NATIONAL HIGHWAYS AUTHORITY OF INDIA (N.H.A.I.)
AND
CIDB INVENTURES SDN. BHD. (MALAYSIA)



CONCESSION AGREEMENT
FOR
WIDENING AND STRENGTHENING OF SECTIONS: -
A) TADA TO NELLORE (NH-5)
B) NANDIGAMA TO IBRAHIMPATNAM TO VIJAYAWADA (NH-9)
IN THE STATE OF ANDHRA PRADESH, INDIA AND ITS OPERATION AND MAINTENANCE ON BUILD, OPERATE AND TRANSFER (B.O.T.) BASIS

VOLUME I : THE AGREEMENT

(27TH MARCH 2001)

CIDB INVENTURES
CIDB INVENTURES SDN. BHD. (462295-A)

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CONCESSION AGREEMENT

This Agreement is entered into on this the 27th day of March, 2001 BETWEEN

1. NATIONAL HIGHWAYS AUTHORITY OF INDIA, a statutory body constituted under the provisions of the National Highways Authority of India Act, 1988, and having its principal office at No.1, Eastern Avenue, Maharani Bagh, New Delhi 110 065 (hereinafter referred to as "NHAI" which expression shall unless repugnant to the context or meaning thereof include its administrators, successors and assigns) of One Part,

AND

2. CIDB INVENTURES SDN BHD (462295-A), a company incorporated under the law of Malaysia and having its registered office at Suite 15-3, 15th Floor, Wisma UOA II, No. 21, Jalan Pinang 50450 Kuala Lumpur, Malaysia, (hereinafter referred to as the "Concessionaire" or "Company" which expression shall unless repugnant to the context or meaning thereof include its successors and permitted substitutes) of the Other Part.

WHEREAS

A. Pursuant to a Memorandum of Understanding (MOU) between the Government of India(GoI) and the Government of Malaysia entered into in the year 1995, GoI had authorised NHAI to undertake widening and rehabilitation of (a) the existing 2-Lane Highway from km. 52.8 to km. 163.6 on the Tada-Nellore Section of the National Highway No.5 ("NH-5") in Andhra Pradesh; and (b) the existing 2-Lane Highway from km. 217 to km. 252 on the Nandigama – Ibrahimpatnam Section of the National Highway No.9 ("NH-9") in Andhra Pradesh India, and by its Notification No. 78 (E) dated 4th February, 1999 issued pursuant to Section 11 of the National Highways Authority of India Act, 1988 GoI vested the said stretches of NH-5 and NH-9 in NHAI.

B. NHAI had accordingly invited a proposal from CIDB INVENTURES SDN BHD (462295-A), a company incorporated under the law of Malaysia and having its registered office at Suite 15-3, 15th Floor, Wisma UOA II, No. 21, Jalan Pinang 50450 Kuala Lumpur, Malaysia (hereinafter referred to as "CIDBI") for inter-alia, design, engineering, financing, procurement, construction, completion, operation,

maintenance and toll collection of the above section of NH-5 and NH-9 on BOT basis.

C. Pursuant to the aforesaid invitation by NHAI, CIDBI submitted a Detailed Project Proposal dated January 28, 2000 (the Proposal) for the upgradation and improvement of the aforesaid stretches of NH-5 and NH-9 and operation and maintenance of the said stretches as also that of the already four laned stretch of NH-9 from km 253 to km 265 (Ibrahimpatnam to Vijayawada) in Andhra Pradesh vested in NHAI, which Proposal was accepted by NHAI subject to certain modifications and amendments mutually agreed to and pending finalisation and execution of the Concession Agreement being this Agreement, NHAI and CIDBI entered into a Memorandum of Agreement dated December 19, 2000 (MOA) recording the principal terms of this Agreement.

D. Pursuant to the Memorandum of Agreement (MOA), CIDBI intends to promote and incorporate a special purpose vehicle (the SPV), either solely or jointly with other parties for the purpose of *inter-alia* design, engineering, financing, procurement, construction, completion, operation, maintenance and toll collection of the aforesaid highways on BOT basis and to be bound by the terms and conditions of this Agreement. In this respect, NHAI accepts the SPV as the entity which shall undertake, fulfill and perform the obligations and exercise the rights of CIDBI under the MOA and this Agreement.

NOW THEREFORE IN CONSIDERATION OF THE PREMISES AND THE MUTUAL COVENANTS HEREINAFTER CONTAINED, THE PARTIES HERETO HEREBY AGREE AND THIS AGREEMENT WITNESSETH AS FOLLOWS:

I DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

"Accounting Year" means the financial year commencing from 1st April of any calendar year and ending on 31st March of the next calendar year.

"Additional Facilities" means the facilities which the Concessionaire may provide or procure for the benefit of the users of the Project Highways and which are (i) in addition to the Project Facilities, and (ii) not situated on the Site.

"Affected Party" shall have the meaning set out in Clause 32.1.

"Agreement" means this Agreement, the Schedules 'A' through 'X' hereto and any amendments thereto made in accordance with the provisions contained in this Agreement.

"Applicable Laws" means all laws, promulgated or brought into force and effect by GOI or GOAP including regulations and rules made thereunder, and judgements, decrees, injunctions, writs and orders of any court of record, as may be in force and effect during the subsistence of this Agreement.

"Applicable Permits" means all clearances, permits, authorisations, consents and approvals required to be obtained or maintained under Applicable Laws in connection with the design, engineering, financing, procurement, construction, operation and maintenance of the Project Highways during the subsistence of this Agreement.

"Appointed Date" means the date on which Financial Close is achieved in accordance with Article XXIV and shall be deemed to be the date of commencement of the Concession Period.

"Arbitration Act" means the Arbitration and Conciliation Act, 1996 and shall include modifications to or any re-enactment thereof as in force from time to time.

"Associates" means in relation to either Party and/or Consortium Members, a person who controls, is controlled by, or is under the common control with such

Party or Consortium Member. As used in this definition, the expression "control" means with respect to a person which is a corporation, the ownership, directly or indirectly, of more than 50% of the voting shares of such person, and with respect to a person which is not a corporation, the power to direct the management and policies of such person, whether by operation of law or by contract or otherwise.

"Bank" means a bank incorporated in India and having a minimum net worth of Rs.10,000 million (Rupees ten thousand million) and having a branch in the proximity of the Project or at any other place acceptable to NHAI.

"Change in Law" means the occurrence of any of the following after the date of this Agreement:

i. the enactment of any new Indian law;
ii. the repeal, modification or re-enactment of any existing Indian law;
iii. the commencement of any Indian law which has not entered into effect until the date of this Agreement;
iv. a change in the interpretation or application of any Indian law by a court of record as compared to such interpretation or application by a court of record prior to the date of this Agreement; or
v. any change in the rates of any of the Taxes.

"Change of Scope" shall have the meaning ascribed thereto in Clause 18.1.

"COD" means the date on which the Independent Consultant has issued the final Completion Certificate or the Provisional Certificate certifying Project Completion in accordance with Article XVII.

"Company" means the Company acting as the Concessionaire under this Agreement.

"Completion Certificate" means the certificate(s) issued by the Independent Consultant pursuant to Clause 17.4.

"Concession" shall have the meaning ascribed thereto in Article III.

"Concession Fee" shall have the meaning ascribed thereto in Article VII.

"Concession Period" means the period beginning from the Appointed Date and ending on the Termination Date.

"Concessionaire" means **CIDBI INVENTURES SDN BHD (462295-A)** and its successors and substitutes expressly approved in writing by NHAI.

"Consortium Members" mean the shareholders of CIDBI.

"Construction Period" means the period beginning from the Appointed Date and ending on the COD.

"Construction Works" means all works and things necessary to complete the Project Highways for use of the traffic and other users thereof in accordance with this Agreement.

"Contractor" means the contractor or contractors, if any, with whom the Concessionaire has entered into all or any of the Project Agreements.

"Cure Period" means the period specified in this Agreement for curing any breach or default of any provision of this Agreement by the Party responsible for such breach or default and upon failing of which the Agreement may be terminated by the other Party.

"Damages" shall have the meaning ascribed thereto in Clause 1.2(p).

"Debt Due" means the aggregate of the following sums expressed in Indian Rupees or in the currency of debt, as the case may be, outstanding and payable to the Senior Lenders under the Financing Documents:

(i) the principal amount of the debt provided by the Senior Lenders under the Financing Documents for financing the Project (the "principal") which is outstanding as on the Termination Date but excluding any part of the principal that had fallen due for repayment one year prior to the Termination Date unless such repayment had been rescheduled with the prior consent of NHAI; and

(ii) all accrued interest, financing fees and charges payable on or in respect of the debt referred to in sub-clause (i) above upto the date preceding the Termination Date but excluding (a) any interest, fees or charges that had fallen due one year prior to the Termination Date, and (b) penal interest or charges, payable under the Financing Documents to any Senior Lender.

"Debt Service Payments" means the sum of all principal and interest payments due and payable in an Accounting Year to the Senior Lenders under the Financing Documents.

"Development Period" means the period from the date of this Agreement until the Appointed Date.

"Dispute" shall have the meaning set forth in Clause 42.1(a).

"Dispute Resolution Procedure" means the procedure for Dispute resolution set forth in Article XLII .

"Divestment Requirements" means the obligations of the Concessionaire and NHAI for and in respect of the Termination of this Agreement as set forth in Article XXXVI .

"Document" or "Documentation" means documentation printed or in written form, tapes, discs, drawings, computer programmes, writings, reports, photographs, cassettes, or expressed in any other written, audio or visual form.

"Drawings" means all the drawings, calculations and documents pertaining to the Project Highways as set forth in Schedule 'I' and shall include "as built" drawings of the Project Highways.

"EPC Contract" means contract or contracts entered into by the Concessionaire with one or more Contractors for the design, engineering, procurement of materials and equipment, construction, and completion of the Project Highways in accordance with the provisions of this Agreement.

"Emergency" means a condition or situation that is likely to endanger the security of the individuals on or about the Project Highways including users thereof or which poses an immediate threat of material damage to any of the Project Assets.

"Encumbrances" means any encumbrances such as mortgage, charge, pledge, lien, hypothecation, security interest, assignment, privilege or priority of any kind having the effect of security or other such obligations and shall include without limitation any designation of loss payees or beneficiaries or any similar arrangement under any insurance policy pertaining to the Project Highways, physical encumbrances and encroachments on the Site where applicable herein.

"Equity" means the sum expressed in Indian Rupees representing the equity share capital of the Company and shall include the funds advanced by any Member of the Consortium or by any of its shareholders to the Concessionaire company for meeting the equity component of the Total Project Cost. Provided, however, that for purposes of computing Termination Payments under this Agreement, Equity shall be reckoned as an amount that is arrived at after excluding from the equity share capital of the Company the following viz. (a) Equity Support, if any , and (b) the sum by which the capital cost of the Project Highways as stated by the Concessionaire for purposes of claiming Termination Payments exceeded the Total Project Cost.

"Equity Support" shall have the meaning ascribed thereto in Clause 25.2.

"Escrow Account" means an Account which the Concessionaire shall open and maintain with a Bank in which all inflows and outflows of cash on account of capital and revenue receipts and expenditures shall be credited and debited, as the case may be, in accordance with the provisions of this Agreement.

"Escrow Agreement" shall have the meaning ascribed thereto in Clause 27.2.

"Exempted Vehicles" means vehicles that shall be exempted from payment of Fees and include, ambulances, fire tenders, and official vehicles transporting and accompanying the President of India, the Vice-President of India, the Prime Minister of India, Ministers of the Government of India, Governors, Lt. Governors, Chief Ministers, Presiding Officers of Central and the State legislatures having jurisdiction, leaders of opposition in Lok Sabha, Rajya Sabha and the State legislatures having jurisdiction, Ministers of the GOAP, judges of the Supreme Court of India and of the High Courts having jurisdiction, Secretaries and Commissioners of GOAP, Foreign Dignitaries on State visit to India, Heads of Foreign Missions stationed in India using cars with CD symbol, executive magistrates, officers of MORT&H and NHAI, persons required to use the Project Highways for discharging their statutory obligations in relation to the Site, Independent Consultant, and Central and State forces in uniform including armed forces, para military forces and police.

"Fee" means the charge levied on and payable for a vehicle using the Project Highways in accordance with the Fee Notification and this Agreement.

"Fee Notification" means the Notification to be issued by GOI in exercise of the powers conferred by Section 7 & 8 of the National Highways Act, 1956 in respect of the levy and collection of the Fees on the Project Highway and format of which

is at Schedule "G" and includes any such subsequent notifications issued from time to time to give effect to the provisions of this Agreement.

"Financial Close" means the date on which the Financing Documents providing for funding by the Senior Lenders have become effective and the Concessionaire has immediate access to such funding under the Financing Documents.

"Financing Documents" means the documents executed by the Concessionaire in respect of financial assistance to be provided by the Senior Lenders by way of loans, guarantees, subscription to non-convertible debentures and other debt instruments including loan agreements, guarantees, notes, debentures, bonds and other debt instruments, security agreements, and other documents relating to the financing (including refinancing) of the Project and includes amendments or modifications made in accordance with Clause 10.1(iv).

"Financing Package" means the financing package of the Project furnished by the Concessionaire along with the Proposal referred to in recital C above indicating the Total Project Cost and the means of financing thereof and shall be deemed to have been modified to the extent as submitted to the Senior Lenders and as approved by the Senior Lenders for the purposes of funding of the Project.

"Force Majeure" or "Force Majeure Event" shall mean an act, event, condition or occurrence specified in Article XXXII .

"GOI" means the Government of India.

"GOAP" means the Government of the State of Andhra Pradesh.

"Good Industry Practice" means those practices, methods, techniques, standards, skills, diligence and prudence which are generally and reasonably expected of and accepted internationally from a reasonably skilled and experienced operator engaged in the same type of undertaking as envisaged under this Agreement and acting generally in accordance with the provisions of the NHAI Act, and would mean good engineering practices in the design, engineering, construction and project management and which would be expected to result in the performance of its obligations by the Concessionaire and in the operation and maintenance of the Project Highways in accordance with this Agreement, Applicable Laws, Applicable Permits, reliability, safety, environment protection, economy and efficiency.

"Governmental Agency" means GOI, GOAP or any ministry, department, commission, board, authority, instrumentality or agency, under the control of GOI or GOAP having jurisdiction over all or any part of the Project Highways or the performance of all or any of the services or obligations of the Concessionaire under or pursuant to this Agreement.

"Grant" shall have the meaning ascribed thereto in Clause 25.1.

"Indemnifying Party" means the Party obligated to indemnify the other Party pursuant to Article XL .

"Independent Consultant" shall have the meaning ascribed thereto in Clause XXII

"Indirect Political Event" shall have the meaning ascribed thereto in Clause 32.3.

"Lenders' Representative" means the person(s) duly authorised by the Senior Lenders to deal with the Parties to the Agreement with regard to the issues arising out of and contained in this Agreement.

"Local Commercial Traffic" means any commercial vehicle including buses, trucks, light motor vehicles or taxis engaged in carrying goods and passengers registered with the Concessionaire as plying routinely on the Project Highways without crossing more than one of the Toll Plazas.

"Local Personal Traffic" means and includes a personal vehicle which is registered with the Concessionaire by any person who normally resides or works at a place that can normally be approached only by using a part of the Project Highways and such person is, therefore, required to use such vehicle for commuting on a part of the Project Highways, without crossing more than one of the Toll Plazas, in the course of normal travel to and from his place of work or residence.

"Maintenance Manual" shall have the meaning ascribed to it in Clause 19.2.

"Maintenance Programme" shall have the meaning ascribed to it in Clause 19.3.

"Material Adverse Effect" means material adverse effect of any act or event on the ability of either Party to perform any of its obligations under and in accordance with the provisions of this Agreement

"Material Breach" means a breach by either Party of any of its obligations in this Agreement which shall be deemed to have a Material Adverse Effect on the Project and which it shall have failed to cure within the Cure Period.

"MORT&H" means Ministry of Road Transport and Highways of GOI.

"NHAI Representative" means such person or persons as may be authorised in writing by NHAI to act on its behalf under this Agreement and shall include any person or persons having authority to exercise any rights or perform and fulfill any obligations of NHAI under this Agreement.

"Net Cash Flow" means in any Accounting Year revenue income less tax payments, O&M Expense, Concession Fee, and Debt Service Payments to Senior Lenders.

"Non Political Event" shall have the meaning ascribed thereto in Clause 32.2.

"O&M" means the operation and maintenance of the Project Highways during the Operations Period and includes but is not limited to functions of maintenance, collection and appropriation of Fees and performance of other services incidental thereto.

"O&M Contract" means the Operation and Maintenance Contract that may be entered into between the Concessionaire and the O&M Contractor for O&M of the Project Highways.

"O&M Contractor" means the person or entity with whom the Concessionaire has entered into an O&M Contract for discharging O&M functions for and on behalf of the Concessionaire.

"O&M Expense" means expenses incurred by or on behalf of the Concessionaire duly certified by its Statutory Auditors or by NHAI, as the case may be, for all regularly scheduled and reasonably anticipated O&M during Operations Period, including, without limitation (a) all cost of salaries and other employee compensation and contract fee payable to the O&M Contractor, if any (b) cost of materials, supplies, utilities and other services (c) premia for insurance (d) all franchise, excise, property and other similar taxes and all costs and fees incurred in order to obtain and maintain all Applicable Permits necessary for the O&M of the Project Highways at its full design capacity, (e) all repair, replacement and maintenance costs of the Project Highways, and (f) all other expenditures required to be incurred under Applicable Law or under Applicable Permits

necessary for the operation and maintenance of the Project Highways according to the Specifications and Standards at its full design capacity.

"O&M Works" means all works necessary to keep the Project Highways in operation during the Operations Period.

"Operations Period" means the period commencing from COD and ending on the Termination Date.

"PCU" shall have the meaning ascribed to the passenger car unit in the 'Indian Roads Congress', Publication No.IRC-64, 1990, a true copy of which is at Schedule 'W', and for the purposes of this Agreement refers only to such PCUs which pay Fees in accordance with the Fee Notification.

"Parties" means the parties to this Agreement collectively and "Party" shall mean any of the Parties to this Agreement individually.

"Performance Security" shall have the meaning ascribed thereto in Clause 5.1

"Political Event" shall have the meaning ascribed thereto in Clause 32.4.

"Preliminary Notice" shall have the meaning attributed thereto in Clause 35.1.2.

"Project" means the development, design, financing, procurement, engineering and construction, operation and maintenance of the Project Highways in accordance with the provisions of this Agreement and shall include all works relating to or in respect of the Project Highways as described in Article II.

"Project Agreements" means this Agreement, the Financing Documents, the EPC Contract, if any, the O&M Contract, if any, the Tolling Contract, if any, and any other agreements or contracts entered into by the Concessionaire with NHAI or others relating to the Project during the subsistence of this Agreement.

"Project Assets" means all physical and other assets relating to and forming part of the Project Highways including but not limited to (i) rights over the Site in the form of license, right of way or otherwise, (ii) tangible assets such as civil works including the foundation, embankments, pavements, road surface, interchanges, bridges, approaches to bridges and flyovers, road overbridges, drainage works, lighting facilities, traffic signals, sign boards, milestones, toll plazas, equipment for the collection of tolls or relating to regulation of traffic, electrical works for lighting on the Project Highways, telephone and other communication systems and equipment for the Project, rest areas, administration and maintenance

depots, relief centers, service facilities etc. (iii) Project Facilities situated on the Site (iv) the rights of the Concessionaire under the Project Agreements, (v) financial assets, such as security deposits for electricity supply, telephone etc. (vi) insurance proceeds and (vii) Applicable Permits and authorisations relating to or in respect of the Project Highways, but does not include Additional Facilities.

"Project Completion" shall have the meaning ascribed thereto in Clause 16.1.

"Project Completion Schedule" means the progressive Project milestone set forth in Schedule 'H' for the realization of the Project Highways complete in all respects by the Scheduled Project Completion Date.

"Project Facilities" means all the amenities and facilities situated on the Site, as described in Schedule 'C'.

"Project Highways" means (a) NH-5 from km. 52.8 to km. 163.6 on the Tada-Nellore.Section in Andhra Pradesh, (b) NH-9 from km. 217 to km. 252 on the Nandigama – Ibrahimpatnam Section in Andhra Pradesh and (c) NH-9 from km 253 to km 265 on the Ibrahimpada-Vijayawada Section in Andhra Pradesh and shall include the Project Assets and the Project Facilities to be designed, engineered and built on Site and to be operated and maintained during the Concession Period in accordance with the provisions of this Agreement.

"Provisional Certificate" shall have the meaning ascribed to it in Clause 17.5.

"Punch List" shall have the meaning ascribed to it in Clause 17.5.

"Realisable Fee" means all the Fees due and realisable under this Agreement but does not include Fees that the Concessionaire has not been able to realise after due diligence and best efforts.

"Revenue Shortfall Loan" shall have the meaning ascribed to it in Clause 26.1.

