder	Embankment with High fill
13	1027+625	1027+875	LHS	250	Shoulder	Sharp curves
14	1029+980	1030+100	LHS	120	Shoulder	Embankment with High fill
15	1031+400	1031+475	LHS	75	Shoulder	Embankment with High fill
16	1031+550	1031+875	LHS	325	Shoulder	Sharp curves
17	1032+175	1032+325	LHS	150	Shoulder	Sharp curves
18	1034+000	1034+325	LHS	325	Shoulder	Embankment with High fill
19	1035+900	1036+100	LHS	200	Shoulder	Embankment with High fill
20	1036+125	1036+600	LHS	475	Shoulder	Embankment with High fill
21	1037+450	1037+900	LHS	450	Shoulder	Embankment with High fill
22	1037+950	1038+000	LHS	50	Shoulder	Embankment with High fill
23	1039+160	1039+320	LHS	160	Shoulder	Embankment with High fill
24	1039+655	1039+665	LHS	10	Shoulder	Structure approach
25	1014+300	1014+400	RHS	100	Shoulder	Embankment with High fill
26	1014+975	1015+000	RHS	25	Shoulder	Embankment with High fill
27	1015+950	1016+275	RHS	325	Shoulder	Embankment with High fill
28	1017+005	1017+035	RHS	30	Shoulder	Sharp curves
29	1021+150	1021+200	RHS	50	Shoulder	Embankment with High fill
30	1022+800	1022+850	RHS	50	Shoulder	Damaged Crash Barrier
31	1024+080	1024+180	RHS	100	Shoulder	Structure approach
32	1024+325	1024+400	RHS	75	Shoulder	Embankment with High fill
33	1024+475	1024+500	RHS	25	Shoulder	Embankment with High fill
34	1025+540	1025+600	RHS	60	Shoulder	Structure approach
35	1026+210	1026+265	RHS	55	Shoulder	Sharp curves
36	1026+575	1026+700	RHS	125	Shoulder	Embankment with High fill
37	1027+360	1027+410	RHS	50	Shoulder	Sharp curves
38	1027+475	1027+875	RHS	400	Shoulder	Embankment with High fill
39	1029+070	1029+125	RHS	55	Shoulder	Embankment with High fill
40	1035+015	1035+065	RHS	50	Shoulder	Damaged Crash Barrier
41	1036+000	1036+050	RHS	50	Shoulder	Embankment with High fill
42	1036+450	1036+500	RHS	50	Shoulder	Embankment with High fill
43	1037+385	1037+450	RHS	65	Shoulder	Embankment with High fill
44	1039+050	1039+075	RHS	25	Shoulder	Structure approach
45	1039+235	1039+450	RHS	215	Shoulder	Embankment with High fill

1.13.4 Pedestrian Guard Rail

The Pedestrian Guard Rail shall be provided at the following locations.

Sr. No.	Chainage(km)		Length (m)	Location
	From	To		
1	1014190	1015775	1585	Median
2	1027615	1027970	355	Median
3	1033840	1035120	1280	Median
4	1039040	1039400	360	Median

1.13.5 Road stud

The contractor shall provide Road stud at per IRC SP: 84-2019.

1.13.6 Distance marking stone

The damaged/missing kilometre and hectometre stones shall be retained and maintained. All the Kilometre & Hectometre stones shall be repainted. Boundary Stones shall be provided throughout the project highway as per IRC: SP:84-2019 if damage/missing.

1.14 Safety

Safety should be as per Employer's SOPs/EHS Policy, and as per best industry standards and practice. The Contractor shall be responsible for procuring all safety and equipment's and materials, arranging mobilization of safety furniture at execution site along with manpower, labour and personnel with requisite experience and expertise as may be required by the Employer for the purpose of execution of work as per prevailing IRC codes Contractor will ensure that proper safety precautions are being taken as per requirement of Concession Agreement.

Contractor will provide the barricades along working area and maintain in proper condition.

1.15 Tests on Completion:

The Contractor shall carry out the Tests on Completion in accordance Schedule F of Concession Agreement. The Contractor shall give to the Employer not less than 30 days' notice of the date of likely completion of the Works and of its intent to conduct Tests on Completion. At the time of this notice, the Contractor shall provide a schedule of the Tests on Completion as per the Specification. The Contractor shall give to the Employer at least 14 days prior notice of the actual date on which it intends to commence the Tests on Completion and at least 10 days prior notice of the commencement date of any subsequent Tests on Completion. The Employer shall have the right to suspend or delay any Tests on Completion if it is reasonably anticipated or determined during the course of the Tests on Completion that the performance of the Works or any part thereof does not meet the Specifications.

1.16 Demobilization

Demobilization of all manpower, plant, machinery & equipment, tools & tackles, demolition of labour camp, site office and clearing the area etc. on completion of entire scope of work and with prior approval of the Employer.

1.17 Project Management Consultant

The Employer would be appointing a qualified Project Management Consultant (PMC) for implementing and supervision of the entire work. The Contractor would be required to follow the instructions of the PMC for specifying, verifying and checking the methodology, plant & machinery, materials, Bill certification and actual laying the works.