"Rs." Or "Rupees" means the lawful currency of the Republic of India.

"SBI PLR" means the prime lending rate per annum for loans with 1(one) year maturity as fixed from time to time by the State Bank of India, and in the absence of such rate, the average of the prime lending rates for loans with 1(one) year maturity fixed by the Bank of India and the Bank of Baroda and failing that any other arrangement that substitutes such prime lending rate as mutually agreed between the Parties

"Scheduled Project Completion Date" shall have the meaning set forth in Clause 16.2.

"Senior Lenders" means the financial institutions, banks, funds and agents or trustees of debenture holders, including their successors and assignees, who have agreed to guarantee or provide finance to the Concessionaire under any of the Financing Documents for meeting costs of all or any part of the Project and who hold pari passu charge on the Concession granted by this Agreement.

"Site" means the real estate licensed by NHAI to the Concessionaire under and in accordance with this Agreement on which the Project Highways is situated.

"Specifications and Standards" means the specifications and standards relating to the quality, capacity and other requirements for the Project Highways as set forth in Schedule 'D' and any modifications thereof, or additions as included in the design and engineering for the Project Highways submitted by the Concessionaire to and expressly approved by NHAI.

"State Support Agreement" means the agreement to be entered into between the GOAP, NHAI and the Concessionaire substantially in the form set forth in Schedule 'R' for provision of support, backup and services required from GOAP, for the performance of Concessionaire's obligations under this Agreement.

"Statutory Auditors" means an independent, recognized and reputable firm of Chartered Accountants duly licensed to practice in India acting as independent statutory auditors of the Concessionaire under the provisions of the Companies Act, 1956 including any statutory modification or re-enactment or replacement thereof, for the time being in force, and appointed in accordance with Clause 31.2.

"Subordinated Debt" means any borrowings by the Concessionaire subordinated to the financial assistance provided by the Senior Lenders for meeting the Total Project Cost but does not include any interest thereon.

"Subsistence Revenue Level" means the total amount of Fee revenue that is required by the Concessionaire in an Accounting Year to meet the sum of (a) the O&M Expense subject to an annual ceiling of 3.3% (three and decimal three percent) of the Total Project Cost in the first operations year, to be revised each year to reflect the variations in the WPI in each subsequent years and (b) Debt Service Payments due to the Senior Lenders in an Accounting Year.

"Substitution Agreement" means the agreement referred to in Article XXXVIII and to be entered into among the Concessionaire, NHAI and the Senior Lenders in the form set forth in Schedule 'U' providing, inter alia, for the substitution of the Concessionaire by any other person subject to and in accordance with the provisions of this Agreement and the Substitution Agreement.

"Taxes" means any Indian taxes on corporate income, Sales tax, excise duties, customs duties and local taxes and any impost of like nature (whether Central, State or local) charged, levied or imposed on the goods, materials, equipment and services incorporated in and forming part of the Project Highways, on the construction, operation and maintenance thereof and on the Project Assets, but excluding any interest, penalties and other sums in relation thereto imposed on any account whatsoever.

"Termination" means the expiry or termination of this Agreement and the Concession hereunder.

"Termination Date" means the date on which this Agreement and the Concession hereunder expires pursuant to the provisions of this Agreement or is terminated by a Termination Notice.

"Termination Notice" means the communication issued in accordance with this Agreement by any one Party to the other Party terminating this Agreement.

"Termination Payment" means the amounts payable by NHAI to the Concessionaire under this Agreement upon the Termination of this Agreement and shall consist of payments relating to Debt Due, Subordinated Debt and Equity, as the case may be, and such other amounts as are expressly provided for under this Agreement. Provided, however, that for purposes of determining Termination Payments to be made by NHAI under this Agreement, the capital cost of the Project Highways shall at all times be reckoned as an amount not exceeding the Total Project Cost and the liability of NHAI to make such Termination Payments relating to Debt Due, Subordinated Debt and Equity shall be determined as if such capital cost was restricted to Total Project Cost.

"Tests" mean the tests to be carried out as set forth in and in accordance with Schedule 'J' to determine the Project Completion and its certification by the Independent Consultant for commencement of commercial operation of the Project Highways

"Toll Plaza" means the structures and barriers erected on the Project Highways for the purpose of regulating the entry/exit of vehicles in accordance with the provisions of this Agreement.

"Tolling Contract" means the contract, if any, entered into by the Concessionaire with the Tolling Contractor for operation of the Toll Plazas including collection of Fees for and on behalf of the Concessionaire.

"Tolling Contractor" means the person, if any, with whom the Concessionaire has entered into a Tolling Contract for operation of Toll Plazas and collection of Fees for and on behalf of the Concessionaire.

"Total Project Cost" means the lowest of the following:

a. a sum of Rs. 7598.7 million;
b. actual capital cost of the Project upon completion of all the construction works relating to Project Highways (as evidenced by the final Completion Certificate) as certified by the Statutory Auditors; or
c. total project cost as set forth in Financing Documents.

Provided further that if part of the Total Project Cost is funded in foreign currency, in accordance with the Financing Package, then the rate of exchange shall be determined as on the date of the MOA, and the Total Project Cost shall be computed as if such foreign currency were converted with reference to such exchange rate. In the event of Termination of this Agreement requiring NHAI to make Termination Payments, the liability of NHAI shall be determined on basis of the rate of exchange prevailing on the date of Termination Notice and the amounts payable by NHAI for Debt Due and Subordinated Debt , as the case may be, shall be computed accordingly.

"Vesting Certificate" shall have the meaning attributed to it in Clause 36.4.

"WPI" means the wholesale price index published by the Ministry of Industry, GOI and shall include any index, which substitutes the WPI.

1.2 In this Agreement, unless the context otherwise requires,

(a) any reference to a statutory provision shall include such provision as is from time to time modified or re-enacted or consolidated so far as such modification or re-enactment or consolidation applies or is capable of applying to any transactions entered into hereunder;

(b) references to Indian law shall include the laws, acts, ordinances, rules, regulations, or bye laws which have the force of law in any State or Union Territory forming part of the Union of India;

(c) the words importing singular shall include plural and vice versa, and words denoting natural persons shall include partnerships, firms, companies, corporations, joint ventures, trusts, associations, organizations or other entities (whether or not having a separate legal entity);

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

(e) terms and words beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein and the terms and words defined in the Schedules and used therein shall have the meaning ascribed thereto in the Schedules;

(f) the words "include" and "including" are to be construed without limitation;

(g) references to "construction" include, unless the context otherwise requires, investigation, design, engineering, procurement, delivery, transportation, installation, processing, fabrication, testing, commissioning and other activities incidental to the construction;

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

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

(j) any reference to month shall mean a reference to a calendar month;

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

(l) any reference at any time to any other agreement, deed, instrument, licence or document of any description shall be construed as reference to that agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference provided that this clause shall not operate so as to

increase liabilities or obligations of NHAI hereunder or pursuant hereto in any manner whatsoever;

(m) references to Recitals, Articles, Clauses, Sub-clauses, Paragraphs, or Schedules in this Agreement shall, except where the context otherwise requires, be deemed to be references to Recitals, Articles, Clauses, Sub-clauses, paragraphs, and Schedules of or to this Agreement;

(n) any agreement, consent, approval, authorisation, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or the Independent Consultant shall be valid and effectual only if it is in writing under the hands of duly authorised representative of such Party or the Independent Consultant, as the case may be, in this behalf and not otherwise;

(o) any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include both such days or dates;

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

(q) unless otherwise expressly provided in this Agreement any Documentation required to be provided or furnished by the Concessionaire to NHAI and/or the Independent Consultant shall be provided free of cost and in three copies and if NHAI and/or the Independent Consultant are required to return any such Documentation with their comments and/or approval, they shall be entitled to retain two copies thereof.

1.3 Measurements and Arithmetic Conventions

All measurements and calculations shall be in metric system and calculations done to 2 decimal places, with the third digit of 5 or above being rounded up and below 5 being rounded down.

1.4 Priority of contract documents and errors/discrepancies

1.4.1 The several documents forming this Agreement are to be taken as mutually explanatory to one another and, unless otherwise expressly provided elsewhere in this Agreement, the priority of the following documents shall in the event of any conflict between them be in the order they are set out:

(i) this Agreement

(ii) all other documents forming part of this Agreement

i.e. document at (i) above shall prevail over the documents at (ii) above.

1.4.2 In case of ambiguities or discrepancies within this Agreement the following shall apply:

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

(ii) Between the Clauses and the Schedules, the Clauses shall prevail save as otherwise expressly set forth in Clause 1.4.1;

(iii) Between the written description on the Drawings and the Specifications and Standards, the latter shall prevail;

(iv) Between the dimension scaled from the Drawing and its specific written dimension, the latter shall prevail;

(v) Between any value written in numerals and that in words, the latter shall prevail.

II SCOPE OF PROJECT

2.1 The Project shall be executed on the Site, which is described in Schedule 'A' of this Agreement. The scope of the Project shall include performance and execution by the Concessionaire of all design, engineering, financing, procurement, construction, completion, operation and maintenance of the Project Highways as described in Schedule 'B' and Schedule 'C' of this Agreement. It shall include strengthening and widening into four lanes of the existing two lanes stretches of NH-5 and NH-9 comprised in the Project Highways in accordance with the Specifications and Standards set forth in Schedule 'D' and operation and maintenance of the Project Highways in accordance with Schedule 'L'. It shall also include the performance and fulfillment of other obligations by the Concessionaire under this Agreement.

The Concessionaire shall undertake its obligations at its own cost and risk.

CHAPTER – II

GRANT OF CONCESSION

III. GRANT OF CONCESSION

3.1 Subject to and in accordance with the terms and conditions set forth in this Agreement, NHAI hereby grants to the Concessionaire and the Concessionaire hereby accepts the Concession for a period of 30 (thirty) years commencing from the Appointed Date, including the exclusive right, licence and authority during the subsistence of this Agreement to implement the Project and the Concession in respect of the Project Highways.

3.2 Subject to and in accordance with the terms and conditions set forth in this Agreement, the Concession hereby granted shall entitle the Concessionaire to enjoy, and oblige the Concessionaire to undertake the following in accordance with the provisions of this Agreement, the Applicable Laws and the Applicable Permits:

i to develop, design, engineer, finance, procure, construct, operate and maintain the Project Highways during the Concession Period;

ii upon completion of the Project Highways and during the Operations Period to manage, operate & maintain the Project Highways and regulate the use thereof by third parties;

iii levy, demand, collect and appropriate the Fees from vehicles and persons liable to payment of Fees for using the Project Highways or any part thereof and refuse entry of any vehicle to the Project Highways if the due Fee is not paid;

iv perform and fulfill all of the Concessionaire's obligations under this Agreement;

v bear and pay all expenses, costs and charges incurred in the fulfillment of all the Concessionaire's obligations under this Agreement ;and

vi not assign or create any lien or Encumbrance on the Concession hereby granted or on the whole or any part of the Project Highways nor transfer,

lease or part possession therewith save and except as expressly permitted by this Agreement or the Substitution Agreement.

3.3. The Concession Period shall commence on the Appointed Date and shall end on the Termination Date.

IV. CONDITIONS PRECEDENT

4.1 Conditions Precedent

Save and except as provided in Articles IV, V and XXIV, the rights and obligations of the Concessionaire under this Agreement are subject to the satisfaction in full of the following conditions precedent to be fulfilled on or before Financial Close unless any such condition has been waived as provided in Clause 4.2:

(a) Concessionaire shall have obtained all such Applicable Permits as listed in Schedule 'E' unconditionally or if subject to conditions then all such conditions have been satisfied in full and such Applicable Permits are and shall be kept in full force and effect for the relevant period during the subsistence of this Agreement;

(b) the Concessionaire shall have been granted way leaves required in connection with the Project including:

(i) rights of way for the alignment of the Project Highways free from all Encumbrances;

(ii) rights of way from public roads to the Site; and

(iii) permission/licence to enter upon and utilise the Site for the construction pursuant to and in accordance with this Agreement.

(c) the Concessionaire shall have been granted all Central Government clearances and permits under the Applicable Laws relating to environmental protection and conservation from the Ministry of Environment and Forests;

(d) the Concessionaire shall have entered into the State Support Agreement with NHAI and the GOAP;

(e) certified true copies of all Project Agreements, in particular, the Financing Documents, the EPC Contract, O&M Contract, if any and the Tolling

Contract, if any, as well as the shareholders funding agreement have been delivered by the Concessionaire to NHAI;

(f) the Performance Security in full has been provided by the Concessionaire to NHAI in accordance with Clause 5.1;

(g) all of the representations and warranties of the Concessionaire set forth in Article XII are true and correct as on date of this Agreement and as on the Appointed Date;

(h) NHAI shall have received from the Concessionaire copies (certified as true copies by an authorised officer of the Concessionaire) of the constitutional documents of the Concessionaire;

(i) NHAI shall have received copies (certified as true copies by a Director of the Concessionaire) of all resolutions adopted by the Board of Directors of the Concessionaire authorising the execution, delivery and performance by the Concessionaire of this Agreement and each of the Project Agreements;

(j) NHAI shall have received from the Indian legal counsel of the Concessionaire a legal opinion with respect to the authority of the Concessionaire to enter into this Agreement and the Project Agreements and the Financing Documents and the enforceability of the provisions thereof; and

(k) MORT&H shall have issued a Fee Notification substantially in the form at Schedule 'G'.

4.2 Any of the conditions precedent set forth in Clause 4.1, save and except condition of Sub-clause (b) and (c) thereof, may be waived fully or partially by NHAI at anytime in its sole discretion.

4.3 Obligation to Satisfy the Conditions Precedent.

The Concessionaire shall make all reasonable endeavours to procure the satisfaction in full of the Conditions Precedent set out in Clause 4.1 above and NHAI shall make all reasonable endeavours to procure fulfillment of the conditions set forth in Sub-clauses (b), (c), (d) and (k) of Clause 4.1. Each Party shall bear its respective cost and expense of satisfying such Condition Precedent.

4.4 If the Conditions Precedent set forth in Clause 4.1 have not been satisfied on or before the Financial Close and the NHAI has not waived, fully or partially, such conditions under Clause 4.1, NHAI may, notwithstanding anything to the contrary contained in this Agreement, terminate this Agreement in accordance with provisions of Clause 35.2 without being liable in any manner whatsoever to the Concessionaire and forfeit the Performance Security by way of Damages, provided that where NHAI does not fulfill its obligations under Clause 4.3 and terminates this Agreement under this Clause 4.4, it shall refund in full the Performance Security, as the case may be.

V. PERFORMANCE SECURITY

5.1 The Concessionaire shall for due and faithful performance of its obligations during the Construction Period provide to NHAI a bank guarantee from any Bank in the form set forth in Schedule 'F' (the "Performance Security") for a sum equivalent to Rs.100 million (Rupees one hundred million) within 120 (one hundred twenty) days of the date of this Agreement. Failure of the Concessionaire to provide the Performance Security in accordance with this Clause 5.1, shall entitle NHAI to terminate this Agreement in accordance with the provisions of Clause 35.2 without being liable in any manner whatsoever to the Concessionaire.

5.2 The Performance Security shall be released by NHAI to the Concessionaire upon contribution of the Equity (excluding Equity Support, if any) by the shareholders of the Concessionaire to the extent of 100% and upon the Concessionaire having expended on the Project and paid out an aggregate sum of not less than 20% (twenty percent) of the Total Project Cost as certified by the Statutory Auditors of the Concessionaire and provided the Concessionaire is not in breach of this Agreement. If the Concessionaire is in breach of this Agreement, the Performance Security shall be continued till the COD or until the breach is cured; whichever is earlier.

5.3 In the event of the Concessionaire being in default in the due and faithful performance of its obligations under this Agreement and failing to remedy such default within the Cure Period, the NHAI shall without prejudice to its other rights and remedies hereunder be entitled to encash and appropriate the Performance Security as Damages for such default. Upon such encashment and appropriation of the Performance Security, NHAI shall grant a period of 15 (fifteen) days to the Concessionaire to provide fresh Performance Security and the Concessionaire shall within the time so granted furnish to NHAI such Performance Security failing which NHAI shall be entitled to Terminate this Agreement under clause 35.2. The provision set forth in Clause 5.2 and this

Clause 5.3 shall apply mutatis-mutandis to such fresh Performance Security.

5.4 Notwithstanding anything to the contrary contained in clause 5.3, upon furnishing of fresh Performance Security in accordance with clause 5.3, the Concessionaire shall be granted an additional period of 60 (Sixty) days as Cure Period for remedying the defaults and complying with his obligations under this Agreement. In the event of the Concessionaire continuing to be in breach of the provisions of this Agreement after such Cure Period, NHAI shall be entitled to terminate this Agreement under the provisions of Clause 35.2.

VI. FEES

6.1 The Concessionaire shall subject to complying with the applicable operation and maintenance requirements specified in this Agreement be entitled to levy and collect the Fees from the users of the Project Highways or part thereof as provided hereinbelow pursuant to and in accordance with the Fee Notification set forth in Schedule 'G' and this Agreement. Provided, however, that such Fee shall be rounded off to the nearest five rupees for ensuring ease of payment and collection.

(a) the Concessionaire may commence levy and collection of the Fees from the users of the stretch of four laned NH-5, from the date the Completion Certificate is issued pursuant to Clause 17.4 certifying strengthening and four laning of not less than a continous stretch of 70 kms.

Provided, until the entire stretch of NH-5 comprised in the Project Highways is four laned and Completion Certificate in respect thereof is issued, the Concessionaire's right to levy and collect Fees pursuant to this sub-clause (a) shall be limited to a stretch of 70 kms only.

(b) the Concessionaire may commence levy and collection of the Fees from the users of the stretch of NH-9 from km 217 to km 265 comprised in the Project Highways only after the dated the Completion Certificate is issued certifying completion of strengthening and four laning of the stretch of NH-9 from km 217 to km 252

6.2 The Concessionaire acknowledges that the Fee Notification, inter alia, provides for annual revision in the Fees linked to the extent of variation in WPI as per the Fee Notification, and hereby confirms that save and except as provided in the

Fee Notification, the Concessionaire is not entitled to and shall not seek any relief whatsoever from NHAI, GOI or GOAP on account of increase or otherwise in WPI or on any other account except in accordance with the express provisions of this Agreement.

6.3 The Concessionaire shall not collect any Fees from Local Personal Traffic and Local Commercial Traffic in excess of the following discounted rates:

- Local Personal Traffic : 25% of the applicable fees for the specific category of vehicle.
- Local Commercial Traffic : 50% of the applicable fees for the specific category of vehicle.

It shall issue appropriate passes or make refunds in a manner that minimises the inconvenience to Local Traffic consistent with the Concessionaire's need to prevent any leakage of Fees. For carrying out provisions of this Clause, the Concessionaire shall formulate, publish and implement an appropriate scheme and carry out such modifications and improvements to such scheme as may reasonably be suggested by NHAI or required by local circumstances from time to time in conformity with the objectives of this Agreement. Provided, however, that if a separate service lane is opened for free use by Local Traffic, the Concessionaire shall levy and collect Fees from such Local Traffic if they use the four-lane Highway.

6.4 The Concessionaire shall not collect any Fees in relation to Exempted Vehicles.

6.5 The Fees collected by the Concessionaire or NHAI or NHAI's nominee pursuant hereto shall be deposited in the Escrow Account and appropriated in accordance with the provisions of Article XXVII.

6.6 The Concessionaire may delegate its right to collect Fees to the O&M Contractor or the Tolling Contractor or to any other person provided, however, that notwithstanding such delegation, the Concessionaire shall be and remain solely liable and responsible for the collection of Fees in accordance with this Agreement and its deposit into the Escrow Account.

VII. CONCESSION FEE

7.1 In consideration of the grant of Concession under this Agreement, the Concession Fee payable by the Concessionaire to the NHAI shall be Re.1.00 (Rupee One) per year during the term of this Agreement.

7.2 The Concession Fee shall be paid in advance within 90 (ninety) days of the commencement of the year for which it is due and payable.

IX COMPETING ROAD FACILITY

9.1 Notwithstanding anything to the contrary contained in this Agreement, any of NHAI, GOI or GOAP may construct and operate either itself or have the same, inter alia, built and operated on BOT basis or otherwise any Expressway or other road, between, inter alia, Tada – Nellore and Nandigama - Ibrahimpatnam (the "Competing Road Facility") provided that such Competing Road Facility shall not be opened to traffic before the traffic level reaches 80,000 PCUs or expiry of 15 (fifteen) years from the Appointed Date, whichever is earlier.

9.2 In the event of NHAI, GOI or GOAP, as the case may be, constructing or permitting construction of any Competing Road Facility as set forth in Clause 9.1 and the Competing Road Facility is commissioned, then the Concession Period shall be increased by half the number of years by which such commissioning precedes the expiry of the Concession Period. For example, if the commissioning of the Competing Road Facility occurs after 17 (seventeen) years from the Appointed Date, the Concession Period shall be increased to 36.5 (thirty six and a half) years.