2. Technical Specifications General Technical Specifications

2.1 The general technical specifications for various activities to be carried out as per the "SPECIFICATIONS FOR ROAD AND BRIDGE WORKS" (FIFTH REVISION) issued by the Ministry of Road Transport & Highways, Government of India and published by the Indian Roads Congress, hereinafter referred to as MoRTH specifications. The relevant clauses of MoRTH are produced here for the reference:

Activities	Relevant MoRTH Specifications
Production, laying and paving of Bituminous Concrete	MoRTH Clause 507
Production, laying and paving of Dense Bituminous Macadam	MoRTH Clause 505
Spraying of Tack Coat	MoRTH Clause 503
Milling of Existing Surface	As per standard practice

2.2 Bitumen and Aggregate Technical Specifications:

As per latest MORTH 5th revision and relevant codes to be followed. It is specifically stated that ready VG 40 as manufactured by the refinery would be directly obtained by the Contractor and appropriate measure to retain its necessary properties during transportation would be taken to ensure required quality is received at the Project Site.

2.3 Features of Hot Mix Plants for Bituminous Construction

Hot mix plant shall be of capacity of min 100 TPH. The plant shall have the following essential features:

- The HMP shall have a coordinated set of essential units capable of producing uniform mix as per the job mix formula.
- Cold aggregate feed system with minimum 4 bins having belt conveyer arrangement for initial proportioning of aggregates from each bin in the required quantities. In order to have free flow of fines from the bin, bin should be fitted with vibrator to intermittently shake it.
- A filler system suitable to receive bagged or bulk supply of filler material and its incorporation to the mix in

the correct quantity wherever required.

d. A suitable built-in dust control system for the dryer to contain /recycle permissible fines into the mix. It should be capable of preventing the exhaust of fine dust into atmosphere for environmental control wherever so specified by the Engineer.

e. Contractor shall ensure the full functionality of Hot Mix Plant at all the time. Contractor shall be provided 2 (two) days per month for the maintenance of HMP.

Annexure -A1 BILL OF QUANTITIES (INDICATIVE)

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)						
S No	Item Description	Unit	Qty	Rate	Amount	Remarks
	a. MCW Flexible Pavement					
1	Milling of existing bituminous pavement surface by using milling machine with automatic grade and slope controls machine, capable of cold milling existing asphalt pavement to an accurate depth of cut, profile and cross slope and shall be capable of loading the milled material directly into trucks. Including all lead, lift.	Sqm	1,95,249.74			
2	Providing and applying tack coat with catonic bitumen emulsion (RS-1) using emulsion pressure distributor at the rate of 0.25 to 0.30 kg per sqmt on the prepared bituminous/milled surface and cleaned with mechanical broomer and as per relevant clauses of section-503 of MORTH (Fifth Revision) Technical specifications. @ 0.25 kg per sqmt (normal bituminous surfaces) and @ 0.30 kg per sqmt (milled surfaces) . Source of Emulsion: Hincol & IOCL only.	Sqm	4,39,311.92			
3	DENSE BITUMINOUS MACADAM: Providing and laying Dense Graded Bituminous macadam using a Hot Mix Plant using crushed aggregates of size (Table 500-10), premixed with VG 40 Grade of Bitumen binder @ 4.5% mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers, Pneumatic Tyre Rollers to achieve the desired compaction as per MORTH (Fifth Revision) Technical specification clause No. 501 and 505 and relevant IRC codes. etc. complete in all respects. Source of Bitumen: IOCL/HPCL/BPCL/MRPL only	Cum	9,762.49			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
4	<p><u>Bituminous Concrete grade -II:-</u> Providing and laying Bituminous Concrete of using a Hot Mix Plant using crushed aggregates of size (table 500-17), premixed with VG 40 Grade Bitumen binder @ 5.4% of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers, Pneumatic Tyre Rollers to achieve the desired compaction as per MORTH (Fifth Revision) Technical specification clause No. 501 and 507 and relevant IRC codes. etc. complete in all respects.</p> <p><u>Source of Bitumen: IOCL/HPCL/BPCL/MRPL only</u></p>	Cum	9,762.49			
	b. MCW Structure Deck Portion Repair and Rehabilitation					
5	<p>Milling of existing bituminous pavement surface by using milling machine with automatic grade and slope controls machine, capable of cold milling existing asphalt pavement to an accurate depth of cut, profile and cross slope and shall be capable of loading the milled material directly into trucks. Including all lead, lift.</p>	Sqm	24,955.11			
6	<p>Providing and laying 6 mm thick mastic asphalt sheet on top of deck slab Including prime coat with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping approximate spacing of 10 cm centre to centre in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per MoRTH clause 515 complete.</p>	Sqm	24,955.11			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
7	Providing and applying tack coat with catonic bitumen emulsion (RS-1) using emulsion pressure distributor at the rate of 0.25 to 0.30 kg per sqmt on the prepared bituminous/milled surface and cleaned with mechanical broomer and as per relevant clauses of section-503 of MORTH (Fifth Revision) Technical specifications.@ 0.25 kg per sqmt (normal bituminous surfaces) and @ 0.30 kg per sqmt (milled surfaces) . Source of Emulsion: Hincol & IOCL only.	Sqm	49,910.22			
8	BITUMINOUS CONCRETE 50mm thick wearing Coat:- Providing and laying Bituminous Concrete of using a Hot Mix Plant using crushed aggregates of size (table 500-17), premixed withVG 40 Grade Bitumen binder @ 5.2% of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers, Pneumatic Tyre Rollers to achieve the desired compaction as per MORTH (Fifth Revision) Technical specification clause No. 501 and 507 and relevant IRC codes. etc. complete in all respects. Source of Bitumen: IOCL/HPCL/BPCL/MRPL only	Cum	1,247.76			
9	All Charges for Dismantling, Providing and Fixing of Strip Seal Expansion joint With micro concrete, applying bonding agent for bonding of old and new concrete, replacement of damaged steel as per drawing and specifications, applying rust remover and anticorrosion treatment over all steel reinforcement, use of steel fibres and adequate steel. The charges shall include cost of Dismantling, all Material, Labour, Tools, & Tackles, consumables etc. All completed as per drawing and technical specifications MoRTH Section 2606 and as per direction of Engineer In charge	Rmt	874.30			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
10	<p><u>Reinforced Cement Concrete (M30)</u> All charges for providing and placing RCC M30 grade concrete for foundations as per approved design specifications. The cost includes production by batch mix plant, transportation using transit mixers and placing in place including all materials such as cement, aggregates, water, and any necessary admixtures to achieve the required strength and workability. The concrete mix design must be submitted for approval from the Engineer-in-Charge (EIC) prior to production, ensuring compliance with specified standards.</p> <p>Concrete shall be placed carefully into the foundation areas as per drawings and compacted uniformly to prevent voids. Cost of Shuttering is included within this item, with all necessary formwork to support the placement and curing process. Any additional items or materials required to complete this work per MoRTH and relevant IS standards shall be provided by the contractor without extra charges.</p> <p>The scope also includes proper curing, surface finishing, and quality control measures as per the EIC's directions to meet strength and durability requirements. All safety, material handling, and environmental measures are to be adhered to for high-quality construction execution.</p> <p>Refer MoRTH's specification 1500, 1700& 2200. IS Codes: - IS 456</p>	cum	60.00		-	

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
11	<p><u>Reinforcement Steel:</u> All charges for providing, cutting, bending, transporting, and tying reinforcement steel of designation TMT FE 500 as per IS 1786 for construction work. The vendor shall supply all necessary steel and 18-gauge black annealed binding wire. Reinforcement steel bars are to be cut, bent, and tied per approved bar bending schedules and structural drawings, ensuring precise dimensions and placements. Steel bars shall be securely tied at all intersections using 18-gauge black annealed binding wire to maintain stability during concrete placement. Laps shall conform to MoRTH specifications and as directed in drawings, with no separate payment for laps or overlaps as per MoRTH Clause 1600. Proper clear cover shall be maintained with spacers and chairs as per drawings and CPWD standards. Steel will be measured by weight in kilograms, excluding binding wire and without allowances for overlaps or wastage. The scope of work includes supply, handling, and on-site quality assurance for positioning, alignment, and compliance with specifications and as directed by EIC. Safety measures and quality checks shall be implemented during all stages, ensuring high-standard reinforcement for structural integrity. Reinforcement bars from the approved make shall only be used. (At Minor Bridge Km 1023+180 RHS)</p>	MT	6.00		-	

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
	c. Overlay of Service Road					
10	Providing and applying tack coat with catonic bitumen emulsion (RS-1) using emulsion pressure distributor at the rate of 0.25 to 0.30 kg per sqmt on the prepared bituminous/milled surface and cleaned with mechanical broomer and as per relevant clauses of section-503 of MORTH (Fifth Revision) Technical specifications.@ 0.25 kg per sqmt (normal bituminous surfaces) and @ 0.30 kg per sqmt (milled surfaces). Source of Emulsion: Hindcol & IOCL only.	Sqm	29,160.00			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
11	Bituminous Concrete grade -II:- Providing and laying Bituminous Concrete of using a Hot Mix Plant using crushed aggregates of size (table 500-17), premixed with VG 40 Grade Bitumen binder @ 5.4% of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers, Pneumatic Tyre Rollers to achieve the desired compaction as per MORTH (Fifth Revision) Technical specification clause No. 501 and 507 and relevant IRC codes. etc. complete in all respects. Source of Bitumen: IOCL/HPCL/BPCL/MRPL only	Cum	874.80			
	d. Rebate of Milling Material					
12	Recovery of material obtained from dismantling of existing bituminous layer has been calculated taking assumption that 80% of the theoretical material will be retrieved. The agency can take away this material.	Cum	-9,107.66			
	e. MCW Rigid Pavement Repairing					
13	Dismantling of Cement Concrete Pavement (Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately)	Cum	2,733.75			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
14	Cement Concrete Pavement (Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing)	Cum	2,733.75			
15	Cutting, Bending, Fixing of Dowel bar 32mm dia as per drawing and specification	Mt	57.41			
16	Cutting, Bending, Fixing of Tie bar 12mm dia as per drawing and specification	Mt	4.84			
17	Repair of old Joints Sealant (Removal of existing sealant, Groove cutting and re sealing of contraction, longitudinal or expansion joints in concrete pavement with fresh sealant material)	Rmt	22,091.25			
18	Repair/Sealing of cracks with Epoxy Mortar on concrete pavement upto 100mm depth	Rmt	2,500.00			
19	Diamond Grinding with Texturing direction of Engineer In Charge	Sqm	2,10,000.00			
	f. Construction of Entry and Exit at Service Road and Slip Road/ Improvement of Junction/Median opening					