9.3 Upon commissioning of the Competing Road Facility, the Concessionaire shall continue to levy and collect the Fee under this Agreement and shall not offer any discounts or reductions in such Fee except with the prior written consent of NHAI. Provided, however, that any such discounts or reductions that the Concessionaire had offered to any general or special class of users or vehicles for a continuous period of three years prior to the commissioning of the Competing Road Facility may continue in the same form and manner after the commissioning of such Competing Road Facility.

9.4 NHAI shall ensure that the per kilometer fee to be levied and collected from any vehicle or class of vehicles using the Competing Road Facility shall at no time be less than an amount which is 133% of the per kilometer Fee levied and collected from similar vehicles or class of vehicles using the Project Highways.

CHAPTER –III
OBLIGATIONS AND UNDERTAKINGS

X. OBLIGATIONS OF THE CONCESSIONAIRE

10.1 The Concessionaire shall at its own cost and expense observe, undertake, comply with and perform, in addition to and not in derogation of its obligations elsewhere setout in this Agreement, the following:

(i) make, or cause to be made, necessary applications to the relevant Governmental Agencies with such particulars and details, as may be necessary for obtaining all Applicable Permits, and obtain such Applicable Permits in conformity with the Applicable Laws;

(ii) notify to NHAI forthwith the occurrence of Financial Close;

(iii) submit to NHAI certified true copies of each of the Project Agreements within 7 (seven) days of their execution;

(iv) not make any replacement, amendment or modifications to any of the Project Agreements without the prior written consent of NHAI, where such replacement, amendment or modification has or may have the effect of increasing or imposing any financial liability or obligation on NHAI in any manner, and where such amendment or modification is made without such consent, not to enforce such amendment or modification nor permit enforcement thereof against NHAI in any manner whatsoever;

(v) give NHAI not less than 30 (thirty) days written notice prior to entering into, amending or replacing any Project Agreement so as to enable NHAI to provide its consent or offer its comments, if any thereon which, if made, shall be duly considered and given effect to by the Concessionaire before entering into, amending or replacing such Project Agreement;

(vi) remove promptly from the Project Highways all surplus construction machinery and materials, waste materials (including, without limitation, hazardous materials and waste water), rubbish and other debris (including without limitation accident debris) and shall keep the Site in a neat and clean condition and in conformity with the Applicable Laws and Applicable Permits;

(vii) procure, as required, the appropriate proprietary rights, licenses, agreements and permissions for materials, methods, processes and systems used or incorporated into the Project Highways;

(viii) provide all assistance to the Independent Consultant as it may require for the performance of its duties and services;

(ix) provide to NHAI reports on regular basis during the Construction Period and the Operations Period in the form and manner set forth in this Agreement and Schedule 'X';

(x) obtain and maintain in force on and from the Appointed Date all insurance in accordance with the provisions of this Agreement and Good Industry Practice;

(xi) acquire such real estate, as the Concessionaire may deem appropriate for the Additional Facilities and to indemnify and save harmless and defend GOI, NHAI, and GOAP from and against all proceedings, claims, demands, costs, expenses, losses and damages arising out of or relating to the securing of rights to use such real estate by the Concessionaire or any person claiming through or under the Concessionaire;

(xii) undertake Debt Service Payments in accordance with the Financing Documents;

(xiii) levy and collect Fees from users of the Project Highways at the rates set forth in the Fee Notification and in accordance with this Agreement and regulate the traffic on the Project Highways in accordance with the Applicable Laws;

(xiv) ensure and procure that each Project Agreement contains provisions that entitle NHAI to step into such agreement in its discretion in place and substitution of the Concessionaire in the event of Termination of this Agreement on account of default or breach by the Concessionaire;

(xv) appoint, supervise, monitor and control the activities of Contractors under their respective Project Agreements as may be necessary;

(xvi) make reasonable efforts to maintain harmony and good industrial relations among the personnel employed in connection with the performance of the Concessionaire's obligations under this Agreement;

(xvii) comply with all Applicable Permits and Applicable Laws in the performance of the Concessionaire's obligations under this Agreement including those being performed by any of the Contractors;

(xviii) develop, implement and administer a surveillance and safety program for the Project Highways, the users thereof, and the Contractors personnel engaged in the provision of any services under any of the Project Agreements including correction of safety violations and deficiencies, and taking of all other actions necessary to provide a safe environment in accordance with Schedule 'S', Applicable Laws and Good Industry Practice;

(xix) take all reasonable precautions for the prevention of accidents on or about the Project Highways and provide all reasonable assistance and emergency medical aid to accident victims;

(xx) not to place or create and nor permit any Contractor or other person claiming through or under the Concessionaire to create or place any Encumbrance or security interest over all or any part of Site or the Project Assets, or on any rights of the Concessionaire therein or under this Agreement, save and except as expressly set forth in this Agreement;

(xxi) make its own arrangements for quarrying, and observe and fulfill the environmental and other requirements under the Applicable Laws and Applicable Permits at Concessionaire's own cost and expense;

(xxii) be responsible for safety, soundness and durability of the Project Highways including other structures forming part thereof and their compliance with the Specifications and Standards;

(xxiii) not claim or demand possession or control of any roads, structures or real estate which do not form part of the Project Highways;

(xxiv) after receiving vacant possession of the Site or part thereof, ensure that such Site remains free from all encroachments and take all steps necessary to remove encroachments, if any

(xxv) make payment to Police department or any Government Agency, if required, for provision of such services as are not provided in the normal course or are available on payment;

(xxvi) indemnify the NHAI against all actions, suits, claims, demands and proceedings and any loss or damage or cost or expense that may be suffered by them on account of anything done or omitted to be done by the Concessionaire in connection with the performance of its obligations under this Agreement; and

(xxvii) comply with the Divestment Requirements and hand over the Project Highways to NHAI upon Termination of the Agreement.

10.2 Subject to the terms and conditions of this Agreement the Concessionaire shall at its cost and expense:

(i) undertake the design, engineering, procurement and construction and financing of the Project Highways in accordance with this Agreement;

(ii) operate and maintain the Project Highways at all times in conformity with this Agreement including but not limited to the Specifications and Standards set forth in Schedule 'D', Schedule 'L', the Maintenance Programme and Good Industry Practice.

10.3 The Concessionaire shall, before commencement of construction of the Project Highways:

(i) submit to NHAI with due regard to Project Completion Schedule as set forth in Schedule 'H' and Scheduled Project Completion Date, its design, engineering and construction time schedule and shall formulate and provide CPM/PERT charts for the completion of the said activities;

(ii) finalise the design and detailed engineering basis;

(iii) have requisite organisation and designate and appoint a Project manager and such other managers, officers and representatives as it may deem appropriate to supervise the Project and to deal with the NHAI Representative and be responsible for all necessary exchanges of information required pursuant to this Agreement; and

(iv) undertake, do and perform such acts, deeds and things as may be necessary or required for construction and Project completion under and in accordance with this Agreement.

10.4 In respect of the Concessionaire's obligations with respect to the Drawings of the Project Highways as set forth in Schedule 'I', the following shall apply:

(i) The Concessionaire shall prepare and submit with reasonable promptness and in such sequence as is consistent with the Project Completion Schedule, three copies each of all Drawings to NHAI and the Independent Consultant for review and comments.

(ii) By forwarding the Drawings for review and comment to NHAI, the Concessionaire represents that it has determined and verified that the design and engineering including field construction criteria related thereto is in conformity with the Specifications, Standards and quality set forth in this Agreement for and in respect of the Project Highways.

(iii) Within 30 (thirty) days of the receipt of the Drawings, NHAI shall review the same and convey its comments/observations to the Concessionaire with particular reference to the conformity or otherwise with the Specifications and Standards set forth in this Agreement. It is expressly agreed that notwithstanding any review and comment/observations of NHAI on any Drawings or failure of NHAI to provide comments/ observations thereon, NHAI shall not be liable for the same in any manner whatsoever and the Concessionaire shall remain solely responsible for and shall not be relieved or absolved in any manner whatsoever of its obligations, duties and liabilities as set forth in this Agreement. The Concessionaire shall not be obliged to await the comments/observations of NHAI on the Drawings submitted pursuant hereto beyond the period set forth hereinabove.

(iv) If the comments/observations of NHAI indicate that the Drawings are not in conformity with the Specifications and Standards set forth in this Agreement, such Drawings shall be revised by the Concessionaire to the extent necessary and resubmitted to NHAI for review, observations and comments. NHAI shall give its observations and comments, if any, within 15 (fifteen) days of the receipt of such revised Drawings provided, however, that any observations or comments of NHAI or failure of NHAI to give any observations or comments on such revised drawings shall not relieve or absolve the Concessionaire of its obligation to conform to such Specifications and Standards.

(v) The Concessionaire shall be responsible for delays in Project Completion Schedule caused by reasons of any Drawings not being in conformity with the Specifications and Standards, and the Concession Period shall not be extended in any manner whatsoever on account of submission or revision of any Drawings.

(vi) Within 90 (ninety) days of the COD, the Concessionaire shall furnish NHAI with "as built" Drawings reflecting the Project Highways as actually designed, engineered and constructed, including without limitation an "as built" survey illustrating the layout of the Project Highways and setback lines, if any, of the buildings and structures forming part of Project Facilities.

10.5 The Concessionaire shall submit to NHAI the drafts of the Project Agreements including in particular the EPC Contract, the Financing Documents, the O&M Contract and the Tolling Contract for its review. NHAI shall have the right but not the obligation to provide its comments and observations, if any, in respect of the Project Agreements within 30 (thirty) days of the receipt thereof by NHAI and the Concessionaire shall consider all such comments/observations. Any such comments/observations by NHAI on any Project Agreements or the failure to provide such comments shall not relieve or absolve in any manner whatsoever the Concessionaire of its obligations, duties and liabilities under this Agreement nor shall it make NHAI and/or Independent Consultant liable to the Concessionaire in any manner whatsoever and shall be without prejudice to the rights of NHAI hereunder.

10.6 During the Construction Period, the Concessionaire shall be responsible for maintaining the Site including the existing two lanes of the Project Highways at its own cost and expense. During this period, the Concessionaire shall modify, repair or otherwise make improvements to the existing two lanes before expiry of six months from the Appointed Date so that the existing two lanes comply with requirements provided in Schedule 'L' and at least 2 (two) lanes of the Project Highways are ordinarily open to traffic at all times. The Concessionaire shall promptly undertake all such repairs and maintenance works as may be necessary to keep the Project Highways traffic-worthy and safe during the Construction Period.

10.7 The Concessionaire shall, at all times, afford access to the Site to the authorised representatives of NHAI, Senior Lenders, and the Independent Consultant and to the persons duly authorised by any Governmental Agency having jurisdiction over the Project, including those concerned with safety, security or environmental protection to inspect the Project Highways and to investigate any matter within

their authority and upon reasonable notice, the Concessionaire shall provide to such persons reasonable assistance necessary to carry out their respective duties and functions with minimum disruption to the construction, operation and maintenance of the Project Highways consistent with the purpose for which such persons have gained such access to the Site.

XI OBLIGATIONS OF NHAI

11.1 NHAI agrees to observe, comply and perform the following:

(i) enable access to the Site, free from Encumbrances, in accordance with this Agreement;

(ii) permit peaceful use of the Site by the Concessionaire as licensee under and in accordance with the provisions of this Agreement without any let or hindrance from NHAI or persons claiming through or under it;

(iii) assist and provide all reasonable support to the Concessionaire in obtaining Applicable Permits;

(iv) upon written request from the Concessionaire, assist the Concessionaire in obtaining access to all necessary infrastructure facilities and utilities, including water, electricity and telecommunication facilities at rates and on terms no less favourable to the Concessionaire than those generally available to commercial customers receiving substantially equivalent services;

(v) procure that no barriers are erected or placed by GOAP or any Governmental Agency on the Project Highways except on account of any law and order situation or upon national security considerations;

(vi) enter into the State Support Agreement with the Concessionaire and the GOAP;

(vii) assist the Concessionaire in obtaining necessary assistance to regulate traffic on the Project Highways subject to and in accordance with the Applicable Laws;

(viii) assist the Concessionaire in obtaining Police assistance from GOAP against payment of prescribed costs and charges, if any, for traffic regulation, patrolling and provision of security on the Project Highways;

(ix) operate and maintain the Project Highways during the Development Period, at its own cost and expense, in a manner that the level of service is at no time inferior to the level prevailing on the date of signing this agreement until the same are handed over by NHAI; and

(x) Observe and comply with its obligations set forth in this Agreement.

XII REPRESENTATIONS AND WARRANTIES

12.1 Representations and Warranties of the Concessionaire

The Concessionaire represents and warrants to NHAI that:

(i) It is duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation;

(ii) It has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;

(iii) It has taken all necessary corporate and other action under Applicable Laws and its constitutional documents to authorize the execution, delivery and performance of this Agreement;

(iv) It has the financial standing and capacity to undertake the Project;

(v) This Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof;

(vi) It is subject to civil and commercial laws of India with respect to this Agreement and it hereby expressly and irrevocably waives any immunity in any jurisdiction in respect thereof;

(vii) All the information furnished in the Proposal referred to in recital C, and shall be, true and correct as on the Appointed Date and COD and the Balance Sheet and Profit and Loss Account of the Concessionaire for each of its Accounting Years after the Appointed Date furnished to NHAI shall give true and fair view of the affairs of the Concessionaire;

(viii) It shall furnish a copy of the audited accounts of the Company within 120 (one hundred twenty) days of the close of its each Accounting Year after the Appointed Date and any material change subsequent to the date of

such accounts shall be notified to NHAI by the Concessionaire within 30 (thirty) days of its occurrence and warrants that the accounts and the information furnished as aforesaid shall be true and correct;

(ix) The execution, delivery and performance of this Agreement will not conflict with, result in the breach of, constitute a default under or accelerate performance required by any of the terms of the Memorandum and Articles of Association of the Concessionaire or Consortium Member or any Applicable Laws or any covenant, agreement, understanding, decree or order to which, it is a Party or by which it or any of its properties or assets is bound or affected;

(x) There are no actions, suits, proceedings, or investigations pending or, to the Concessionaire's knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi judicial or other authority, the outcome of which may result in the breach of or constitute a default of the Concessionaire under this Agreement or which individually or in the aggregate may result in any Material Adverse Effect on its business, properties or assets or its condition, financial or otherwise, or in any impairment of its ability to perform its obligations and duties under this Agreement;

(xi) It has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Governmental Agency which may result in any Material Adverse Effect or impairment of the Concessionaire's ability to perform its obligations and duties under this Agreement;

(xii) It has complied with all Applicable Laws and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have Material Adverse Effect on its financial condition or its ability to perform its obligations and duties under this Agreement;

(xiii) At all times during the Concession Period CIDBI shall not hold less than 30% of the paid-up equity share capital for the time being of the Concessionaire and the balance 70% shall be held by other shareholders who shall not individually, hold at any time, equity share capital of the Concessionaire in excess of 30%. .

(xiv) Each Consortium Member was and is duly organised and existing under the laws of the jurisdiction of its incorporation and has full power and

authority to consent to and has validly consented to and requested NHAI to enter into this Agreement with the Concessionaire pursuant to the MOA and has agreed to and unconditionally accepted the terms and conditions set forth in this Agreement;

(xv) All rights and interests of the Concessionaire in and to the Project Highways shall pass to and vest in NHAI on the Termination Date free and clear of all liens, claims, and Encumbrances without any further act or deed on the part of the Concessionaire or NHAI and that none of Project Assets including materials, supplies or equipment forming part thereof shall be acquired by the Concessionaire subject to any agreement under which a security interest or other lien or Encumbrance is retained by any person save and except as expressly provided in this Agreement;

(xvi) No representation or warranty by the Concessionaire contained herein or in any other document furnished by it to NHAI, or to any Governmental Agency in relation to Applicable Permits contains or will contain any untrue statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading; and

(xvii) It warrants that no sums, in cash or kind, have been paid or will be paid by or on behalf of the Concessionaire, to any person by way of fees, commission or otherwise for securing the Concession or entering into this Agreement or for influencing or attempting to influence any officer or employee of NHAI, GOI or GOAP in connection therewith.

12.2 Representations and Warranties of NHAI.

NHAI represents and warrants to the Concessionaire that:

(i) NHAI is duly organised and validly existing under the laws of India;

(ii) NHAI has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;

(iii) NHAI has taken all necessary action to authorise the execution, delivery and performance of this Agreement;

(iv) This Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof; and

(v) NHAI is subject to civil and commercial laws of India with respect to this Agreement and it hereby expressly and irrevocably waives any sovereign immunity in any jurisdiction in regard to matters set forth in this Agreement.

13. DISCLAIMER

13.1 The Concessionaire acknowledges that prior to the execution of this Agreement, the Concessionaire has after a complete and careful examination made an independent evaluation of the traffic volumes, Specifications and Standards, Site and all the information provided by NHAI and has determined to the Concessionaire's satisfaction the nature and extent of such difficulties, risks and hazards as are likely to arise or may be faced by the Concessionaire in the course of performance of its obligations hereunder.

13.2 The Concessionaire acknowledges and hereby accepts the risk of inadequacy, mistake or error in or relating to any of the matters set forth in Clause 13.1 above and hereby confirms that NHAI shall not be liable for the same in any manner whatsoever to the Concessionaire, the Consortium Members or their Associates.

CHAPTER – IV
PROJECT DEVELOPMENT AND OPERATIONS

XIV USE AND DEVELOPMENT OF THE SITE

14.1 NHAI hereby grants to the Concessionaire for the Development Period access to the Site for carrying out such surveys, investigations and soil tests as the Concessionaire may deem necessary at the Concessionaire's cost, expense and risk without causing disruption in the traffic on the existing lanes of the Project Highways.

14.2 NHAI hereby grants to the Concessionaire for the Concession Period the right and licence to enter upon all real estate comprised in the Site as briefly described in Schedule 'A' and to survey, design, engineer, procure, construct, operate and maintain the Project Highways including the Project Facilities in accordance with the provisions of this Agreement. Such right and licence of the Concessionaire to the use the Site shall be subject to:

14.2.1 Any existing utilities on, under or above the Site are kept in continuous satisfactory use, if necessary by the use of suitable temporary or permanent diversions with the authority of the controlling body of that utility;

14.2.2 Any existing roads or right of ways are kept in continuous satisfactory use, if necessary, by the use of suitable temporary or permanent diversions with the authority of the controlling body of that road or right of way. For any diversion or construction, of temporary roads, NHAI will assist the Concessionaire in acquiring the right of way;

14.2.3 The rights of the road users to use the road in accordance with this Agreement;

14.2.4 A right of access by the NHAI itself and any of its agents to perform their obligations and rights under the Concession Agreement or any other functions that they have, and to conduct any study or trial for the purpose of research;

14.3 The license and the right to use the Site shall be granted for the purpose of carrying out the functions placed upon the Concessionaire under the Agreement and not for any other purposes;

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

14.5 The Site shall be made available to the Concessionaire pursuant hereto by NHAI free from all Encumbrances and occupations and without the Concessionaire being required to make any payment to NHAI on account of any costs, expenses and charges for the use of such Site for the duration of the Concession Period save and except as otherwise expressly provided in this Agreement. NHAI shall procure,for the Concessionaire access to the Site, free of Encumbrances, not later than 150 (one hundred and fifty) days from the date of this Agreement. Provided, however, that if NHAI does not enable such access to any part or parts of the Site for any reason other than a Force Majeure Event or breach of this Agreement by the Concessionaire, NHAI shall pay to the Concessionaire Damages at the rate of Rs.1000 (Rupees one thousand) per month per 1000 (one thousand) sq. meters or part thereof if such area is required by the Concessionaire for Construction Works. Such Damages shall be raised to Rs.2000 (Rupees two thousand) per month after COD if such area is essential for the smooth and efficient operation of the Project Highways. Provided further that the Completion Certificate or the Provisional Certificate, as the case may be, for the Project Highways shall not be affected or delayed as a consequence of such parts of the Site remaining under construction even after the Scheduled Project Completion Date.

14.6 On or after the Appointed Date, the Concessionaire shall commence, undertake and complete all Construction Works on the Project Highways in accordance with this Agreement.

14.7 Construction of the Project Highways shall be undertaken by the Concessionaire in conformity with the Project Completion Schedule 'H' and the Project milestones set forth in Schedule 'H' for completion of the Project Highways on or before the Scheduled Project Completion Date. If the Concessionaire fails to achieve any such Project milestone other than Project Completion, within a period of 90 (ninety) days from the date set forth in Schedule "H' then it shall pay Damages to NHAI at the rate of Rs.1,000,000 (Rs. One million) per day until such milestone is achieved. NHAI may either recover such Damages from the Performance Security or demand payment thereof from the Concessionaire. The Concessionaire shall make such payment within 7 (seven) days of receiving such demand from NHAI and any delay in making such payment shall attract interest @ SBI PLR plus two per cent. If the Concessionaire fails to achieve Project

completion as per the Scheduled Project Completion Date as set forth in Schedule 'H', then it shall pay damages to NHAI as per Article XVI.