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)						
S No	Item Description	Unit	Qty	Rate	Amount	Remarks
20	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth upto 300mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of service able material to be used or auctioned up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.	Sqm	10,743.75			
21	Excavation for roadway in earth, soil of all sorts, sand, gravel or soft murum including dressing section to the required grade, camber and side slope sand conveying the excavated materials with all lifts upto a lead of 1km. and spreading for embankment or stacking as directed. Ordinary Soil/Murum/Hard Rock	Cum	4,373.55			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
22	<p><u>Construction of embankment:</u> Construction of Embankment with approved material obtained from borrow pits, transported with all lifts and leads, including royalty, and spread in uniform layers of not more than 250 mm thickness. The material shall meet the quality requirements specified in MoRTH Clause 305, ensuring compliance with gradation, plasticity, and moisture content parameters. Compaction of the subgrade shall achieve a minimum of 97% of Maximum Dry Density (MDD) as per IS 2720 (Part 8), Grading shall be performed to ensure the required slope, alignment, and stability, with final finishing to the levels specified in the approved drawings. The work includes surface dressing, preparation of shoulders for proper drainage, and all necessary field and laboratory tests, such as field density and moisture content tests, to verify compliance with Table 300-2 of MoRTH specifications. The item covers all costs for material procurement, royalty, transportation, labor, machinery, and incidental works. Safety measures and environmental compliance shall be ensured during execution. The final surface shall be stable, durable, and suitable for traffic loading, conforming to project specifications and ensuring proper integration with adjacent structures.</p>	Cum	5,497.38			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
23	<p><u>Construction of Subgrade and Earthen Shoulders</u> Construction of subgrade and earthen shoulders with approved material obtained from borrow pits, transported with all lifts and leads, including royalty, and spread in uniform layers of not more than 250 mm thickness. The material shall meet the quality requirements specified in MoRTH Clause 305, ensuring compliance with gradation, plasticity, and moisture content parameters. Compaction of the subgrade shall achieve a minimum of 97% of Maximum Dry Density (MDD) as per IS 2720 (Part 8), and the earthen shoulders shall be compacted to 95% MDD using mechanical equipment. Grading shall be performed to ensure the required slope, alignment, and stability, with final finishing to the levels specified in the approved drawings. The work includes surface dressing, preparation of shoulders for proper drainage, and all necessary field and laboratory tests, such as field density and moisture content tests, to verify compliance with Table 300-2 of MoRTH specifications. The item covers all costs for material procurement, royalty, transportation, labor, machinery, and incidental works. Safety measures and environmental compliance shall be ensured during execution. The final surface shall be stable, durable, and suitable for traffic loading, conforming to project specifications and ensuring proper integration with adjacent structures.</p>	Cum	5,645.28			
24	<p><u>Construction of Median and Island with Soil Taken from Borrow Areas</u> Construction of median and Island above road level with approved material brought from borrow pits, spread, sloped and compacted as per clause 408 (Reference to MoRTH's specification 408).</p>	Cum	522.00			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
25	<p><u>Construction of Granular Sub-Base (Grade IV Material)</u> Construction of granular sub-base by providing approved Grade IV material conforming to MoRTH Clause 401 and Table 400-1, with material sourced as per project specifications, including all royalty charges and transportation. The material shall be laid in uniform layers not exceeding 200 mm thickness, using a motor grader with a minimum blade length of 3.05 m and GPS control for precise alignment. Surface preparation, including cleaning and levelling, shall be ensured before placement. Mixing shall be done by an appropriate mechanical mixer with controlled water addition to achieve optimum moisture content. Compaction shall be performed using a vibratory roller of at least 8-10 tonnes to achieve a minimum of 98% Maximum Dry Density (MDD) as determined by IS 2720 (Part 8). Field density tests shall be conducted at intervals of 50 m or as directed by the Engineer-in-Charge to ensure compliance. The work includes preparation of cross slopes and drainage features as per the approved drawings and required gradients. Safety measures, traffic management, and environmental compliance during execution are mandatory. All costs for material, labor, machinery, and testing are included. The final surface shall meet specified levels, alignment, and stability, ensuring durability and proper integration with adjoining layers, as per project drawings and standards.</p>	Cum	3,595.05			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
26	<p><u>Construction of Wet Mix Macadam</u> Providing, laying, spreading and compacting graded stone aggregate conforming to the grading of table 400 13 revised vide table 2 of IRC : 109 (2015) to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub-base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density .The thickness of a single compacted layer shall not be less than 75 mm.(Reference to MoRT&H's specification 406. The work includes preparation of cross slopes and drainage features as per the approved drawings and required gradients. Safety measures, traffic management, and environmental compliance during execution are mandatory. All costs for material, labour, machinery, and testing are included. The final surface shall meet specified levels, alignment, and stability, ensuring durability and proper integration with adjoining layers, as per project drawings and standards.</p>	Cum	4,573.44			
27	<p>Providing and applying prime coat with Bituminous Emulsion(SS1) complete as per Technical Specifications Clause 502. (Prime coat - Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including cleaning of road surface and spraying, primer at the rate of 0.60 kg/sqm using mechanical means.) Source of Emulsion: Hindcol & IOCL only.</p>	Sqm	14,946.25			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
28	Providing and applying tack coat with catonic bitumen emulsion (RS-1) using emulsion pressure distributor at the rate of 0.25 to 0.30 kg per sqmt on the prepared bituminous/milled surface and cleaned with mechanical broomer and as per relevant clauses of section-503 of MORTH (Fifth Revision) Technical specifications.@ 0.25 kg per sqmt (normal bituminous surfaces) and @ 0.30 kg per sqmt (milled surfaces) . Source of Emulsion: Hincol & IOCL only.	Sqm	48,815.00			
29	DENSE BITUMINOUS MACADAM: Providing and laying Dense Graded Bituminous macadam using a Hot Mix Plant using crushed aggregates of size (Table 500-10), premixed with VG 40 Grade of Bitumen binder @ 4.0% mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers, Pneumatic Tyre Rollers to achieve the desired compaction as per MORTH (Fifth Revision) Technical specification clause No. 501 and 505 and relevant IRC codes. etc. complete in all respects. Source of Bitumen: IOCL/HPCL/BPCL/MRPL only	Cum	821.21			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
30	DENSE BITUMINOUS MACADAM: Providing and laying Dense Graded Bituminous macadam using a Hot Mix Plant using crushed aggregates of size (Table 500-10), premixed with VG 40 Grade of Bitumen binder @ 4.5% mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers, Pneumatic Tyre Rollers to achieve the desired compaction as per MORTH (Fifth Revision) Technical specification clause No. 501 and 505 and relevant IRC codes. etc. complete in all respects. Source of Bitumen: IOCL/HPCL/BPCL/MRPL only	Cum	716.45			
31	Bituminous Concrete grade -II:- Providing and laying Bituminous Concrete of using a Hot Mix Plant using crushed aggregates of size (table 500-17), premixed with VG 40 Grade Bitumen binder @ 5.4% of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers, Pneumatic Tyre Rollers to achieve the desired compaction as per MORTH (Fifth Revision) Technical specification clause No. 501 and 507 and relevant IRC codes. etc. complete in all respects. Source of Bitumen: IOCL/HPCL/BPCL/MRPL only	Cum	754.39			
	g. Other Misc Activity					