XV MONITORING AND SUPERVISION OF CONSTRUCTION

15.1 During the Construction Period, the Concessionaire shall furnish to NHAI and the Independent Consultant monthly progress reports of actual progress of the Construction Works comprised in the Project Highways and shall give all such other relevant information as may be required by NHAI and/or the Independent Consultant.

15.2 The Independent Consultant shall inspect the Construction Works and the Project Highways at least once a month during the Construction Period and make out an Inspection Report of such inspection (the "Inspection Report"). It shall send a copy of its Inspection Report to NHAI and the Concessionaire. The Concessionaire shall take necessary action to remedy the lapses, if any, stated in the Inspection Report for ensuring compliance with the provisions of this Agreement. Such inspection or submission of Inspection Report by the Independent Consultant shall not relieve or absolve the Concessionaire of its obligations and liabilities hereunder in any manner whatsoever.

15.3 For the purposes of determining that Construction Works are being undertaken in accordance with Specifications and Standards and Good Industry Practice, the Independent Consultant shall require the Concessionaire to carry out such Tests at such time and frequency and in such manner as may be necessary in accordance with Good Industry Practice for quality assurance. The Concessionaire shall with due diligence carry out, or cause to be carried out, all such tests in accordance with the instructions of the Independent Consultant and furnish the results of such tests forthwith to the Independent Consultant. The Concessionaire shall promptly carry out such remedial measures as may be necessary to cure the defects or deficiencies, if any, indicated in such test results and furnish a report to the Independent Consultant in this behalf.

15.4 If the Independent Consultant or NHAI shall reasonably determine that the rate of progress of the Construction of the Project Highways is such that the Project Completion is not feasible on or before the Scheduled Project Completion Date by the Concessionaire, it shall so notify the Concessionaire about the same and the Concessionaire shall within 15 (fifteen) days thereof notify the NHAI and the Independent Consultant about the steps it proposes to take to expedite progress and the period within which it shall achieve COD.

15.5(a) Upon recommendation of the Independent Consultant or suo-moto, NHAI may by written notice require the Concessionaire to suspend forthwith the whole or any part of the Construction Works if in the reasonable opinion of the NHAI such work is being carried on in a manner which threatens the safety of the works or of the users of the Project Highways.

(b) The Concessionaire, shall upon instructions of the NHAI pursuant to sub-clause (a) above suspend the Construction Works or any part thereof for such time and in such manner as may be specified by NHAI and subject to sub-clause (c) below, the costs incurred during such suspension to properly protect and secure the Construction Works or such part thereof as is necessary in the opinion of the Independent Consultant ("Preservation Costs"), shall be borne by the Concessionaire.

(c) If the suspension pursuant to Sub-clause (a) above, is caused by:

(i) any reason other than default or breach of this Agreement by the Concessionaire including breach of any of the obligations of the Concessionaire under this Agreement, the Preservation Costs shall be borne by NHAI;

(ii) reason of default or breach of this Agreement by NHAI the Preservation Costs shall be borne by NHAI; or

(iii) reason of any Force Majeure Event, the Preservation Costs shall be borne by the Concessionaire save and except to the extent otherwise expressly provided in Article XXXII .

(d) If there is delay in handing over parts of land having adverse effect on Completion of Project or there is suspension of Construction Works for reasons not attributable to the Concessionaire, the Independent Consultant shall determine any extension to the Project Completion Schedule, the Scheduled Project Completion Date and the Concession Period, to which the Concessionaire is reasonably entitled and shall notify NHAI accordingly. NHAI shall extend the Project Completion Schedule, the Scheduled Project Completion Date and the Concession Period in accordance with the recommendations of the Independent Consultant.

XVI COMPLETION

16.1 The Project shall be deemed to be complete in entirety only when the Completion Certificate or the Provisional Certificate in respect of the entire stretch of NH-5 and the stretch of NH-9 from km 217 to km 252 comprised in the Project

Highways is issued in accordance with the provisions of Article XVII (the "Project Completion").

16.2 The Concessionaire guarantees that the Project Completion shall be achieved in accordance with the provisions of this Agreement on or before December 31, 2003 ("Scheduled Project Completion Date").

16.3 If the Project Completion is not achieved by the Scheduled Project Completion Date for any reason other than conditions constituting Force Majeure or for reasons attributable to NHAI or any Governmental Agency, the Concessionaire shall pay to NHAI as weekly Damages for delay in the achievement of the COD, an amount calculated at the rate of 0.01% (point zero one per cent) of the Total Project Cost per week or part thereof.

16.4 If the COD does not occur within 12 (twelve) months, excluding extension of time granted under the provisions of this agreement, from the Scheduled Project Completion Date, NHAI shall be entitled to terminate this Agreement in accordance with the provisions of Clause 35.2.

XVII TESTS

17.1 All Tests shall be conducted in accordance with Schedule 'J' and the Applicable Laws and Applicable Permits. NHAI shall designate a NHAI Representative to witness and observe the Tests. All Tests shall be held in accordance with the schedule notified by the Concessionaire to the Independent Consultant and the NHAI Representative who may either witness the Tests themselves or designate their representatives for this purpose, if they choose.

17.2 The Independent Consultant shall monitor the results of the Tests to determine the compliance of the Project Highways with the Specifications and Standards. The Concessionaire shall provide to the Independent Consultant and the NHAI with copies of all Test data including detailed Test results.

17.3 At least 30 (thirty) days prior to the likely completion of the each of (a) a continous stretch of 70 kms stretch of NH-5 of Tada – Nellore Section (b) the balance 40.8 kms stretch of NH-5 of the Tada-Nellore Section and (c) NH-9 (km 217 to km 252) on the Nandigama – Ibrahimpatnam Section comprised in the Project Highways, the Concessionaire shall notify the Independent Consultant and NHAI of the same and shall give notice of its intent to conduct any final Tests. The Concessionaire shall give to NHAI and the Independent Consultant at least 10 (ten) days' prior notice of the actual date on which it intends to commence the Tests and at least 7 (seven) days' prior notice of the

commencement date of any subsequent Tests. The Independent Consultant shall have the right to suspend or delay any Test if it is reasonably anticipated or determined during the course of the Test that the performance of any of the above stretches or the Project Highways or any part thereof does not meet the Specifications and Standards.

17.4 Upon the Independent Consultant determining the Tests to be successful in respect of any stretch referred to in Clause 17.3 having been satisfied that such stretch can be legally, safely and reliably placed in commercial operations, the Independent Consultant shall forthwith issue to the Concessionaire and NHAI a Certificate in respect of such stretch substantially in the form set forth in Schedule 'K' (the "Completion Certificate") and upon Completion Certificate having been issued in respect of all three stretches referred in Clause 17.3 issue a final Completion Certificate certifying the Project Completion.

17.5 Independent Consultant may at the request of the Concessionaire issue a provisional certificate of completion ("Provisional Certificate") if the Tests are successful in respect of any stretch referred to in Clause 17.3 and such stretch can be legally, safely and reliably placed in commercial operation though certain works or things forming part thereof are not yet complete. In such an event such Provisional Certificate shall have appended thereto a list of outstanding items signed jointly by the Independent Consultant and the Concessionaire ("Punch List"). All Punch List items shall be completed by the Concessionaire within 120 (one hundred twenty) days of the date of issue of such Provisional Certificate. Subject to payment of Damages equal to Rs.200,000 (Rs. Two hundred thousand) per week or part thereof on account of any delay beyond the aforesaid period of 120 (one hundred twenty) days, the Concessionaire shall be entitled to a further period of upto 180 (one hundred eighty) days for completion of Punch List items. Upon completion of all Punch List items to the satisfaction of the Independent Consultant, the Independent Consultant shall issue the Completion Certificate to the Concessionaire. Failure to complete the Punch List items in the manner set forth in this Clause 17.5 shall entitle NHAI to Terminate this Agreement in accordance with the provisions of Clause 35.2.

17.6 If the Independent Consultant certifies to NHAI and the Concessionaire that it is unable to issue the Completion Certificate or Provisional Certificate because of events or circumstances which excuse the performance of the Concessionaire's obligations in accordance with this Agreement and as a consequence thereof the Tests could not be held or had to be suspended, the Concessionaire shall re-schedule the Tests and hold the same as soon as reasonably practicable.

17.7 Upon receipt of a report from the Independent Consultant or after conducting its own review or inspection, if NHAI is not satisfied with the results of any Tests, it shall within 7 (seven) days thereof notify the Concessionaire of its reasons to conclude that the Completion Certificate should not be issued, in which case the Concessionaire shall promptly take such action as will achieve such satisfaction. Such procedure shall be repeated as necessary after rectification and remedy of reasons/ causes by the Concessionaire on account of which the Tests were unsuccessful, until the Completion Certificate or Provisional Certificate has been issued in accordance with this Agreement by the Independent Consultant.

17.8 The Concessionaire shall bear all the expenses relating to Tests under this Agreement. Provided, however, that if the NHAI Representative requires any Test to be conducted which is not specified in this Agreement and such Test is not necessary in the opinion of the Independent Consultant, then the expenses on such Test shall be reimbursed by NHAI to the Concessionaire.

XVIII CHANGE OF SCOPE

18.1 NHAI may, notwithstanding anything to the contrary contained in this Agreement, require provision of such additional works and services on or about the Project Highways which are beyond the scope of the Project as contemplated by this Agreement ("Change of Scope"), provided such changes do not require expenditure exceeding 5% (five per cent) of the Total Project Cost and do not adversely affect the COD. All such changes shall be made by NHAI by an order (the "Change of Scope Order") issued in accordance with the procedure set forth in this Article XVIII.

18.2 **Procedure for Change of Scope**

(a) NHAI shall whenever it desires provision of additional works and services referred to in Clause 18.1, issue to the Concessionaire a notice of change of scope (the "Change of Scope Notice").

(b) upon receipt of such Change of Scope Notice, the Concessionaire shall provide to NHAI and the Independent Consultant such information as is necessary and reasonable together with preliminary documentation in support of the following:

(i) the impact, if any, which the Change of Scope is likely to have on the Project Completion Schedule if the work is required to be carried out before COD. and

(ii) the cost to the Concessionaire of complying with such Change of Scope Notice (including, without limitation, material and labour cost information furnished in accordance with the current schedule of rates applicable to the works assigned by NHAI to its contractors, including the premium on such rates).

(iii) the options suggested for implementing the proposed Change of Scope and the effect, if any, each such option would have on the costs and time for the implementation thereof including a detailed breakdown by work classifications. Provided, however, that the costs of providing such information shall be reimbursed to the Concessionaire by NHAI to the extent such costs are certified to be reasonable by the Independent Consultant.

(c) If NHAI desires, after receipt of information set forth in sub-clause (b) to proceed with the Change of Scope, it shall convey the desired option to the Concessionaire by issuing a Change of Scope Order and thereupon the Parties shall make good faith efforts to mutually agree upon the costs and time for implementing of the same. Upon reaching an agreement relating to such costs and time, NHAI shall issue a written confirmation of the Change of Scope Order and thereupon the Concessionaire shall proceed with performance of such order. In the event, the Parties are unable to agree, NHAI may, by issuing a confirmation in writing of such Change of Scope Order, require the Concessionaire to proceed with the performance of the Change in Scope Order pending resolution of such dispute.

18.3 A change of Scope Order will be effective and binding upon issuance of a confirmation of such Change of Scope Order by NHAI. Notwithstanding a dispute regarding cost and time for implementation of such Change of Scope Order, the Concessionaire shall proceed with the performance of such Change of Scope Order promptly following NHAI's confirmation pursuant to Clause 18.2(c). Pending resolution of such dispute, NHAI shall pay to the Concessionaire an amount equal to the costs that are certified by the Independent Consultant to be reasonable plus one-half the difference between the amount certified by the Independent Consultant and the amount claimed by the Concessionaire with final adjustments to be made in accordance with the resolution of dispute under the Dispute Resolution Procedure. Such payments shall be made by NHAI within 60 days from the date of certification by the Independent Consultant or the date of receipt of claim therefore made by the Concessionaire, whichever is later.

18.4 All claims by the Concessionaire pursuant to this Article XVIII shall be supported by such documentation as is reasonably sufficient for NHAI to determine the accuracy thereof, including invoices from Contractors and subcontractors and certification of such claims by the Statutory Auditors.

XIX OPERATION AND MAINTENANCE

19.1 The Concessionaire shall operate and maintain the Project Highways by itself, or through O&M Contractors and if required, modify, repair or otherwise make improvements to the Project Highways to comply with Specifications and Standards, and other requirements set forth in this Agreement, Good Industry Practice, Applicable laws and Applicable Permits and manufacturer's guidelines and instructions with respect to toll systems, and more specifically:

(i) permitting safe, smooth and uninterrupted flow of traffic during normal operating conditions;

(ii) charging, collecting and retaining the Fees in accordance with this Agreement;

(iii) minimizing disruption to traffic in the event of accidents or other incidents affecting the safety and use of the Project Highways by providing a rapid and effective response and maintaining liaison procedures with emergency services;

(iv) undertaking routine maintenance including prompt repairs of potholes, cracks, concrete joints, drains, line marking, lighting and signage;

(v) undertaking major maintenance such as resurfacing of pavements, repairs to structures, repairs and refurbishment of tolling system and hardware and other equipment;

(vi) carrying out periodic preventive maintenance to Project Highways including tolling system;

(vii) preventing with the assistance of concerned law enforcement agencies unauthorised entry to and exit from the Project Highways;

(viii) preventing with the assistance of the concerned law enforcement agencies encroachments on the Project Highways including Site and preserve the right of way of the Project Highways;

(ix) maintaining a public relations unit to interface with and attend to suggestions from users of the Project Highways, the media, Government Agencies, and other external agencies; and

(x) adherence to the safety standards set out in Schedule 'S'.

19.2 The Concessionaire shall in consultation with the Independent Consultant prepare not later than 180 (one hundred and eighty) days before the Scheduled Project Completion Date, the repair and maintenance manual (the "Maintenance Manual") for the regular and periodic maintenance, and shall ensure and procure that at all times during the Operations Period, the Project Highways is maintained in a manner that it complies with the Specifications and Standards and the minimum maintenance requirements set forth in Schedule L. The Concessionaire shall supply, at least two months before the COD, 10 (ten) copies of the Maintenance Manual to NHAI and 3 (three) copies each to the GOI, GOAP and Independent Consultant. Copies of the Maintenance Manual shall also be made available by the Concessionaire for public inspection during office hours at a conspicuous place adjacent to each Toll Plaza on the Project Highways.

19.3 Not later than forty five (45) days before the beginning of each Accounting Year, the Concessionaire, shall in consultation with the Independent Consultant prepare and provide to NHAI, its proposed programme of preventive and other scheduled maintenance of the Project Highways subject to the minimum maintenance requirements set forth in Maintenance Manual and in Schedule 'L' necessary to maintain the Project Highways at all times in conformity with the Specifications and Standards (the "Maintenance Programme"). Such Maintenance Programme shall include but not be limited to the following:

(i) intervals and procedures for the carrying out of inspection of all elements of the Project Highways;
(ii) criteria to be adopted for deciding maintenance needs;
(iii) preventive maintenance schedule;
(iv) intervals at which the Concessionaire shall carry out periodic maintenance;
(v) intervals for major maintenance and the scope thereof; and
(vi) lane closures schedule for each type of maintenance (length and time).

19.4 Maintenance shall include replacement of equipment/consumables, horticultural maintenance and upkeep of all Project Assets in good order and working condition. Maintenance shall not include the extension of any existing

pavements, bridges, structures and other civil works unless part of the Project.

19.5 The Concessionaire shall keep the carriageways, rest areas and other Project Facilities and Toll Plazas in a clean, tidy and orderly condition free of litter and debris.

19.6 During the Operations Period, the Concessionaire shall not carry out any material modifications to the Project Highways save and except where such (i) modification is required by Good Industry Practice; or (ii) modification is necessary for the Project Highways to operate in conformity with the Specifications and Standards prescribed under this Agreement. Provided that the Concessionaire shall notify NHAI of the proposed modifications along with details thereof at least fifteen days before commencing work on such modifications and shall reasonably consider such suggestions as NHAI may make within 15 (fifteen) days of receipt of such details by NHAI.

19.7 The Concessionaire shall be responsible for the maintenance of the approach roads to and underpasses and overpasses upto 100 mtrs from the Project Highways in accordance with Good Industry Practice.

19.8 Safety, Vehicle Breakdown and Accident

19.8.1 In the case of unsafe conditions, vehicle breakdowns and accidents, the Concessionaire shall follow the relevant operating procedures, which shall include the setting up of temporary traffic cones and lights as well as the removal of obstruction and debris expeditiously. Such procedures shall be in accordance with Applicable Laws, Applicable Permits and provisions of this Agreement.

19.8.2 The Concessionaire shall ensure that any diversion or interruption of traffic is remedied without delay. The Concessionaire's responsibility for rescue operations on the Project Highways shall be limited to the removal of vehicles or debris or any other obstruction, which may endanger or interrupt the smooth traffic flow on the Project Highways.

19.8.3 The Concessionaire shall ensure that safety standards specified in Schedule 'S' are strictly complied with in the event of any lane closure or diversion of traffic. Compliance with Schedule 'S' will be monitored by the Independent Consultant and a breach by the Concessionaire of its obligations in respect of this Schedule identified by the Independent Consultant shall be notified immediately and is required to be cured within 24 hours of its notification notwithstanding inspection, reporting

procedures outlined elsewhere in this Agreement. In addition, each notified breach shall lead to the award of a penalty point to the Concessionaire. A total of five penalty points in any continuous period of 365 days shall constitute a Material Breach of this Agreement.

19.9 Emergency De-commissioning

19.9.1 If, in the reasonable opinion of the Concessionaire there exists an emergency which warrants decommissioning and closure to traffic of whole or any part of the Project Highways, the Concessionaire shall be entitled to de-commission and close the whole or the relevant part of the Project Highways to traffic for so long as such emergency and the consequences thereof warrant, provided however that such emergency decommissioning will be notified to NHAI promptly. NHAI may issue directions to the Concessionaire for dealing with such situations and the Concessionaire shall abide by such directions.

19.9.2 The Concessionaire shall re-commission the Project Highways or the affected part thereof as quickly as practicable after the circumstances leading to its de-commissioning and closure have ceased to exist.

19.10 The Concessionaire shall not close any lane of the Project Highways for undertaking maintenance or repair works except with the prior written approval of the NHAI which may delegate its authority to the Independent Consultant. Such approval shall be sought by the Concessionaire through a written request to be made at least 7 (seven) days before the proposed closure of lane and shall be accompanied by particulars indicating the nature and extent of repair works, the length and section required to be closed and the period of closure. The Concessionaire shall also furnish particulars indicating the minimum time required for completing such repair works. Within 5 (five) days of receiving such request, NHAI or the Independent Consultant, as the case may be, shall grant permission with such modifications as it may deem necessary. Upon receiving such permission, the Concessionaire shall be entitled to close the lane in accordance with such permission and re-open it within the period stipulated in such permission. For any delay in re-opening such lane during the first Operations Year, the Concessionaire shall pay Damages to NHAI calculated at the rate of Rs.10,000 (Rs. Ten thousand), per day or part thereof for every stretch of 100 (one hundred) meters or part thereof in each lane until such time the stretch has been re-opened for traffic These damages of Rs 10,000 (Rupees ten thousand) shall be applicable in the first Operations year and shall be revised

by WPI in each subsequent Operations year. Provided, however, that these provisions shall not apply to Emergency decommissioning under Clause 19.9.

19.11 Save and except as otherwise be expressly provided in this Agreement, if the Project Highways including Construction Works or any part thereof shall suffer any loss or damage during the Concession Period, from any cause whatsoever, the Concessionaire shall, at its cost and expense rectify and remedy such loss or damage forthwith in a manner so as to make the Project Highways conform in every respect to the Specifications and Standards, quality and performance as prescribed by this Agreement.

19.12 In the event the Concessionaire does not maintain and/ or repair the Project Highways or a part thereof upto and in accordance with the Specifications and Standards and/or in accordance with the Maintenance Programme or the Maintenance Manual, and shall have failed to commence remedial works within 30 (thirty) days of receipt of notice in this behalf from NHAI or the Independent Consultant, or the O&M Inspection Report, as the case may be, NHAI shall, without prejudice to its rights under this Agreement, including Termination thereof, be entitled to undertake the repair and maintenance of the Project Highways at the risk and cost of the Concessionaire and to recover the same from the Concessionaire. In addition to recovery of the aforesaid cost of repair and maintenance by NHAI, a sum equal to 25% (twenty five per cent) of such cost shall also be recovered by NHAI from the Concessionaire as Damages. NHAI shall have the right and the Concessionaire hereby expressly grants to NHAI the right to recover the same directly from the Escrow Account and for that purpose the Concessionaire hereby expressly authorises NHAI and hereby gives irrevocable instructions to the Escrow Bank to make payment from the Escrow Account in accordance with the instructions of NHAI under this Clause.

19.13 In the event NHAI does not exercise its option to undertake the required repair and maintenance after expiry of the 30 (thirty) days period stipulated in Clause 19.12 it shall recover Damages from the Concessionaire for default in operating and maintaining the Project Highways in conformity with this Agreement. Such Damages shall be payable after the aforesaid period of 30 (thirty) days and until the default is cured. The amount of Damages shall be calculated for each day of default at the higher of the following, namely (a) Rs.10,000 (Rs. Ten thousand), and (b) 0.1% (zero point one per cent) of the cost of such repair as estimated by the Independent Consultant. Recovery of such Damages shall be without prejudice to the rights of NHAI under this Agreement, including Termination thereof.

19.14 If the Concessionaire commences any works for curing any defects or deficiencies in the Project Highways, it shall complete such works expeditiously in accordance with Good Industry Practice. If such works are carried out in a manner that results in a delay of more than 30 (thirty) days as compared to the time required in accordance with Good Industry Practice, NHAI shall recover Damages from the Concessionaire as if a default had occurred under Clause 19.13.

19.15 The Concessionaire shall not be considered in breach of its obligations under this Agreement if any part of the Project Highways is not available to traffic after the COD on account of any of the following for the duration thereof:

(i) an event of Force Majeure;

(ii) measures taken to ensure the safe use of the Project Highways except when unsafe conditions on the road occurred because of failure of the Concessionaire to perform its obligations under this Agreement; or

(iii) compliance with a request from NHAI or the directions of any Governmental Agency the effect of which is to close all or any part of the Project Highways.

Notwithstanding the above, the Concessionaire shall keep all unaffected parts of the Project Highways open to traffic and use provided they can be safely operated and kept open to traffic.

XX MONITORING AND SUPERVISION DURING OPERATION

20.1 The Concessionaire shall undertake periodic (at least once every calendar month but once every week during monsoons) inspection of the Project Highways to determine the condition of the Project Highways including its compliance or otherwise with the Maintenance Manual, the Maintenance Programme, Specifications and Standards and the maintenance required and shall submit reports of such inspection ("Maintenance Reports") to NHAI and the Independent Consultant.

20.2 The Independent Consultant shall review the Maintenance Reports and inspect the Project Highways at least once a month during the Operations Period and make out an Inspection Report of such inspection (the "O&M Inspection Report"). The Independent Consultant shall send a copy of its O&M Inspection Report to NHAI and the Concessionaire. The Concessionaire shall within 30 (thirty) days of the receipt of the O&M Inspection Report remedy the defects and deficiencies, if

any, set forth in such O&M Inspection Report and submit its report in respect thereof to the Independent Consultant and NHAI within the said 30 (thirty) days period. Where the remedying of such defects or deficiencies is likely to take more than 30 (thirty) days in accordance with Good Industry Practice, the Concessionaire shall undertake the works in accordance with such practice and submit progress reports of such works every fortnight. The O&M Inspection Report may also require the Concessionaire to undertake such tests as may be specified by the Independent Consultant for the purpose of determining that the Project Highways is at all times in conformity with the Specifications and Standards. The Concessionaire shall undertake such Tests without any delay and furnish a copy of the results thereof to the Independent Consultant and NHAI along with a written statement specifying in reasonable detail the measures, if any, that it proposes to undertake for curing the defaults or deficiencies indicated in such results. Such inspection or submission of O&M Inspection Report by the Independent Consultant or submission of O&M Inspection Compliance Report by the Concessionaire shall not relieve or absolve the Concessionaire of its obligations and liabilities hereunder in any manner whatsoever.

20.3 NHAI may inspect the Project Highways at any time for a review of the compliance by the Concessionaire with its maintenance obligations under this Agreement.

20.4 The Concessionaire shall furnish to NHAI within 7 (seven) days of completion of each calendar month during the Operations Period, a statement of Fees in the form set forth in Schedule 'M' (the "Monthly Fee Statement").

XXII INDEPENDENT CONSULTANT

22.1 NHAI shall appoint a consulting engineering firm or body corporate out of the 3 (three) names proposed by the Concessionaire from the panel of 5 (five) consultants selected by NHAI in accordance with the selection process set forth in Schedule 'N' to be the Independent Consultant to undertake and perform the duties, work, services and activities set forth in Schedule 'O'.

22.2 The appointment of the Independent Consultant pursuant to Clause 22.1 shall initially be for a period of four years from the date of its appointment. The date of such appointment shall be no later than 120 (one hundred twenty) days from the date of this Agreement. After the expiry of the aforesaid appointment, NHAI shall appoint for a term of 3 (three) years as Independent Consultant such person as it may deem appropriate from the list drawn in accordance with Schedule 'N' as amended from time to time by mutual consent of NHAI and the Concessionaire and who may or may not be the same person, who was Independent Consultant

during the initial term. NHAI may in its discretion thereafter renew such appointment or appoint another person out of the list determined pursuant to Schedule 'N', as NHAI may deem appropriate to be the Independent Consultant for a term of three years at a time.

22.3 The Independent Consultant shall report to NHAI about their work, services, and activities pursuant hereto through regular periodic reports (at least once every month) as the situation may warrant. Such report of Independent Consultant shall include but not be limited to the matters and things set forth in said Schedule 'O'.

22.4 The remuneration, cost and expenses of the Independent Consultant shall be paid by NHAI. One-half of such remuneration, cost and expenses shall be reimbursed by the Concessionaire to NHAI within 15 (fifteen) days of receiving a statement of expenditure from NHAI.

22.5 NHAI may terminate the appointment of the Independent Consultant at any time subject to appointment of their replacement by another Independent Consultant in accordance with this Article XXII.

22.6 If the Concessionaire has reason to believe that the Independent Consultant is not discharging its duties in a fair, efficient and diligent manner, it may make a written representation to NHAI, stating its reasons in detail, seeking termination of the appointment of the Independent Consultant. Upon receipt of such representation, NHAI shall hold a tripartite meeting with the Concessionaire and Independent Consultant for amicable resolution of the dispute. If the dispute remains unresolved, it shall be resolved in accordance with the Dispute Resolution Procedure. In case the appointment of Independent Consultant is terminated under this Clause, it shall be replaced by another Independent Consultant in accordance with this Article XXII.

22.7 If either party disputes any advice, instruction or award of the Independent Consultant, the dispute shall be resolved in accordance with the Dispute Resolution Procedure.

XXIII TRAFFIC SAMPLING

23.1 For the purpose of determination and/or verification of the actual traffic on the Project Highways, NHAI shall, in addition to inspection of Concessionaire's records, be entitled to undertake traffic sampling at such frequency and in such manner as NHAI may deem appropriate including in the manner as set forth in Schedule 'P' hereto. The Concessionaire shall provide all facilities and

assistance as NHAI may reasonably require for undertaking such traffic sampling.

23.2 If the data collected from traffic sampling undertaken pursuant to Clause 23.1 demonstrates that actual traffic is more than the traffic according to the records of the Concessionaire, the actual traffic for the purposes of this Agreement shall be deemed to be the traffic as determined by such NHAI traffic sampling pursuant to this Article XXIII.

23.3 The Concessionaire may, in consultation with NHAI, commission an independent agency to conduct traffic sampling under this Article. The report of such agency shall be furnished to NHAI for such use as it may deem fit.

23.4 In the event of any dispute arising as to the actual traffic on the Project Highways the same shall be resolved in accordance with the Dispute Resolution Procedure under this Agreement.

CHAPTER - V

FINANCING ARRANGEMENTS

XXIV FINANCIAL CLOSE

24.1 The Concessionaire shall provide to NHAI, a copy of the Financing Package furnished by it to the prospective Senior Lenders. As and when such Financing Package is approved by the Senior Lenders, with or without modifications, a copy of the same shall be furnished by the Concessionaire to NHAI forthwith.

24.2 Notwithstanding anything to the contrary contained in this Agreement, the Concessionaire covenants with NHAI that it shall achieve Financial Close within 180 (one hundred and eighty) days from the date of this Agreement. If the Concessionaire shall fail to achieve Financial Close within the said 180 (one hundred and eighty) days period, the Concessionaire shall be entitled to a further period of 90 (ninety) days subject to an advance weekly payment by the Concessionaire to NHAI of a sum of Rs.100,000 (Rupees one hundred thousand) per week or part thereof for any delay beyond the said 180 (one hundred and eighty) days period as Damages on account of such delay in achieving Financial Close within the said 180 (one hundred and eighty) days period by the Concessionaire.

24.3 Notwithstanding anything to the contrary contained in this Agreement, NHAI shall be entitled to terminate this Agreement forthwith, without being liable in any manner whatsoever to the Concessionaire, by a communication in writing to the Concessionaire pursuant to Clause 35.2 if the Concessionaire shall have failed to pay in advance the Damages to NHAI under and in accordance with Clause 24.2above.

24.4 Notwithstanding anything to the contrary contained in this Agreement, if the Financial Close shall not occur within 360 (three hundred and sixty) days as set forth in Clause 24.2 above, all rights, privileges, claims and entitlements, if any, of the Concessionaire under or arising out of this Agreement shall be deemed to have been waived by and to have ceased with the concurrence of the Concessionaire, and the Concession Agreement shall be deemed to have been terminated by mutual agreement of the Parties.

24.5 Upon Termination of this Agreement under Clauses 24.3 and 24.4 , NHAI shall be entitled to encash the Performance Security and appropriate the proceeds thereof as Damages.

XXV GRANTS

25.1 NHAI agrees to provide to the Concessionaire cash support by way of an outright Grant (the "Grant") of a sum of Rs.1675 million (Rupees One Thousand Six Hundred Seventy Five million) in accordance with the provisions of this Article XXV.

25.2 The Grant shall be applied by the Concessionaire for meeting the capital cost of the Project and shall be treated as part of the shareholders' funds (the "Equity Support").

25.3 The Concessionaire shall be entitled to draw down the Grant progressively during the Construction Period as under:

(a) 50% of the Grant, upon the Concessionaire having subscribed, paid-up and spent on the Project at least 50% of the Equity (excluding Equity Support) and not less than 30% of the Equity (excluding Equity Support) having being underwritten by a top Malaysian Bank, acceptable to NHAI.

(b) Balance 50% of the Grant, proportionately with the subscription and utilization of the balance Equity (excluding Equity Support) on the Project by the Concessionaire.

Provided that the Concessionaire is not in Material Breach of this Agreement at the time of any drawdown.

25.4 The amount of the Grant shall be disbursed by way of credit to the Escrow Account. If NHAI shall fail to disburse any tranche of the Equity Support within the periods set forth for the payment thereof to the Concessionaire, NHAI shall pay interest on such delayed tranche @ SBI PLR plus two per cent.

XXVI REVENUE SHORTFALL LOAN

26.1 If the Realisable Fees in any Accounting Year during the Concession Period shall fall below the Subsistence Revenue Level as a result of an Indirect Political Event, or a Political Event as set forth in Article XXXII , NHAI agrees to provide to the Concessionaire such shortfall support, by way of a loan ("Revenue Shortfall Loan") with interest thereon @ SBI PLR per annum. Provided, however, that any reserves of the Concessionaire and any sums received or likely to be received by the Concessionaire through insurance claims (except insurance payments for physical loss used to carry out requisite repairs) or payments by NHAI under Article XXXII shall first be deducted and only the balance remaining shall be disbursed as the Revenue Shortfall Loan

26.2 For the purposes of claiming disbursements on account of Revenue Shortfall Loan pursuant to Clause 26.1 above in any Accounting Year, the Concessionaire shall:

(a) Submit a detailed account of the Indirect Political Event or the Political Event, as the case may be, and its impact on total revenues of the Concessionaire as soon as feasible and submit weekly reports thereafter;

(b) Provide to NHAI, the Schedule of Debt Service Payments under the Financing Documents for the Accounting year for which Revenue Shortfall Loan are claimed;

(c) Provide to NHAI the details of O&M Expense budget for such Accounting Year and the expenditure incurred in that year out of such budget;

(d) Within 15 (fifteen) days of the close of each Accounting Year in which the shortfall in the referred to in Clause 26.1 shall occur, provide a certificate from the Statutory Auditors of the Concessionaire certifying the Subsistence Revenue Level, the Realisable Fees and the Revenue Shortfall Loan requirement after deducting reserves of the Concessionaire, if any; and

(e) Submit a written request to NHAI under the hands of a Director of the Concessionaire requesting for disbursement of the Revenue Shortfall Loan to the Concessionaire by payment thereof into the Escrow Account.

26.3 Upon the receipt of the request and documents as set forth in Clause 26.2 above and provided the same is not found by NHAI to be wrong or incorrect, NHAI shall disburse the Revenue Shortfall Loan within 30 days (thirty) thereof.

26.4 In the event Realisable Fees during the first six months of an Accounting Year shall fall as a result of an Indirect Political Event or a Political Event and the amount of such Realisable Fees is less than the Debt Service Payments due for the first six months of such Accounting Year, NHAI shall upon request provide an advance to the Concessionaire for meeting the shortfall in such Debt Service Payments. For claiming such advance, the Concessionaire shall make a demand to NHAI accompanied by a certificate from the Statutory Auditors setting forth the Realisable Fees during the first six months of the Accounting Year, the reserves of the Concessionaire and the outstanding amount on account of Debt Service Payments due in the first six months of such year. The Statutory Auditors shall also certify the amount of advance required by the Concessionaire from NHAI for meeting such Debt Service Payments after deducting such

Realisable Fees and the reserves of the Concessionaire. Within 15 (fifteen) days of receiving such demand, NHAI shall disburse the advance due to the Concessionaire at an interest rate equal to SBI PLR. Not later than 15 (fifteen) days after completion of such Accounting Year, the Concessionaire shall either refund such advance with interest to NHAI or adjust it against such Revenue Shortfall Loan as may be due to the Concessionaire under this Article.

26.5 The Revenue Shortfall Loan disbursed by NHAI pursuant hereto and the interest thereon shall be repaid by the Concessionaire in a sum equal to 50% (fifty per cent) of the Net Cash flow of the Concessionaire as and when made and such repayments shall be made in one or more years as necessary.

26.6 Notwithstanding anything to the contrary contained in Clause 26.5, the Concessionaire shall repay the entire Revenue Shortfall Loan and interest thereon at least two years before the expiry of the Concession Period. If any sum remains due or outstanding from the Concessionaire under this Article XXVI at any time during a period of two years preceding the Termination Date, it shall constitute a Concessionaire Event of Default under Article XXXV and NHAI shall be entitled to Terminate this Agreement under Clause 35.2.

XXVII ESCROW ACCOUNT

27.1 The Concessionaire shall within 60 days from the date of this Agreement open and establish the Escrow Account with a Bank (the "Escrow Bank") and all funds constituting the Financing Package for meeting the Total Project Cost shall be credited to such Escrow Account. During Operations Period all Fees collected by the Concessionaire from the users of the Project Highways shall be exclusively deposited therein. In addition, all Fees collected by NHAI in exercise of its rights under this Agreement during the Concession Period and all disbursements or payments by NHAI pursuant hereto shall also, subject to the rights of deductions and appropriations therefrom of NHAI under this Agreement, be deposited by NHAI in the Escrow Account.

27.2 Disbursements from Escrow Account

27.2.1 The Concessionaire shall give, at the time of the opening of the Escrow Account, irrevocable instructions by way of an Escrow Agreement substantially in form set forth in Schedule 'Q' (the "Escrow Agreement") to the Escrow Bank instructing, inter alia, that the deposits into the Escrow Account shall subject to Clause 27.2.3, be appropriated in the following order every month and if not due in a month then appropriated proportionately in such month and retained in the Escrow Account and

paid out therefrom in the month when due unless otherwise expressly provided in the instruction letter:

(a) All taxes due and payable by the Concessionaire;

(b) All expenses in connection with and relevant to the Construction of Project Highways by way of payment to the EPC Contractor and such other persons as may be specified in the Financing Documents;

(c) O&M Expenses including Fees collection expenses incurred by the Concessionaire directly or through O&M Contractor and/or Tolling Contractor, if any, subject to the items and ceiling in respect thereof as set forth in the Financing Documents but not exceeding 1/12 (one twelfth) of the annual liability on this account;

(d) The whole or part of the expense on repair work or O&M Expense including Fees collection expenses incurred by NHAI on account of exercise of any of its rights under this Agreement provided NHAI certifies to the Escrow Bank that NHAI had incurred such expenses in accordance with the provisions of this Agreement;

(e) All Concession Fees and due to NHAI from the Concessionaire under this Agreement;

(f) Monthly proportionate provision of Debt Service Payments due in an Accounting Year and payment of Debt Service Payments in the month when due;

(g) Any payments and Damages due and payable by the Concessionaire to NHAI pursuant to this Agreement, including repayment of Revenue Shortfall Loans; and

(h) Balance in accordance with the instructions of the Concessionaire.

27.2.2 The Concessionaire shall not in any manner modify the order of payment specified in this clause 27.2 except with the prior written approval of NHAI.

27.2.3 In the event the Grant, if any, to the Concessionaire shall exceed 10% of the Total Project Cost, all disbursements on account of Total Project Cost other than those to the EPC Contractor in accordance with the EPC Agreement, shall be made in accordance with the express provisions

contained in that behalf in the Financing Documents. Provided, however, that if the total of such disbursements exceed 10% of the Total Project Cost, prior written consent of NHAI shall be required in respect of the disbursement arrangements for such excess amounts, and such consent shall not be unreasonably withheld by NHAI.

27.3 Notwithstanding anything to the contrary contained in the Escrow Agreement and subject to the provisions contained in Clauses 36.5 and Article XXXVII, upon Termination of this Agreement, all amounts standing to the credit of the Project Escrow Account shall be appropriated and dealt with in the following order:

(a) all Taxes due and payable by the Concessionaire;

(b) all Concession Fees due and payable to NHAI under this Agreement;

(c) all accrued Debt Service Payment;

(d) any payments and Damages due and payable by the Concessionaire to NHAI pursuant to this Agreement, including Termination claims and repayment of Revenue Shortfall Loans;

(e) all accrued O&M Expenses;

(f) any other payments required to be made under this Agreement; and

(g) balance, if any, on the instructions of the Concessionaire.

27.4 The instructions contained in the Escrow Agreement shall remain in full force and effect until the obligations set forth in Clause 27.3 have been discharged.

XXVIII STATE SUPPORT AGREEMENT

28.1 The Concessionaire acknowledges that for the performance of its obligations under this Agreement, it requires support and certain services from GOAP. The nature and scope of such support and services required by the Concessionaire from GOAP are fully described in the draft State Support Agreement set forth at Schedule 'R'.

28.2 The Concessionaire acknowledges its obligation to enter into the State Support Agreement and accordingly the Concessionaire agrees and undertakes to enter into at its cost and expense the State Support Agreement with NHAI and GOAP substantially in form and content as set forth in Schedule 'R'.

XXX INSURANCE

30.1 Insurance during the Construction Period: The Concessionaire shall effect and maintain, or cause to be effected and maintained, at no cost to NHAI during the Construction Period such insurances upto such maximum sums as may be required under and in accordance with the Financing Documents, Applicable Laws and such insurance as the Concessionaire may reasonably consider necessary or desirable in accordance with Good Industry Practice. The Concessionaire shall also effect and maintain such insurance as may be necessary for mitigating the risks that may devolve on NHAI as a consequence of any act of omission by the Concessionaire during the Construction Period.

30.2 Insurance during the Operations Period: Not later than 4 months prior to the anticipated date of completion of any stretch of the Project Highways, the Concessionaire shall obtain and maintain in respect of that stretch at no cost to NHAI such insurance as may be required under any of the Financing Documents, Applicable Laws and such insurance as the Concessionaire may reasonably consider necessary or desirable in accordance with Good Industry Practice. Provided, however, the level of insurance to be maintained after satisfaction of Senior Lenders' dues in full, shall be determined on the same principles as applicable for determining the level of Insurance prior to such date. This level shall be agreed with NHAI within 120 days of date of this Agreement.

For the sake of brevity, the aggregate of the maximum sums insured under the insurance taken out by the Concessionaire pursuant to this Article XXX are herein referred to as the "Insurance Cover".

30.3 Evidence of Insurance Cover: All insurance obtained by the Concessionaire in accordance with this Article XXX shall be maintained with insurer or reinsurers, and on terms consistent with Good Industry Practice. Within thirty days of obtaining any insurance cover, the Concessionaire shall furnish to NHAI, copies of certificates of insurance, copies of the insurance policies signed by an authorised representative of the insurer and copies of all premia payment receipts in respect of such insurance received from each insurance carrier, and such insurance will not be cancelled, changed or not renewed until the expiration of at least 45 (forty five) days after written notice of such cancellation, change of non-renewal has been received by NHAI.