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
32	<p>Cast-in-Situ Cement Concrete M20 Kerb (using kerb laying machine) (Median opening & Junction portion)</p> <p>All charges for the construction of a cast-in-situ cement concrete kerb in M20 grade concrete, with a foundation of M15 grade concrete, as per the approved drawings and technical specifications. The kerb shall be constructed with a top width of 115 mm, a bottom width of 250 mm, and a height of 400 mm. The foundation for the kerb shall be of M15 grade concrete, with a thickness of 150 mm, and shall extend 50 mm beyond the kerb for projection. The foundation concrete shall be placed manually, while the kerb shall be laid using a kerb laying machine to ensure uniformity and alignment. The surface of the kerb shall be finished with one coat of primer and two coats of enamel paint of an approved shade (Asian or equivalent), applied after the concrete has cured and attained the required strength. The work includes all labor, materials, machinery, and overheads required for the construction, finishing, and painting of the kerb. The work shall be executed in accordance with MoRTH's Clause 409 and the relevant IS codes, ensuring proper compaction, curing, and quality control.</p> <p>The final price includes the cost of procurement of cement, aggregates, and other materials, including royalty charges. The cost also covers the labor, machinery, equipment, transportation, laying of concrete, use of kerb laying machines, primer, and enamel paint (2 coats), and all overheads and profit.</p> <p>Relevant Standards: MoRTH Clause: 409 (Cement Concrete for Kerbs, Channels, and Edging) IS 456: Code of Practice for Plain and Reinforced Concrete</p>	Rmt	2,507.00			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
33	<p>Providing and applying two coats enamel paint (First Quality of Asian/Berger/Nerolac) (Kerb Painting)</p> <p>This item includes the preparation and application of 1 coat primer and 2 coats of synthetic enamel paint in the approved shade to the Kerb surfaces. The work involves thoroughly cleaning the surface to remove all dirt, dust, oil, grease, efflorescence, Soil and other contaminants that could affect paint adhesion. After cleaning 1 coat primer and two coats of synthetic enamel paint, ensuring a durable and uniform finish. The work will be carried out in accordance with MoRTH Clause 803, and the directions of the Engineer-in-Charge.</p> <p>The final price includes the cost of all materials, labour for surface preparation, cleaning, application of paint, transportation of materials to the site, overheads, profit, Safety during the work and any required machinery for application.</p> <p>Relevant Standards: MoRTH Clause 803: Painting and Surface Finishing Work</p>	Sqm	25,575.00			
34	<p>New Jersey Crash Barrier Precast Reinforced Cement Concrete Crash Barrier : Providing Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with R.C.C. M 25 Grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified etc. complete. Spec: MORT and H 2013 CI 811 Page No 360</p>	Rmt	145.00			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
35	<p>Providing and applying two coats enamel paint (First Quality of Asian/Berger/Nerolac) (Crash Barrier Painting)</p> <p>This item includes the preparation and application of 1 coat primer and 2 coats of synthetic enamel paint in the approved shade to the Kerb surfaces. The work involves thoroughly cleaning the surface to remove all dirt, dust, oil, grease, efflorescence, Soil and other contaminants that could affect paint adhesion. After cleaning 1 coat primer and two coats of synthetic enamel paint, ensuring a durable and uniform finish. The work will be carried out in accordance with MoRTH Clause 803, and the directions of the Engineer-in-Charge.</p> <p>The final price includes the cost of all materials, labour for surface preparation, cleaning, application of paint, transportation of materials to the site, overheads, profit, Safety during the work and any required machinery for application.</p> <p>Relevant Standards: MoRTH Clause 803: Painting and Surface Finishing Work</p>	Sqm	38,425.00			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
36	<p>Providing and Laying hot applied thermoplastic road marking strip on Bituminous Surface/ Rigid pavement surface of specified shade/colour of 2.5 mm thick including 1.5 Refractive index reflectorizing glass beads@ 250gm/sqm. Thickness of 2.5mm is exclusive of surface applied glass beads as per IRC35:2015. Initial Dry reflectivity RL shall be >250mcd/sqm/lux measured in the initial 7 days and sustained reflectivity RL of 100mcd/sqm/lux and Qd of 100mcd/sqm/lux measured at the end of 2years by means of a Standard Reflectometer of Zehntner, EasyLux, Delta make capable of measuring RL & QD both according to IRC35:2015 clause 15.5. The finished surface to be level, uniform, and free from streaks and holes complete as per direction of Engineer-in-charge and in accordance with applicable specifications. (Refer MORTH Clause 803 for technical Specification and Performance for IRC 35:2015). Source of Road Marking Paint: MoRTH Specifications of Asian or Berger only Source of Drop on Glass Beads: Sovitec; Potters only</p>	Sqm	32,233.00			
37	<p>Providing and fixing special Reflective pavement markers (Road Studs) with dimension 220x100x40mm two anchoring shank plastic body with two way reflective with 2x179 glass elements complete as per drawing and technical specifications Clause 804.</p>					
	Road Studs	Nos	11,901.12			
	Solar Road Studs	Nos	984.00			