30.4 Remedy on Failure to Insure: If the Concessionaire shall fail to effect and keep in force the insurance for which it is responsible pursuant hereto, NHAI shall have the option to keep in force any such insurance, and pay such premia and recover the costs thereof from the Concessionaire, or for the purposes of computation of payments to the Concessionaire pursuant to Article XXXII treat the insurance

cover i.e. the maximum sums which such insurance was providing for had it been in force and effect as being deemed to have been received by the Concessionaire.

30.5 Waiver of Subrogation: All insurance policies supplied by the Concessionaire shall include a waiver of any right of subrogation of the insurers thereunder against, inter alia, NHAI, and its assigns, subsidiaries, affiliates, employees, insurers and underwriters and of any right of the insurers of any set-off or counterclaim or any other deduction, whether by attachment or otherwise, in respect of any liability of any such person insured under any such policy.

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

30.7 Application of Insurance Proceeds: The proceeds from all insurance claims, except life and injury, shall be paid to the Concessionaire by credit to the Escrow Account (unless otherwise required by the Financing Documents) who shall, subject to its obligations under the Financing Documents, and notwithstanding anything contained in Article XXVII, apply such proceeds for any necessary repair, reconstruction, reinstatement, replacement, improvement, delivery or installation of the Project Highways.

XXXI ACCOUNTS AND AUDIT

31.1 The Concessionaire shall maintain full accounts of all Fees including Realisable Fees and other revenues derived/collected by it from and on account of use of the Project Highways and of O&M Expenses and other costs paid out of the Project Escrow Account and shall provide copies of the said accounts duly audited and certified by the Concessionaire's Statutory Auditors within 120 (one hundred twenty) days of the close of each Accounting Year to which they pertain, during the subsistence of this Agreement. Such audited accounts shall form the basis of various payments by either Party under this Agreement. The Concessionaire shall also furnish, within one week of its publication, a certified copy of the audited accounts and annual report published by the Company under the Applicable Laws.

31.2 The Concessionaire shall appoint and have during the subsistence of this Agreement as its Statutory Auditors a firm of Chartered Accountants duly licensed to practice in India out of the mutually agreed list of 10 (ten) independent and reputable firms of Chartered Accountants in India (the "List of Chartered Accountants"). The criteria for preparing the List of Chartered Accountants are set forth in Schedule 'T'. Subject to a 30 days notice to NHAI and the replacement Statutory Auditors being appointed from the List of Chartered Accountants, the Concessionaire may terminate the appointment of any Statutory Auditor appointed in accordance with this Article. The fees and expenses of the Statutory Auditors shall be borne by the Concessionaire.

31.3 On or before the fifteenth day of April each Year, the Concessionaire shall provide for the preceding Accounting Year a statement duly audited by its Statutory Auditors giving summarised vehicle/user wise information on (i) the traffic count for each category of vehicles using the Project Highways and liable for payment of Fees therefore, and (ii) Fees charged and the amount of Fees received, Realizable Fees and other revenues derived from the Project Highways and such other information as NHAI may reasonably require.

31.4 Notwithstanding anything to the contrary contained in this Agreement, NHAI shall have the right but not the obligation to appoint at its cost another firm of chartered accountants from the List of Chartered Accountants (the "Additional Auditor") to audit and verify all those matters, expense, costs, realisations and things which the Statutory Auditors of the Concessionaire, are required to do, undertake or certify pursuant to this Agreement.

31.5 Where a Grant has been provided, NHAI shall have the right to appoint for the duration of the Construction Period as Concurrent Auditor a firm of Chartered Accountants from the List of Chartered Accountants (the "Concurrent Auditor") who shall undertake concurrent audit of the Concessionaire during the Construction Period. The charges and expenses of such Concurrent Auditor shall be borne by the NHAI. After such Construction Period, NHAI may at its option have concurrent audit done at such time and for such period as NHAI may deem appropriate at its cost and expenses.

31.6 In the event of their being any difference between the finding of the Additional Auditor or the Concurrent Auditor, as the case may be, and the certification provided by the Statutory Auditors of the Concessionaire, such Auditors shall meet to resolve such differences and if they are unable to resolve the same such disputed certification shall be resolved by recourse to the Dispute Resolution Procedure.

CHAPTER – VI

FORCE MAJEURE

XXXII FORCE MAJEURE

32.1 Force Majeure Event: As used in this Agreement, a Force Majeure Event shall mean occurrence in India of any or all of Non Political Event, Indirect Political Event and/or Political Event as defined in Clauses 32.2 , 32.3 , and 32.4 respectively hereinafter which prevent the Party claiming Force Majeure (the "Affected Party") from performing its obligations under this Agreement and which act or event is (i) beyond the reasonable control and not arising out of the fault of the Affected Party, (ii) the Affected Party has been unable to overcome such act or event by the exercise of due diligence and reasonable efforts, skill and care, including through expenditure of reasonable sums of money and (iii) has a Material Adverse Effect on the Project.

32.2 Non Political Force Majeure Events: For purposes of Clause 32.1 Non-Political Events shall mean one or more of the following acts or events:

(i) acts of God or events beyond the reasonable control of the Affected Party which could not reasonably have been expected to occur, exceptionally adverse weather conditions, lightning, earthquake, cyclone, flood, volcanic eruption or fire (to the extent originating from a source external to the Site or beyond design specifications for the Construction Works) or landslide;

(ii) radioactive contamination or ionizing radiation;

(iii) strikes or boycotts (other than those involving the Concessionaire, Contractors or their respective employees/ representatives or attributable to any act or omission of any of them) interrupting supplies and services to the Project Highways for a period exceeding a continuous period of 7 (seven) days in an Accounting Year, and not being an Indirect Political Event set forth in Clause 32.3 hereof;

(iv) any failure or delay of a Contractor but only to the extent caused by another Non-Political Event and which does not result in any offsetting compensation being payable to the Concessionaire by or on behalf of such Contractor;

(v) Any judgement or order of any court of competent jurisdiction or statutory authority in India made against the Concessionaire in any proceedings

for reasons other than failure of the Concessionaire to comply with any Applicable Law or Applicable Permits or on account of breach thereof, or of any contract, or enforcement of this Agreement or exercise of any of its rights under this Agreement by NHAI; or

(vi) Any event or circumstance of a nature analogous to any of the foregoing.

32.3 Indirect Political Force Majeure Events: For purposes of Clause 32.1 , Indirect Political Event shall mean one or more of the following acts or events:

(i) an act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage which prevents collection of Fees by the Concessionaire for a period exceeding a continuous period of 7 (seven) days in an Accounting Year;

(ii) industry wide or state wide or India wide strikes or industrial action which prevent collection of Fees by the Concessionaire for a period exceeding a continuous period of 7 (seven) days in an Accounting Year; or

(iii) any public agitation which prevents collection of Fees by the Concessionaire for a period exceeding a continuous period of 7 (seven) days in an Accounting Year.

32.4 Political Force Majeure Events: For purposes of Clause 32.1 , Political Event shall mean one or more of the following acts or events by or on account GOI, NHAI, GOAP or any other Governmental Agency:

(i) Change in Law, only when provisions of Article XXXIX cannot be applied;

(ii) expropriation or compulsory acquisition by any Governmental Agency of any Project Assets or rights of the Concessionaire or of the Contractors; or

(iii) unlawful or unauthorised or without jurisdiction revocation of, or refusal to renew or grant without valid cause any consent or approval required by the Concessionaire or any of the Contractors to perform their respective obligations under the Project Agreements (other than a consent the obtaining of which is Condition Precedent) provided that such delay, modification, denial, refusal or revocation did not result from the Concessionaire's or any Contractor's inability or failure to comply with any

condition relating to grant, maintenance or renewal of such consents or permits.

32.5 Effect of Force Majeure Event before Financial Close: Upon the occurrence of any Force Majeure Event prior to Financial Close as set forth in Article XXIV , the following shall apply:

(a) There shall be no Termination except as provided in Clause 32.8 ;

(b) The date for achieving Financial Close shall be extended by the period for which such Force Majeure event shall subsist; and

(c) The Parties shall bear their respective costs and no Party shall be required to pay to the other Party any costs arising out of such Force Majeure Event.

32.6 Effect of Force Majeure Event after Financial Close: Upon occurrence of any Force Majeure Event after Financial Close, the following shall apply:

(a) There shall be no Termination of this Agreement except as provided in Clause 32.8 ;

(b) Where the Force Majeure Event occurs before COD, the dates set forth in the Project Completion Schedule, and the Concession Period shall be extended by the period for which such Force Majeure Event shall subsist;

(b) Where a Force Majeure Event occurs after COD, the Concessionaire shall continue to make all reasonable efforts to collect Fees, but if he is unable to collect Fees during the subsistence of such Force Majeure Event, the Concession Period shall be extended by the period for which collection of Fees remains suspended on account thereof; and

(d) Costs arising out of or concerning such Force Majeure Event shall be borne in accordance with the provisions of Clause 32.7 .

32.7 Allocation of costs during subsistence of Force Majeure: Subject to the provisions of clause 32.6 , upon occurrence of a Force Majeure Event after Financial Close, the costs arising out of such event shall be allocated as follows:

(a) When the Force Majeure Event is a Non Political Event, the Parties shall bear their respective costs and neither Party shall be required to pay to the other Party any costs arising out of any such Force Majeure Event;

(b) Where the Force Majeure Event is an Indirect Political Event, the costs attributable to such Force Majeure Event and directly relating to the Project (the "Force Majeure Costs") shall be borne by the Concessionaire to the extent of the Insurance Claims, and to the extent such Force Majeure Costs exceed the Insurance Claims , one half of the same to the extent actually incurred and duly certified by the statutory Auditors of Concessionaire shall be reimbursed by NHAI to the Concessionaire in one lump sum or paid in three equal annual installments with interest @ SBI PLR plus two percent; and

(c) Where the Force Majeure Event is a Political Event, the Force Majeure Costs to the extent actually incurred and certified by the Statutory Auditors of Concessionaire shall be reimbursed by NHAI to the Concessionaire in one lump sum or paid in three equal annual installments with interest @ SBI PLR plus two percent, provided that no Force Majeure Costs shall be payable by NHAI if the Concession Period is increased under Clause 32.6 .

For avoidance of doubt, Force Majeure Costs shall not include loss of Fee revenues or any debt repayment obligations but shall include interest payments on such debt, O&M Expenses and all other costs directly attributable to the Force Majeure Event.

32.8 Termination Notice: If a Force Majeure Event subsists for a period of 180 (one hundred eighty) days or more within a continuous period of 365 (three hundred sixty five) days, either Party may in its sole discretion terminate this Agreement by giving 30 (thirty) days Termination Notice in writing to the other Party without being liable in any manner whatsoever, save as provided in Clause 32.9 .

32.9 Termination Payment for Force Majeure Events: Upon Termination of this Agreement pursuant to Clause 32.8, Termination Payment to the Concessionaire shall be made in accordance with the following:

(a) If the Termination is on account of a Non Political Event, the Concessionaire shall be entitled to receive from NHAI by way of Termination Payment an amount equal to 90% of the Debt Due and the entire Subordinated Debt less due insurance claims, if any. Provided that in the event some insurance claims are not admitted, then 90% of such claims shall qualify for being included in the computation of Debt Due.

(b) If the Termination is on account of an Indirect Political Event, the Concessionaire shall be entitled to receive from NHAI by way of Termination Payment an amount equal to:

(i) the total Debt Due, less due insurance claims, if any. Provided, however, that if all or any of the insurance claims are not admitted and paid, then 80% (eighty per cent) of such unpaid claims shall qualify for being included in the computation of Debt Due, plus

(ii) the outstanding Subordinated Debt, plus

(iii) 110% (one hundred ten per cent) of the Equity (subscribed in cash and actually spent on the Project but excluding the amount of Equity Support referred to in Article XXV) if such Termination occurs at any time during three years commencing from the Appointed Date and for each successive years thereafter, such amount shall be adjusted every year to fully reflect the changes in WPI during such year, and the adjusted amount so arrived at shall be reduced every year by 7.5% (seven and half per cent) per annum.

(c) If the Termination of this Agreement is on account of a Political Event, the Concessionaire shall be entitled to receive from NHAI by way of Termination Payment an amount equal to:

(i) the total Debt Due, plus

(ii) 120% (one hundred twenty per cent) of the Subordinated Debt plus

(iii) 150% (one hundred fifty per cent) of the Equity (subscribed in cash and actually spent on the project but excluding the amount of Equity Support referred to in Article XXV) the if such Termination occurs at any time during three years commencing from the Appointed Date and for each successive year thereafter, such amount shall be adjusted every year to fully reflect the changes in WPI during such year, and the adjusted amount so arrived at shall be reduced every year by 7.5% (seven and half per cent) per annum.

32.10 Dispute Resolution: In the event that the Parties are unable to agree in good faith about the occurrence or existence of a Force Majeure Event, such dispute

shall be finally settled in accordance with the Dispute Resolution Procedure, provided however that the burden of proof as to the occurrence or existence of such Force Majeure Event shall be upon the Party claiming relief and/or excuse on account of such Force Majeure Event.

32.11 Liability for other losses, damages etc: Save and except as expressly provided in this Article XXXII , neither Party hereto shall be liable in any manner whatsoever to the other Party in respect of any loss, damage, cost, expense, claims, demands and proceedings relating to or arising out of occurrence or existence of any Force Majeure Event or exercise of any right pursuant to this Article XXXII .

32.12 Duty to Report: The Affected Party shall discharge the following obligations in relation to reporting the occurrence of a Force Majeure Event to the other Party:

(a) The Affected Party shall not claim any relief for or in respect of a Force Majeure Event unless it shall have notified the other Party in writing of the occurrence of the Force Majeure Event as soon as reasonably practicable, and in any event within 7 (seven) days after the Affected Party knew, or ought reasonably to have known, of its occurrence and the probable material effect that the Force Majeure Event is likely to have on the performance of its obligations under this Agreement.

(b) Any notice pursuant to this Clause 32.12 shall include full particulars of:

(i) the nature and extent of each Force Majeure Event which is the subject of any claim for relief under this Article XXXII with evidence in support thereof;

(ii) the estimated duration and the effect or probable effect which such Force Majeure Event is having or will have on the Affected Party's performance of its obligations under this Agreement;

(iii) the measures which the Affected Party is taking or proposes to take, to alleviate the impact of such Force Majeure Event; and

(iv) any other information relevant to the Affected Party's claim.

(c) For so long as the Affected Party continues to claim to be affected by such Force Majeure Event, it shall provide the other Party with regular (and not less than weekly) written reports containing information as required by this Clause 32.12, and such other information as the other Party may reasonably request the Affected Party to provide.

32.13 Excuse from performance of obligations: If the Affected Party is rendered wholly or partially unable to perform its obligations under this Agreement because of a Force Majeure Event, it shall be excused from performance of such of its obligations to the extent it is unable to perform on account of such Force Majeure Event provided that:

(a) The suspension of performance shall be of no greater scope and of no longer duration than is reasonably required by the Force Majeure Event;

(b) The Affected Party shall make all reasonable efforts to mitigate or limit damage to the other Party arising out of or as a result of the existence or occurrence of such Force Majeure Event and to cure the same with due diligence, and

(c) When the Affected Party is able to resume performance of its obligations under this Agreement, it shall give to the other Party written notice to that effect and shall promptly resume performance of its obligations hereunder.

CHAPTER – VII

SUSPENSION AND TERMINATION

XXXIII MATERIAL BREACH AND SUSPENSION

33.1 If the Concessionaire shall be in Material Breach of this Agreement NHAI, shall be entitled in its sole discretion and without prejudice to its other rights and remedies under this Agreement including its right of Termination hereunder, to (i) suspend all or any of the rights of the Concessionaire under this Agreement including the Concessionaire's right to collect and appropriate all Fees and other revenues from the Project Highways, and (ii) exercise the rights of the Concessionaire under this Agreement itself or authorise any other person to exercise the same during such suspension. Such suspension by NHAI shall be by a communication in writing to the Concessionaire and shall be effective forthwith upon the issue thereof to the Concessionaire. Any Fees or revenues collected by or on behalf of NHAI during such suspension shall be deposited in the Escrow Account to the exclusion of the Concessionaire. Provided, however, that the period of such suspension under this Article XXXIII shall not exceed 120 (one hundred twenty) days.

33.2 Subject to clause 33.1 , NHAI shall have the right to utilise the proceeds of Fees and other revenues for meeting the costs incurred by NHAI to remedy and rectify the cause of such suspension and for defraying the O&M Expenses during such suspension period. Provided, however, that if the Concessionaire is making diligent efforts to remedy and rectify such cause, then NHAI shall allow the Concessionaire reasonable time and opportunity for such remedy or rectification.

33.3 The suspension of the rights of the Concessionaire by NHAI pursuant to Clause 33.1 above shall be revoked by NHAI forthwith upon the Concessionaire having remedied the Material Breach during such suspension period to the satisfaction of NHAI unless in the meantime this Agreement has been terminated by NHAI in accordance with Article XXXV.

33.4 At any time during the period of suspension under this Article XXXIII, the Concessionaire may in writing notify to NHAI that it does not intend to cure the breach or default that had caused such suspension. Within 7 (seven) days of receipt of such notice, NHAI shall terminate this Agreement as if a Material Breach of this Agreement had occurred on account of a Concessionaire Event of Default.

XXXIV COMPENSATION FOR BREACH OF AGREEMENT

34.1 In the event of Concessionaire being in material default of this Agreement and such default is cured before Termination, the Concessionaire shall pay to NHAI as compensation, all direct additional costs suffered or incurred by NHAI arising out of such material default by the Concessionaire, in one lumpsum within 30 (thirty) days of receiving the demand or at the Concessionaire's option in 3 (three) equal semi-annual installments with interest @ SBI PLR plus 2% (two per cent).

34.2 In the event of NHAI being in material default of this Agreement and such default is cured before Termination, NHAI shall pay to the Concessionaire as compensation, all direct additional costs suffered or incurred by the Concessionaire arising out of such material default by NHAI, in one lumpsum within 30 (thirty) days of receiving the demand or at NHAI's option in 3 (three) equal semi-annual installments with interest @ SBI PLR plus 2% (two per cent).

XXXV TERMINATION

35.1 Termination for the Concessionaire Event of Default.

35.1.1 Concessionaire Event of Default

The following events shall constitute an event of default by the Concessionaire (a "Concessionaire Event of Default") unless such Concessionaire Event of Default has occurred as a result of NHAI Event of Default or a Force Majeure Event;

(1) The Concessionaire fails to achieve Financial Close in accordance with the provisions of Article XXIV ;

(2) The Concessionaire fails to achieve any Project milestone other than Scheduled Project Completion Date within the period set forth in Schedule 'H' and fails to cure such default within a period of 180 (one hundred and eighty) days from the date of its occurrence;

(3) The Concessionaire is in Material Breach of this Agreement;

(4) The Concessionaire commits default in complying with any of the terms and conditions of this Agreement, save and except those defaults in respect of which Cure Period has been expressly provided in this

Agreement and fails to remedy or rectify the same within the period provided in a notice in this behalf from NHAI which shall:

(i) require the Concessionaire to remedy the breach or breaches referred to in such notice within 1 (one) month (or such longer period as may be agreed by the NHAI at its absolute discretion); or

(ii) permit the Concessionaire to put forward within 15 days of such notice a reasonable programme for the remedying of the breach or breaches, such programme to specify in reasonable detail the manner in which such breach or breaches is or are proposed to be remedied and the latest date by which it is proposed that such breach or all such breaches shall be remedied.

(5) The Concessionaire creates any Encumbrance, charges or lien in favour of any person save and except as otherwise expressly permitted under Clause 38.3 ;

(6) Any change in the composition or percentage shareholding of the existing shareholders of the Concessionaire as prescribed under Clause 12.1 (xiii).

(7) The transfer, pursuant to law of either (a) the rights and/or obligations of the Concessionaire under any of the Project Agreements, or (b) all or material part of the assets or undertaking of the Concessionaire except where such transfer in the reasonable opinion of NHAI does not affect the ability of the Concessionaire to perform, and the Concessionaire has the financial and technical capability to perform, its material obligations under the Project Agreements;

(8) A resolution is passed by the shareholders of the Concessionaire for the voluntary winding up of the Concessionaire;

(9) The Concessionaire is adjudged bankrupt or insolvent or if a trustee or receiver is appointed for the Concessionaire or for any of its property that has a material bearing on the Project;

(10) Any petition for winding up of the Concessionaire is admitted by a court of competent jurisdiction or the Concessionaire is ordered to be wound up by Court except for the purpose of amalgamation or reconstruction provided that, as part of such amalgamation or reconstruction, the property, assets and undertaking of the Concessionaire are transferred to

the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of the Concessionaire under this Agreement and the Project Agreements, and provided that:

(i) the amalgamated or reconstructed entity has the technical capability and operating experience necessary for the performance of its obligations under this Agreement and the Project Agreements;

(ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under this Agreement and the Project Agreements and has a credit worthiness at least as good as that of the Concessionaire as at the Financial Close; and

(iii) each of the Project Agreements remains in full force and effect;

(11) The Concessionaire is in Material Breach of any of the Project Agreements;

(12) An event of default of the Concessionaire under any of the Financing Documents has occurred or any of the Senior Lenders has recalled its loan under any of the Financing Documents;

(13) The Concessionaire abandons the operations of the Project Highways for more than 15 (fifteen) consecutive days without the prior consent of NHAI, provided that the Concessionaire shall be deemed not to have abandoned such operation if such abandonment was (i) as a result of Force Majeure Event and is only for the period such Force Majeure is continuing, or (ii) is on account of a breach of its obligations by NHAI.