Four Laning of NH-27 from Kaljhar to Pattacharkuchi (existing Km. 1013+000 to Km 1040+300)

S No	Item Description	Unit	Qty	Rate	Amount	Remarks
38	<u>Metal Beam Crash Barrier (Reference to MORT&H's specification 811).</u> Providing and erecting a "W"metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2m centre to centre,1.8m high, 1.1 m below ground/road level, all steel part sand fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with spacer of channel section 150 x 75 x 5mm, 330mm long complete as per clause 811.	Rmt	5,380.00			
39	Providing and installing Pedestrian Guard rail of G.I. pipes at urban locations as per drawings and MORT&H Specifications Clause 808 and sections 300, 1500, 1700 and 1900.	Rtm	3,580.00			
40	Painting & lettering Distance marking stones, Guard posts, Boundary pillars etc. (including 1 coat primer, 2 coats of enamel paint) as per Morth clause no 805. The final price includes the cost of all materials, labour for surface preparation, cleaning, application of paint, Lettering, transportation of materials to the site, overheads, profit, workplace safety and any required machinery for application.					
	5th kilometre stone (precast)	Nos	10.00			
	Ordinary kilometre stone (precast)	Nos	44.00			
	Hectometre stone (precast)	Nos	220.00			
	Boundary pillar	Nos	1,092.00			

5.

The aforesaid Amount shall be inclusive of all other taxes etc. (excluding GST, which will be paid separately) and inclusive of all expenses paid / payable to or in respect of any Sub-Contractors engaged by the Contractor, and no further amounts, shall be payable by the Employer and no changes to the aforesaid rates shall be made, unless otherwise mutually agreed to in writing by the parties. All applicable statutory taxes shall be deducted at source while remitting payments hereunder.

Tentative Overlay chainages and pavement treatment is as per below. However, these may undergo changes including the specified thickness of the layers specified below either prior to commencement of work or during the course of work and the Contractor would carry out the work as instructed by the Employer in this context. The payments in any case will be made based on actual quantity executed as instructed by the Employer.