(14) The Concessionaire repudiates this Agreement or otherwise evidences an intention not to be bound by this Agreement;

(15) The Concessionaire suffers an execution being levied on any of its assets/ equipment causing a Material Adverse Effect on the Project and allows it to be continued for a period of 15 (fifteen) days;

(16) The Concessionaire has delayed any payment that has fallen due under this Agreement if such delay exceeds 90 (ninety) days; or

(17) The Concessionaire is in breach of its obligation to repay the Revenue Shortfall Loans in accordance this Agreement.

35.1.2 Save and except as otherwise provided in Clause 35.2 , and without prejudice to any other right or remedy which NHAI may have in respect thereof under this Agreement, upon the occurrence of any breach or default by the Concessionaire under this Agreement including any Concessionaire Event of Default, NHAI shall be entitled to terminate this Agreement by a communication in writing (the "Termination Notice") to the Concessionaire if the Concessionaire has failed to cure such breach or default within the period provided for the same in this Agreement provided that before issuing the Termination Notice, NHAI shall by a notice in writing inform the Concessionaire of its intention to issue the Termination Notice (the "Preliminary Notice") and grant 15 (fifteen) days time to the Concessionaire to make its representation, if any, against such intended Termination Notice and shall after the expiry of said 15 (fifteen) day period whether or not it is in receipt of such representation, in its sole discretion issue the Termination Notice.

35.1.3 Subject to Clause 35.2 , the following shall apply in respect of cure of any of the defaults and/or breaches of this Agreement.

(i) The Cure Period shall commence from the date on which a notice in writing is delivered by NHAI to the Concessionaire asking the latter to cure the breach or default specified in such notice.

(ii) The Cure Period provided in this Agreement shall not relieve the Concessionaire from liability for Damages caused by its breach or default;

(iii) The Cure Period shall not in any way be extended by any period of suspension under this Agreement;

(iv) If the cure of any breach by the Concessionaire requires any reasonable action by Concessionaire that must be approved by NHAI or the Independent Consultant hereunder the applicable Cure Period (and any liability of the Concessionaire for damages incurred) shall be extended by the period taken by NHAI or the Independent Consultant to accord their required approval.

35.2 Notwithstanding anything to the contrary contained in this Agreement, in the event of the Concessionaire being in default under any of the provisions hereof expressly providing for Termination under or in accordance with this Clause 35.2 , NHAI shall be entitled to terminate this Agreement forthwith by issuing a

Termination Notice to the Concessionaire and upon issue of such Termination Notice by NHAI this Agreement shall stand terminated forthwith. Provided, however, that prior to such Termination, NHAI shall by notice grant to the Concessionaire a Cure Period of one month for curing the relevant breach or default of the provisions of this Agreement.

35.3 Upon Termination by NHAI on account of occurrence of Concessionaire Event of Default during the Operations Period, the NHAI shall pay to the Concessionaire by way of Termination Payment an amount equal to 90% (ninety per cent) of the Debt Due less insurance claims, if any, provided, however, that if all or any of the insurance claims are not admitted and paid, then 80% (eighty per cent) of such unpaid claims shall qualify for being included in the computation of Debt Due.

35.4 Termination for NHAI Event of Default.

35.4.1 The Concessionaire may after giving 90 (ninety) days notice in writing to NHAI terminate this Agreement upon the occurrence and continuation of any of the following events (each a "NHAI Event of Default"), unless any such NHAI Event of Default has occurred as a result of Concessionaire Event of Default or due to a Force Majeure Event.

(1) NHAI is in breach of this Agreement and such breach has a Material Adverse Effect on the Concessionaire and NHAI has failed to cure such breach or take effective steps for curing such breach within 90 (ninety) days of receipt of notice in this behalf from the Concessionaire;

(2) NHAI repudiates this Agreement or otherwise evidences an irrevocable intention not to be bound by this Agreement;

(3) GoI or GOAP or any Governmental Agency have by an act of commission or omission created circumstances that have a Material Adverse Effect on the performance of its obligations by the Concessionaire and have failed to cure the same within 90 (ninety) days of receipt of notice by NHAI in this behalf from the Concessionaire;

(4) NHAI has delayed any payment that has fallen due under this Agreement if such delay exceeds 90 (ninety) days.

35.4.2 Upon Termination by the Concessionaire on account of an NHAI Event of Default, the Concessionaire shall be entitled to receive from NHAI by way of Termination Payment a sum equal to:

(i) the total Debt Due, plus

(ii) 120% (one hundred twenty percent)the total Subordinated Debt, plus

(iii) 150% (one hundred fifty per cent) of the Equity (subscribed in cash and actually spent on the Project but excluding the amount of Equity Support referred to in Article XXV) if such Termination occurs at any time during three years commencing from the Appointed Date and for each successive year thereafter, such amount shall be adjusted every year to fully reflect the changes in WPI during such year and the adjusted amount so arrived at shall be reduced every year by 7.5% (seven and a half per cent) per annum.

35.5 Upon Termination of this Agreement for any reason whatsoever, NHAI shall:

(i) take possession and control of Project Highways forthwith;

(iii) take possession and control forthwith of any materials, construction plant, implements, stores etc. on or about the Site;

(iii) restrain the Concessionaire and any person claiming through or under the Concessionaire from entering upon the Site or any part of the Project Highways; and/or

(iv) succeed upon election by NHAI without the necessity of any further action by the Concessionaire, to the interests of the Concessionaire under such of the Project Agreement as NHAI may in its discretion deem appropriate and shall upon such election be required to compensate such contractors only for compensation accruing and becoming due and payable to them under the terms of their respective Project Agreements from and after the date NHAI elects to succeed to the interests of the Concessionaire as aforesaid. All sums claimed by such Contractors as being due and owing for work and services performed or accruing on account of any act, omission or event prior to such date shall constitute debt between the Concessionaire and such Contractors and NHAI shall in no way or manner be liable or responsible for such sums.

35.6 Termination Payments: The Termination Payment pursuant to this Agreement shall become due and payable to the Concessionaire by NHAI within thirty days of a demand being made by the Concessionaire with the necessary particulars duly certified by the Statutory Auditors. If NHAI fails to disburse the full Termination Payment within 30 (thirty) days, the amount remaining unpaid shall

be disbursed along with interest @ SBI PLR plus two per cent for the period of delay on such amount.

5.7 Mode of Payment: Payment of compensation of costs by NHAI pursuant to this Article XXXV shall be made by way of credit to the Escrow Account and such payment shall constitute valid discharge of NHAI's obligations for Termination Payment hereunder.

5.8 Notwithstanding anything to the contrary contained in this Agreement, any Termination pursuant to the provisions of this Agreement shall be without prejudice to accrued rights of either Party including its right to claim and recover money damages and other rights and remedies which it may have in law or contract. All rights and obligations of either Party under this Agreement, including without limitation Termination Payments and Divestment procedures, shall survive the Termination of this Agreement to the extent such survival is necessary for giving effect to such rights and obligations.

XXVI DIVESTMENT OF RIGHTS AND INTERESTS

6.1 Upon Termination of this Agreement, the Concessionaire shall comply with the following:

(a) notify to NHAI forthwith the location and particulars of all Project Assets;

(b) deliver forthwith actual or constructive possession of the Project Highways free and clear of all Encumbrances and execute such deeds, writings and documents as may be required by the NHAI for fully and effectively divesting the Concessionaire of all of the rights, title and interest of the Concessionaire in the Project Highways and conveying the Project Highways free of any charge or cost to NHAI; and

(c) comply with the Divestment Requirements set out in Clause 36.2 .

6.2 Upon Termination of this Agreement, the Concessionaire shall comply and conform to the following Divestment Requirements in respect of the Project Highways:

(i) all Project Assets including the road, pavement, structure and equipment shall have been renewed and cured of all defects and deficiencies as necessary so that the Project Highways is compliant with the Specifications and Standards set forth in this Agreement;

(ii) all sections of each traffic lane (the "Carriageway") of the Project Highways shall have a roughness index of not more than 2500 mm per km and shall be free from defects in accordance with O&M requirements;

(iii) all lamps shall be in working condition;

(iv) the Concessionaire delivers relevant records and reports pertaining to the Project Highways and its design, engineering, construction, operation, and maintenance including all operation and maintenance records and programmes and manuals pertaining thereto and complete as built Drawings on the Divestment Date;

(v) the Concessionaire executes such deeds of conveyance, documents and other writings as the NHAI may reasonably require to convey, divest and assign all the rights, title and interest of the Concessionaire in the Project Highways free from all Encumbrances absolutely and free of any charge or tax unto the NHAI or its Nominee; and

(vi) the Concessionaire complies with all other requirements as may be prescribed under Applicable Laws to complete the divestment and assignment of all the rights, title and interest of the Concessionaire in the Project Highways free from all Encumbrances absolutely and free of any charge or tax to NHAI or its nominee.

36.3 Not earlier than 3 (three) months before the expiry of the Concession Period but not later than 30 (thirty) days before such expiry, or in the event of earlier Termination of this Agreement, immediately upon but not later than 15 (fifteen) days from the date of issue of Termination Notice, the Independent Consultant shall verify, in the presence of a representative of the Concessionaire, compliance by the Concessionaire with the Divestment Requirements set forth in Clause 36.2 in relation to the Project Highways and, if required, cause appropriate tests to be carried out at the Concessionaire's cost for determining the compliance therewith. If any shortcomings in the Divestment Requirements are found by either Party, it shall notify the other of the same and the Concessionaire shall rectify the same at its cost. The provisions of Article XXXVII shall apply mutatis mutandis in relation to repair or curing of defects under this Article XXXVI.

36.4 Upon the Concessionaire conforming to all Divestment Requirements and handing over actual or constructive possession of the Project Highways to NHAI

or a person nominated by NHAI in this regard, NHAI shall issue a certificate substantially in the form set forth in Schedule 'V' (the "Vesting Certificate") which will have the effect of constituting evidence of divestment of all rights, title and lien in the Project Highways by the Concessionaire and their vesting in NHAI pursuant hereto. Issue of the Vesting Certificate shall not be unreasonably withheld by NHAI. The divestment of all rights, title and lien in the Project Highways shall be deemed to be complete on the date when all the Divestment Requirements have been fulfilled or the Vesting Certificate has been issued, whichever is earlier, it being expressly agreed that any defect or deficiency in any Divestment Requirement shall not in any manner be construed or interpreted as restricting the exercise of any rights by NHAI or its nominee on or in respect of the Project Highways on the footing as if all Divestment Requirements have been complied with by the Concessionaire.

36.5 Notwithstanding anything to the contrary contained in this Agreement, any Termination Payments made by NHAI into the Escrow Account shall not be withdrawn therefrom for any purpose whatsoever until the Vesting Certificate has been issued by NHAI under this Article. Provided, however, that the aforesaid restriction shall not apply to withdrawals from the Escrow Account in favour of the Senior Lenders to the extent of Debt Due.

CHAPTER – VIII
MISCELLANEOUS

XXXVII DEFECTS LIABILITY

37.1 Not less than 30 months nor more than 36 months prior to the expiry of the Concession Period, the Concessionaire and the Independent Consultant shall conduct a joint inspection (the "Initial Inspection") of the Project Highways and all Project Facilities.

37.2 Within 90 days after the completion of the Initial Inspection, the Concessionaire shall provide to the Independent Consultant a report on the condition of the Project Highways and the Project Facilities and a notice setting out the Concessionaire's proposals as to the renewal works required to comply with the Divestment Requirements.

37.3 The Independent Consultant may, within 90 days after receipt of the notice from the Concessionaire in accordance with Clause 37.2 , by notice to the Concessionaire object to the proposals giving details of the grounds for such objection and shall give the Independent Consultant's proposals in respect of the renewal works.

37.4 If no agreement is reached between the Concessionaire and the Independent Consultant within 30 days of receipt of such notice, then either the Concessionaire or the Independent Consultant may refer the matter to the Disputes Resolution Procedure.

37.5 Upon agreement or determination in accordance with the Disputes Resolution Procedure, the Concessionaire shall carry out the renewal works at its own cost.

37.6 Not less than 9 months nor more than 12 months prior to the expiry of the Concession Period, the Concessionaire and the Independent Consultant shall conduct a joint inspection (the "Second Inspection") of all elements of the Project Highways and Project Facilities (whether or not the Renewal Works have been carried out).

37.7 Within 30 days after the completion of the Second Inspection, the Concessionaire shall provide to the Independent Consultant a report on the condition of the Project Highways and Project Facilities and a notice setting out any revisions or additions to the renewal works required in order to ensure compliance with the Divestment Requirements.

37.8 The Independent Consultant may, within 30 days after receipt of the notice from the Concessionaire in accordance with Clause 37.7 , by notice to the Concessionaire object to the proposed revisions giving details of the grounds for such objection and the Concessionaire shall give the Independent Consultant proposals in respect of such matters.

37.9 If no agreement is reached between the Concessionaire and the Independent Consultant within 30 days of receipt of such notice, then either the Concessionaire or the Independent Consultant may refer the matter to the Dispute Resolution Procedure.

37.10 Upon agreement or determination in accordance with the Disputes Resolution Procedure, the Concessionaire shall carry out the renewal works (as so revised) at its own cost.

37.11 From the date which is 2 years prior to the expiry of the Concession Period a sum equal to the Fees realisable during the last two years of the Concession Period for a traffic volume calculated at the rate of 10,000 (ten thousand) PCUs per day per year or a higher sum estimated by the Independent Consultant for Renewal Works, shall notwithstanding anything to the contrary contained in this Agreement, be retained in the Escrow Account provided that if a Bank Guarantee of an equivalent sum in the form and content acceptable to NHAI has been furnished by the Concessionaire to NHAI, no such retention shall be made.

37.12 If following the Second Inspection, it is agreed or determined that no renewal works are required, then within 14 days of such agreement, 50% of the sums retained in accordance with Clause 37.11 shall be released from the Escrow Account to the Concessionaire.

37.13 Within 14 days after the issue of the Vesting Certificate issued in accordance with Article XXXVI the sums retained in accordance with Clause 37.11 shall be released from the Escrow Account to the Concessionaire.

XXXVIII ASSIGNMENTS AND CHARGES

38.1 Subject to Clauses 38.3 and 38.4 , this Agreement shall not be assigned by the Concessionaire save and except with prior consent in writing of NHAI, which consent NHAI shall be entitled to decline without assigning any reason whatsoever.

38.2 Subject to Clause 38.3 , the Concessionaire shall neither create nor permit to subsist any encumbrance over or otherwise transfer or dispose of all or any of its rights and benefits under this Agreement or any Project Agreements to which Concessionaire is a party except with prior consent in writing of NHAI, which consent NHAI shall be entitled to decline without assigning any reason whatsoever.

38.3 Restraint set forth in Clauses 38.1 and 38.2 shall not apply to:

(i) liens arising by operation of law (or by an agreement evidencing the same) in the ordinary course of business of the Project Highways;

(ii) mortgages/pledges/hypothecation of goods/assets other than Project Assets, and those covered by the Substitution Agreement and their related documents of title arising or created in the ordinary course of business of the Project Highways and as security only for indebtedness to the Senior Lenders under the Financing Documents and/or for working capital arrangements for the Project Highways;

(iii) assignment of rights, title and interest to or in favour of the Lenders pursuant to and in accordance with the Substitution Agreement in respect of financing by the Senior Lenders under the Financing Documents for the Project; and

(iv) liens or encumbrances required by any Applicable Law.

(v) Assignment and transfer by CIDBI of its, rights, benefits, interests, duties and obligations under this Agreement and MOA to the Special Purpose Vehicle to be constituted by CIDBI pursuant clause 5 of MOA and recital D of this Agreement.

38.4 Senior Lenders may exercise the rights of step-in or substitution as provided in the Substitution Agreement to be entered into among the Concessionaire, NHAI and Senior Lenders in the form set forth in Schedule 'U' provided that the person substituting the Concessionaire shall be deemed to be the Concessionaire under this Agreement and shall enjoy all rights and be responsible for all obligations under this Agreement as if it were the Concessionaire. Provided, however, that in the event of such step-in or substitution, an additional Cure Period of 90 (ninety) days shall be provided by NHAI to enable the Concessionaire to cure any breach or default subsisting on the day of such step-in or substitution. Provided further that if the Senior Lenders step in to operate and manage the Concession for a

period not exceeding 90 (ninety) days, their liabilities shall be restricted to the obligations relating to and arising during such 90 (ninety) days period.

38.5 Notwithstanding anything to the contrary contained in this Agreement NHAI may assign any of its rights and benefits and/or obligations under this Agreement pursuant to any direction of GOI or by operation of law or in the course of its own business.

XXXIX CHANGE IN LAW

39.1 If as a result of Change in Law, the Concessionaire suffers an increase in costs or reduction in net after tax return or other financial burden, the aggregate financial effect of which exceeds Rs.10 million (Rupees ten million) in any Accounting Year, the Concessionaire may notify NHAI and propose amendments to this Agreement so as to put the Concessionaire in the same financial position as it would have occupied had there been no such Change in Law resulting in such cost increase, reduction in return or other financial burden as aforesaid. Upon notification by the Concessionaire as aforesaid, the Parties shall meet as soon as reasonably practicable but no later than 30 (thirty) days and either agree on amendments to this Agreement or on alternative arrangements to implement the foregoing.

Provided that if no agreement is reached as aforesaid by the Parties within 90 (ninety) days of the meeting pursuant to this Clause 39.1 , the Concessionaire may by notice in writing require NHAI to pay an amount that would put the Concessionaire in the same financial position it would have occupied had there been so such Change in Law resulting in such cost increase, reduction in return or other financial burden as aforesaid. Such notice shall be accompanied by necessary particulars duly certified by the Statutory Auditors of the Concessionaire. NHAI shall make payment of such compensation within 15 (fifteen) days of receiving such notice or with interest @ SBI PLR if the payment thereof is delayed beyond such 15 (fifteen) days. If NHAI shall dispute the quantum of such compensation claim of the Concessionaire, the same shall be finally settled in accordance with the Dispute Resolution Procedure.

39.2 If as a result of Change in Law, the Concessionaire enjoys a reduction in costs or increase in net after tax return or other financial benefit, the aggregate financial effect of which exceeds Rs.10 million (Rupees ten million) in any Accounting Year, NHAI may so notify the Concessionaire and propose amendments to this Agreement so as to put the Concessionaire in the same financial position as it would have occupied had there been so such Change in Law resulting in such decreased cost, increase in return or other financial benefit as aforesaid. Upon

notification by the NHAI as aforesaid, the Parties shall meet as soon as reasonably practicable but no later than 30 (thirty) days and either agree on such amendments to this Agreement or on alternative arrangements to implement the foregoing.

Provided that if no agreement is reached as aforesaid by the Parties within 90 (ninety) days of the meeting pursuant to this Clause 39.2 , NHAI may by notice in writing require the Concessionaire to pay an amount that would put the Concessionaire in the same financial position it would have occupied had there been no such Change in Law resulting in such decreased cost, increase in return or other financial benefit as aforesaid. Such notice shall be accompanied by necessary particulars duly certified by the NHAI Representative. The Concessionaire shall make such payment within 15 (fifteen) days of receiving such notice or with interest @ SBI PLR if the payment is delayed beyond such 15 (fifteen) days. If the Concessionaire shall dispute such claim of NHAI, the same shall be finally settled in accordance with the Dispute Resolution Procedure.

39.3 Notwithstanding anything to the contrary contained in this Agreement, NHAI shall not be liable to reimburse to the Concessionaire any sums on account of any Change in Taxes if the same are recoverable from the users of the Project Highways or if the aggregate financial effect of such changes in any Accounting Year is less than or equal to Rs.10 million (Rupees ten million).

XL LIABILITY AND INDEMNITY

40.1 General Indemnity

(i) The Concessionaire will indemnify, defend and hold NHAI harmless against any and all proceedings, actions and, third party claims other than a claim by NHAI or GOI for loss, damage and expense of whatever kind and nature arising out of the design, engineering, construction, procurement, Operation and Maintenance of the Project Highways or arising out of a breach by Concessionaire of any of its obligations under this Agreement except to the extent that any such claim has arisen due to NHAI Event of Default.

(ii) NHAI will, indemnify, defend and hold harmless the Concessionaire against any and all proceedings, actions, third party claims for loss, damage and expense of whatever kind and nature arising out of defect in title and/or the rights of NHAI in the land comprised in the Site adversely affecting the performance of the Concessionaire's obligations under this

Agreement and/or arising out of acts done in discharge of their lawful functions by NHAI, its Officers, servants, agents, subsidiaries and contractors ("NHAI Indemnified Persons") including NHAI Events of Default except to the extent that any such claim has arisen due to a negligent act or omission, breach of contract or breach of statutory duty on the part of the Concessionaire, its Subsidiaries, affiliates, contractors, servants or agents including due to Concessionaire Event of Default.

40.2 Without limiting the generality of Clause 40.1 1 the Concessionaire shall fully indemnify, save harmless and defend NHAI including its officers, servants, agents and subsidiaries from and against any and all loss and damages arising out of or with respect to (a) failure of the Concessionaire to comply with Applicable Laws and Applicable Permits, (b) payments of taxes relating to the Concessionaire contractors, suppliers and representatives, income or other taxes required to be paid by the Concessionaire without reimbursement hereunder, or (c) non-payment of amounts due as a result of materials or services furnished to the Concessionaire or any of its Contractors which are payable by the Concessionaire or any of its contractors.

40.3 Without limiting the generality of the provisions of this Article XL , the Concessionaire shall fully indemnify, save harmless and defend the NHAI indemnified Person from and against any and all damages which the NHAI Indemnified Persons may hereafter suffer, or pay by reason of any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to any materials, information , design or process used by the Concessionaire or by the Concessionaire's Contractors in performing the Concessionaire's obligations or in any way incorporated in or related to the Project. If in any such suit, claim or proceedings, a temporary restraint order or preliminary injunction is granted, the Concessionaire shall make every reasonable effort, by giving a satisfactory bond or otherwise, to secure the suspension of the injunction or restraint order. If, in any such suit claim or proceedings, the Project, or any part, thereof or comprised therein is held to constitute an infringement and its use is permanently enjoined, the Concessionaire shall promptly make every reasonable effort to secure for NHAI a licence, at no cost to NHAI, authoring continued use of the infringing work. If the Concessionaire is unable to secure such licence within a reasonable time, the Concessionaire shall, at its own expense and without impairing the specifications and standards either replace the affected work, or part, or process thereof with non-infringing work or parts or process, or modify the same so that it becomes non-infringing.

40.4 In the event that either Party receives a claim from a third party in respect of which it is entitled to the benefit of an indemnity under this Article XL (the 'Indemnified Party') it shall notify the other Party ("Indemnifying Party") within 14 (fourteen) days of receipt of the claim and shall not settle or pay the claim without the prior approval of the Indemnifying Party, such approval not to be unreasonably withheld or delayed. In the event that the Indemnifying Party wishes to contest or dispute the claim it may conduct the proceedings in the name of the Indemnified Party subject the Indemnified Party being secured against any costs involved to its reasonable satisfaction.

40.5 Defence of Claims

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

40.5.2 If the Indemnifying Party has exercised its rights under Clause 40.4 , the Indemnified Party shall not be entitled to settle or compromise any claim, action, suit or proceeding without the prior written consent of the Indemnifying Party (which consent shall not be unreasonably withheld or delayed).

40.5.3 If the Indemnifying Party exercises its rights under Clause 40.4 then the Indemnified Party shall nevertheless have the right to employ its own counsel and such counsel may participate in such action, but the fees and expenses of such counsel shall be at the expense of such Indemnified Party, when and as incurred, unless:

(i) the employment of counsel by such party has been authorised in writing by the Indemnifying Party; or

(ii) the Indemnified Party shall have reasonably concluded that there may be a conflict of interest between the Indemnifying Party and the Indemnified Party in the conduct of the defence of such action; or

(iii) the Indemnifying Party shall not in fact have employed independent counsel reasonably satisfactory to the Indemnified Party to assume the defence of such action and shall have been so notified by the Indemnified Party; or

(iv) the Indemnified Party shall have reasonably concluded and specifically notified the Indemnifying Party either:

(a) that there may be specific defences available to it which are different from or additional to those available to the Indemnifying Party; or

(b) that such claim, action, suit or proceeding involves or could have a material adverse effect upon it beyond the scope of this Agreement;

provided that if clauses (ii), (iii) or (iv) shall be applicable, counsel for the Indemnified Party shall have the right to direct the defence of such claim, action, suit or proceeding on behalf of the Indemnified Party and the reasonable fees and disbursements of such counsel shall constitute legal or other expenses hereunder.

XLI RIGHTS AND TITLE OVER THE SITE

41.1 The Concessionaire shall have exclusive rights to the use of the Site in accordance with the provisions of this Agreement and for this purpose it may regulate the entry and use of the Project Highways by third parties.

41.2 The Concessionaire shall allow access to, and use of the Site for telegraph lines, electric lines or such other public purposes as NHAI may specify. Where such access or use causes any damage to the Project Highways and consequent financial loss to the Concessionaire, it may seek compensation or damages from such user of the Site as per Applicable Laws.

41.3 The Concessionaire shall not be liable to pay any property taxes for the Site.

41.4 For the purposes of claiming tax depreciation, the property representing the capital investment made by the Concessionaire shall be deemed to be acquired and owned by the Concessionaire.

41.5 The Concessionaire shall not sublet the whole or any part of the Site save and except as may be expressly set forth in this Agreement provided however that nothing contained herein shall be construed or interpreted as restricting the right of the Concessionaire to appoint contractors for the performance of its obligations hereunder including for operation and maintenance of all or any part of the Project Highways including Project Facilities.

XLII DISPUTE RESOLUTION

42.1 Amicable Resolution

(a) Save where expressly stated to the contrary in this Agreement, any dispute, difference or controversy of whatever nature howsoever arising under, out of or in relation to this Agreement including incompletion of the Project Highways between the Parties and so notified in writing by either Party to the other (the "Dispute") in the first instance shall be attempted to be resolved amicably in accordance with the conciliation procedure set forth in Sub-clause (b) below.

(b) In the event of any Dispute between the Parties, either Party may call upon the Independent Consultant to mediate and assist the Parties in arriving at an amicable settlement thereof. Failing mediation by the Independent Consultant or without the intervention of the Independent Consultant, either Party may require such Dispute to be referred to the Chairman of NHAI and the Chairman of the Board or Directors of the Concessionaire, for the time being for amicable settlement. Upon such reference, the said two Chairmen shall meet not later than 7 (seven) days of the date of such request to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the said period or the Dispute is not amicably settled within 15 (fifteen) days of such meeting between the said two Chairmen, either Party may refer the dispute to arbitration in accordance with the provisions of Clause 42.2.

(c) If the Dispute is not resolved as evidenced by the signing of the written terms of settlement within 30 (thirty) working days of the aforesaid notice

in writing or such longer period as may be mutually agreed by the Parties then the provisions of Clause 42.2 shall apply.

42.2 Arbitration

42.2.1 Any Dispute, which is not resolved amicably as provided in Clause 39.1 shall be finally decided by reference to arbitration by a Board of Arbitrators, appointed pursuant to Clause 42.2.2 below. Such arbitration shall be held in accordance with the Rules of Arbitration of the Indian Council of Arbitration and shall be subject to the provisions of the Arbitration Act.

42.2.2 There shall be a Board of three arbitrators of whom each party shall select one and the third arbitrator shall be appointed in accordance with the Rules of Arbitration of the Indian Council of Arbitration.

42.2.3 The arbitrators shall issue a reasoned Award.

42.2.4 The venue of such arbitration shall be New Delhi, India.

42.3 Arbitration Awards to be Binding

42.3.1 The Concessionaire and NHAI undertake to carry out any decision or award of the arbitrators (the "Award") without delay. Awards relating to any Dispute shall be final and binding on the Parties as from the date they are made.

42.3.2 The Concessionaire and NHAI agree that an Award may be enforced against the Concessionaire and/or NHAI, as the case may be and their respective assets wherever situated.

42.3.3 This Agreement and rights and obligations of the Parties shall remain in full force and effect pending the Award in any arbitration proceeding hereunder.

XLIII DISCLOSURE

43 The Concessionaire shall make available for inspection by members of public free of charge during normal business hours on all working days copies of this Concession Agreement, the O&M Contract, the Tolling Contract and the State Support Agreement (hereinafter collectively referred to as "Public Documents") at the Concessionaire's Site office during the subsistence of this Agreement. The Concessionaire shall prominently display at the Toll Plazas public notices about the availability of the Public Documents for inspection and shall make available upon request and payment in advance of copying charges on no profit no loss basis to members of public copies of the said Public Documents.

XLIV REDRESSAL OF PUBLIC GRIEVANCES

44.1 The Concessionaire shall maintain a public relations office adjacent to each Toll Plaza and keep it open to public access at all times. At each such office, the Concessionaire shall open and maintain a register (the "Complaints Register") for recording of complaints by any person (the Complainant") at any time of the day. The availability of and access to such office and the Complaints Register shall be prominently displayed by the concessionaire at each Toll Plaza so as to bring it to the attention of all persons who are entering and exiting the Project Highways.

44.2 The Complaints Register shall be securely bound and kept in proper custody at the public relations office. Each page of the Register shall be duly numbered and each complaint recorded therein shall also be duly numbered. Soon after a complaint is registered the Complainant shall be given a receipt by such office stating the date and complaint number, which the Complainant may refer to in any subsequent correspondence or claim. The Complaints Register shall have appropriate columns including but not limited to the complaint number and date, name and address of the Complainant, the complaint and the action taken by the Concessionaire thereon.

44.3 The Concessionaire shall inspect the Complaints Register at reasonable intervals and take prompt steps for redressal of the grievances stated in each complaint. The action so taken by the Concessionaire shall be briefly noted in the 'Action taken' column of the Complaints Register and a suitable reply shall also be sent to the Complainant by post under a certificate of posting.

44.4 Within one week following the close of each calendar month, the Concessionaire shall send to NHAI a true photocopy of such pages of the Complaints Register on

which any entries have been recorded of any Complaint on the Concessionaire during the course of such month. NHAI may in its discretion direct the concessionaire to take such further reasonable action as NHAI may deem appropriate for a fair and just redressal of any grievance. Where NHAI is of the opinion that the Complainant is entitled to any further redressal or compensation beyond what the Concessionaire is willing to provide, NHAI may refer the matter to the Consumer Redressal Forum having jurisdiction for its disposal in accordance with the provisions of the Consumer Protection Act, 1986.

XLV ADVERTISING ON THE SITE

45.1 The Concessionaire shall not undertake or permit any form of Commercial advertising, display or hoarding at any place on the Site if such advertising, display or hoarding shall be visible to a user of the Project Highways while driving on such Highway.

XLVI GOVERNING LAW AND JURISDICTION

46.1 This Agreement shall be construed and interpreted in accordance with and governed by the laws of India and the Courts at New Delhi, India shall have jurisdiction over all matters arising out of or relating to this Agreement.

XLVII MISCELLANEOUS

47.1 Video Recording

During the Construction Period, the Concessionaire shall provide a video recording to NHAI every calendar quarter which will be compiled into a 3 (three) hour cassette, covering the construction of the Project Highways in that quarter. Such video recording shall be provided no later than fifteen days after the close of each quarter.

47.2 Waiver

(a) Waiver by either Party of any default by other Party in the observance and performance of any provision of or obligations of or under this Agreement.

(i) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;

(ii) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and

(iii) shall not affect the validity or enforceability of this Agreement in any manner.

(b) Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

47.3 Survival

Termination of this Agreement (a) shall not relieve the Concessionaire or NHAI of any obligations hereunder which expressly or by implication survives Termination hereof, and (b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, shall not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of or caused by acts or omissions of such Party prior to the effectiveness of such Termination or arising out of such termination.

All obligations surviving the cancellation, expiration or Termination of this Agreement shall only survive for a period of 5 (five) years following the date of such Termination or expiry of this Agreement.

47.4 Entire Agreement:

This Agreement and the Schedules together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof and no amendment or modification hereto shall be valid and effective unless expressly previously approved in writing by NHAI and executed by the person expressly authorised by a resolution of NHAI in this behalf.

47.5 Notices

Any notice or other communication to be given by Party to the other Party under, or in connection with the matters contemplated by this Agreement shall be in writing and shall:

(a) in the case of the Concessionaire, be given by letter delivered by hand to the address given and marked for the attention of the person set out opposite the corresponding signature below or to such other address marked for such other attention as the Concessionaire may from time to time designate by notice to NHAI, provided that notices or other communications to be given to an address outside New Delhi may (if they are subsequently confirmed by sending a copy thereof by first class registered airmail or by courier) be sent by facsimile to the number as the Concessionaire may from time to time designate by notice to NHAI; and

(b) in the case of NHAI, be given by letter delivered by hand and be addressed to the Chairman, NHAI

Copies of all notices shall also be sent by facsimile and by registered acknowledgement due pre-paid post or courier.

Copies of all notices shall also be sent to the NHAI Representative.

47.6 Severability

If for any reason whatever any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to dispute resolution under this Agreement or otherwise.

47.7 No Partnership

Nothing contained in this Agreement shall be construed or interpreted as constituting a partnership between the Parties. Neither Party shall have any authority to bind the other in any manner whatsoever.

47.8 Language

All notices required to be given by one Party to the other Party and all other communications, documentation and proceedings which are in any way relevant to this Agreement shall be in writing and in English language.

47.9 Exclusion of Implied Warranties etc.

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

47.10 Counterparts

This Agreement may be executed in two counterparts, each of which when executed and delivered shall constitute an original of this Agreement.

IN WITNESS WHEREOF THE, PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED SEALED AND DELIVERED

For and on behalf of

NATIONAL HIGHWAYS AUTHORITY OF INDIA

By _____ (Signature)

(Deepak Dasgupta)

Chairman

NATIONAL HIGHWAYS AUTHORITY OF INDIA * NEW DELHI *

In the presence of:

1.

2.

SIGNED, SEALED AND DELIVERED

For and on behalf of

CONCESSIONAIRE by:

_____(Signature)

CIDB INVENTURES

CIDB INVENTURES SDN. BHD. (946229S-A)

In the presence of:

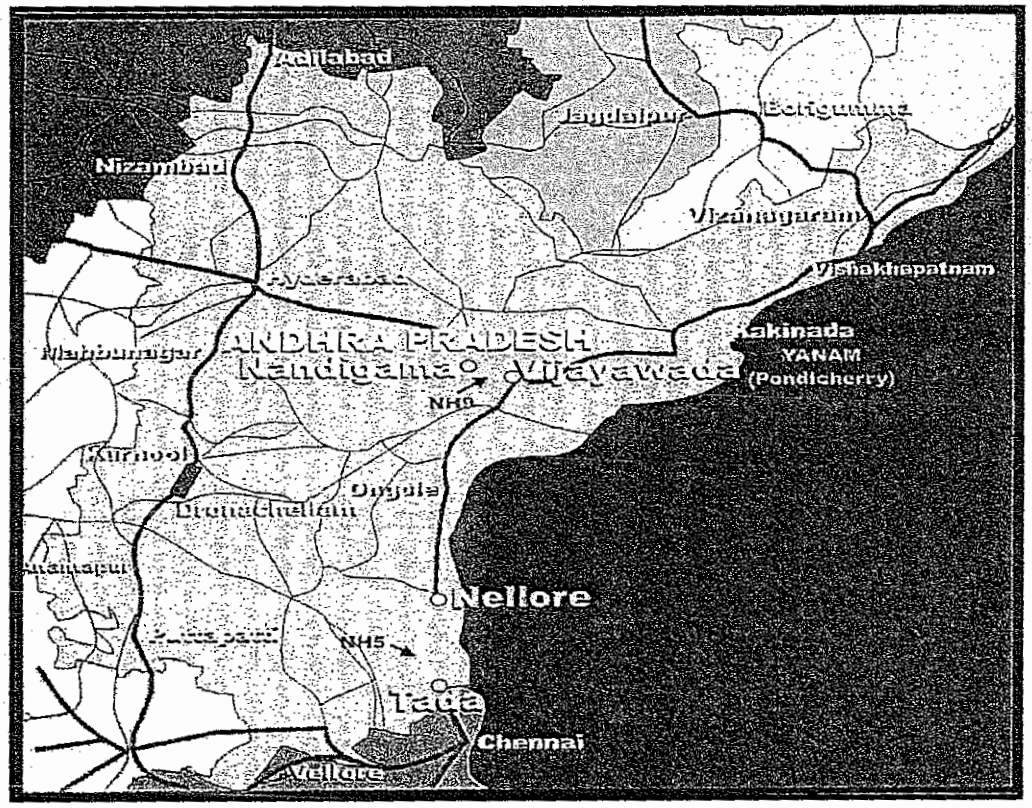
(Dato' Abdul Rahman Abdullah)

Chairman

1.

2.

NATIONAL HIGHWAYS AUTHORITY OF INDIA (N.H.A.I.)
AND
CIDB INVENTURES SDN. BHD. (MALAYSIA)



CONCESSION AGREEMENT
FOR
WIDENING AND STRENGTHENING OF SECTIONS: -
A) TADA TO NELLORE (NH-5)
B) NANDIGAMA TO IBRAHIMPATNAM TO VIJAYAWADA (NH-9)
IN THE STATE OF ANDHRA PRADESH, INDIA AND ITS OPERATION AND MAINTENANCE ON BUILD, OPERATE AND TRANSFER (B.O.T.) BASIS

VOLUME II : SCHEDULES

A to N

(27TH MARCH 2001)

CIDB INVENTURES
CIDB INVENTURES SDN. BHD. (462295-A)

Schedules: Volume II

II	SCHEDULE NO.	PARTICULARS
	A	SITE OF THE PROJECT
	B	SCOPE OF THE PROJECT
	C	PROJECT FACILITIES
	D	SPECIFICATION & STANDARDS
	E	APPLICABLE PERMITS
	F	BANK GUARANTEE FOR PERFORMANCE SECURITY
	G	SCHEDULE OF USER FEE
	H	PROJECT COMPLETION SCHEDULE
	I	DRAWINGS
	J	TESTS
	K	COMPLETION CERTIFICATE
	L	OPERATION & MAINTENANCE REQUIREMENTS
	M	MONTHLY FEE STATEMENT COLLECTION STATEMENT
	N	SELECTION CRITERIA FOR INDEPENDENT CONSULTANT
	O	TERMS OF REFERENCE OF INDEPENDENT CONSULTANT
	P	TRAFFIC SAMPLING
	Q	ESCROW AGREEMENT
	R	STATE SUPPORT AGREEMENT
	S	SAFETY REQUIREMENTS
	T	CRITERIA FOR LIST OF CHARTERED ACCOUNTANTS
	U	SUBSTITUTION AGREEMENT
	V	VESTING CERTIFICATE
	W	PASSENGER CAR UNIT FACTORS
	X	REPORTING AND RECORD REQUIREMENTS

SCHEDULE A1

SITE OF THE PROJECT

1. GENERAL

National Highway No.5 is one of the major arteries of the road network system of the country connecting the port city of Chennai with Kolkatta. It traverses through four states namely, Tamil Nadu, Andhra Pradesh, Orissa and West Bengal. It connects number of major urban centre like Nellore, Ongole, Vijayawada, Visakhapatnam, Berhampur, Bhubaneswar and Kharagpur on its way from Chennai to Kolkatta. In order to provide better level of service to the vehicular traffic it has been decided to augment the capacity of Tada-Nellore section of NH-5 from km 52.800 to km 163.600 in Andhra Pradesh by widening the existing 2-lane to 4-lanes divided carriageway, including strengthening of the existing 2-lanes on Build Operate and Transfer (BOT) basis.

The project highway starts from km 52.800 near the Tamil Nadu/Andhra Pradesh border, traverses in the northern direction and ends at km 163.600 at the beginning of the proposed Nellore bypass. The index plan of the project highway is shown in figure A-1. The 0 (zero) kilometer of NH-5, Chennai-Kolkatta section starts at Chennai.

2. DESCRIPTION OF PROJECT ROAD

2.1 Road Inventory

The project alignment runs north from Tamil Nadu/Andhra Pradesh Border (km 52.8) to Nellore (km 163.6) along the coastal plain approximately 25 km inland. The horizontal geometry of the existing road is generally acceptable for the proposed design speed of 100 kph, however there are a number of areas where local curve improvement will be necessary. The project area, being a coastal plain is very flat and there are no difficulties in providing appropriate stopping sight distances. Parts of the alignment are in low-lying areas.

A number of bypasses already exist i.e. Sulurpet km 77-79, Naidupet km 103.4-114, Gudur km 132.8 -136.6 and Manubolu km 139.3-141.5. Other features occurring along the alignment are the proximity of the railway, a toll station at km 75 which collects revenues for crossing a number of bridges in Andhra Pradesh, and a check post at km 63 where checks are made on interstate vehicle movement.

The soils are predominantly cohensionless with high dry densities after insitu compaction. Along the project highway there are 10 junctions of significance. The height of embankment varies between 0 to 6 m near the approach to ROBs.

2.2 Land Details

Land width of 40 m in urban stretches and 50 m in rural stretches is being acquired. Table A-1 below shows the availability of land in various rural/urban stretches along the Project Highway.

Table A-1 : Land width in urban and rural