Main Carriageway details: -

S No	Chainages		Side	Length	
	From	To			
	1	2	3	4	
1	1013+000	1014+000	LHS	1000	
2	1014+000	1015+000	LHS	1000	
3	1015+000	1016+000	LHS	1000	
4	1016+000	1017+000	LHS	1000	
5	1017+000	1018+000	LHS	1000	
6	1018+000	1019+000	LHS	1000	
7	1019+000	1020+000	LHS	1000	
8	1020+000	1021+000	LHS	1000	
9	1021+000	1022+000	LHS	1000	
10	1022+000	1023+000	LHS	1000	
11	1023+000	1024+000	LHS	1000	
12	1024+000	1024+260	LHS	260	
13	1025+410	1025+710	LHS	300	
14	1026+460	1027+000	LHS	540	
15	1027+000	1028+000	LHS	1000	
16	1028+000	1029+000	LHS	1000	
17	1029+000	1030+000	LHS	1000	
18	1030+000	1031+840	LHS	1840	
19	1033+840	1034+000	LHS	160	
20	1034+000	1035+000	LHS	1000	
21	1035+000	1036+000	LHS	1000	
22	1036+000	1037+000	LHS	1000	
23	1037+000	1037+540	LHS	540	
24	1038+205	1038+705	LHS	500	
25	1038+910	1039+000	LHS	90	
26	1039+000	1039+255	LHS	255	
27	1040+000	1040+300	RHS	300	
28	1039+000	1040+000	RHS	1000	
29	1038+000	1039+000	RHS	1000	
30	1037+500	1038+000	RHS	500	
31	1030+230	1030+430	RHS	200	
32	1029+000	1029+070	RHS	70	
33	1028+000	1029+000	RHS	1000	
34	1027+960	1028+000	RHS	40	
35	1025+000	1025+660	RHS	660	
36	1024+205	1025+000	RHS	795	

Service Road:

S. No	Chainage (km)		Side	Length (m)	
	From	To			
1	1020+020	1020+850	LHS	830	
2	1020+465	1020+750	RHS	285	
3	1027+935	1028+450	LHS	515	
4	1027+965	1028+250	RHS	285	
5	1032+640	1033+050	LHS	410	
6	1031+605	1033+100	RHS	1495	
7	1038+165	1038+820	LHS	655	
8	1038+155	1039+010	RHS	855	

Wearing coat at Structure portion:

[illegible]

Annexure – A2

Bidder Information Form

The information to be filled in by the Bidder in the following pages will be used for purposes of post qualification as provided for in Clause 2 of RFP. This information will not be incorporated in the Contract.

BIDDER INFORMATION –

Business Partner name:

Alternate Trade or Business Name (Doing business as):

Contact Person:

Title:

Telephone:

Email:

Business Registration Information:

Legal Name:

Registered Address:

Date of business inception or incorporation

Business Registration number:

Registration Authority:

City, Country:

Tax Identification Number:

PAN number:

TAN and GST number:

Ownership/structure of business:

Private / Public Limited Company / Partnership / Proprietorship / Individual

In case Organization is incorporated outside India, provide Permanent Establishment Certificate (if applicable) and Tax Residency Certificate issued by the Tax regulator of the Home Country (if applicable).

Business Background:

Business Partner's principal activity:

Nature of (proposed) relationship with TRIL/Atlantia and all its relevant SPVs (please provide details):

Ownership and Management Details

List all members of the Board and Senior Officers:

List any other individuals able to exercise control over your company through any other arrangement:

List all the companies affiliated with your company including any Parent Company, Subsidiary Company (ies), Affiliate Company (ies), Joint Ventures or Similar entities:

Trade references

Types of trades involved

Bank References	
Bank 1:	Bank 2:
Address:	Address:
City: State: Zi:	City: State: Zip:
Tel: Fax:	Tel: Fax:
Account #:	Account #:
Account Name (If diff from above):	Account Name (If diff from above):
Bank Contact Person:	Bank Contact Person:

Signature & Name of the Verifier

Annexure A3

Past Work Experiences/ Testimonials

(Executed in the last 5 years, on letterhead of the bidder; attach testimonials, if any)

Description of Work	Name of the Employer along with contact person details	Value of Contract (INR in Crores)	Start and End Date	Remarks if any

Annexure A4**Undertaking for key machinery/equipment**

Item of Equipment	Minimum Requirement			Availability with Bidder		
	No.	Capacity	Make	Owned/ Leased/Rented	Nos./ Capacity	Age/ Condition
Hot Mix Plant including generator	1	100 TPH	Linnhoff/Marini/ Ammann			
Sensor Paver finisher (9.5meter width) with multiplex	1	75 cum/hr.	Ammann/ Vögele ⁺			
Front end loader	2	2-2.5 cum bucket capacity	CAT/Liugong			
Backhoe Loader	1-2	1 cum bucket Capacity	JCB/CAT/ L&T CASE			
Tipper	15	25-ton capacity	*			
Vibratory Roller	2	8 Tons	Volvo/L&T CASE/IR			
Pneumatic Tyre Roller	1	6-8 Tons	Volvo/L&T CASE/IR			
Air Compressor	1	250 cfm	*			
Emulsion Pressure Distributor	1	1750 Sqm/hr	*			
Milling Machine (1.5 m cutting width)	1	300-400 Sqm/hr	Wirtgen			
Water Tanker	2	6000 litres	*			
Mechanical Broom Hydraulic	1	1250 Sqm/hr	*			
Weigh Bridge	1	80 MT	*			
Mobile light tower	2	4x400 Watt Halide Lamp	*			

*Machinery as per standards necessary for work.

These are minimum requirements. However, Contractor shall provide sufficient no of machinery to complete the work within schedule of time. The Contractor while submitting the Bid can propose alternative make of machinery but if the same is not acceptable, the offer might be rejected.

Thanking You

Yours,

Authorized Signatory

(Name of Representative)

(Date)

(Seal/Stamp of the Firm)

ANNEXURE – A5

Bidders should provide the following CHECK LIST OF DOCUMENTS as per formats enclosed hereafter: –

CHECK LIST OF DOCUMENTS TO BE SUBMITTED BY CONTRACTOR

(This forms an integral part of this Contract)

S. No.	Document	Submission Time
1	Mobilization Bank Guarantee (If applicable)	Before Mobilization Advance
2	Performance Bank Guarantee (If applicable)	Before Commencement of Work
3	Consent to Establish (CTE) under Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 for Batch Mix Plant/Hot Mix Plant, to be obtained from RSPCB	Before Commencement of Work*
4	Consent to establish and Consent to operate under Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 for Diesel Generator sets from Pollution Control Board (application)	Before Commencement of Work*
5	NOC from Central Ground Water Authority (CGWA) for ground water extraction, if any. In case water is supplied by tanker, same NOC from water supplier	Before Commencement of Work*
6	Authorization for Generation and Storage of used oil/hazardous waste as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 for Used oil/any other hazardous waste	Before Commencement of Work*
7	Engagement of authorized stone crusher agency having NOC and Consent from Pollution Control Board	Before Commencement of Work*
8	Permission for Fuel storage and consumption in HMP operations from PESO	Before Commencement of Work*
9	Consent to Operate (CTO) under Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 for Batch Mix Plant/Hot Mix Plant, to be obtained from Pollution Control Board.	Before Start of HMP Operation*
10	Traffic Management plan & approved methodology of Bituminous concrete	Before Commencement of Work
11	Copy of Labour License, TIN, PAN, GST and Registration copies	With First Bill
12	Copy of ESI / W.C. Policy	With First Bill

S. No.	Document	Submission Time
13	Copy of EPF registration and documentary evidence of payments	With First Bill
14	Copies of Contractor All Risks Policy and Valid insurance policies for Plants, Machineries and Equipment, along with copy of premium paid receipt	With First Bill
15	RTGS/Bank Account details of the Contractor on their letter head	With First Bill
16	Daily progress report jointly signed by Employer's representative and Contractor's representative and PMC	With Every Bill
17	Daily Material reconciliation report jointly signed by Employer's representative and Contractor's representative and PMC	With Every Bill
18	Approved Copy of quality control test for bituminous works as per MoRTH 5 th Revision	With Every Bill
19	Copy of Indemnity bond on Letter head (as per the format to be provided by Employer)	With Every Bill
20	Copy of all registers maintain for time and temperature	With Every Bill
21	Photographs for work done showing progress on daily basis (Before and after the work)	With Every Bill
22	Copy of Attendance sheet & Wage register copy for Supply of Manpower	With Monthly Bill
23	Copy of receipt of PF, ESI / WCP	With Monthly Bill
24	Indemnity Bond on Stamp paper	With Final Bill
25	No Dues Certificate	With Final Bill
26	Reconciliation statement on material consumption (Aggregate, Bitumen & Emulsion)	With Final Bill
27	Site office to confirm whether contractor have removed the all the debris from workplace	With Final Bill
28	PUC for vehicles used for construction work under Central Motor & Vehicle Act 1988	Before commencement of work

PESO: Petroleum and Explosives Safety Organization

*Consents and approvals related to environment should be provided as per the specified time, failure of the same may lead penalty in payments

Annexure – A6

Declaration by Contractor on Salary Payments and Compliance of Labor Laws

I certify that the above supporting documents, including those being submitted with this invoice are true and valid proofs of intended regulatory compliances. I further certify that these include compliance with the following:

- a) Prescribed Central Minimum Wage
- b) Equal Remuneration (specifically for women workers/employees)
- c) Regular and timely wage payment (by 7th of each month); made directly into respective bank accounts
- d) Payment for overtime as per prescribed/agreed rate (if applicable)
- e) Timely deposit of statutory payment deductions (EPF, ESIC etc) in respective accounts
- f) Other applicable labour compliances
- g) Environment compliances both in terms of valid licenses and permits, and during execution of work

Certified by
(on behalf of the Contractor)

Verified and validated by
(on behalf of the Employer)

This is to declare that if salary of employees is not paid by 7th of any month, I hereby authorize Employer to apply a penalty on raised invoice as per its discretion.

Sd/-
Name:
Position:
Date:

Sd/-
Name:
Position:
Date: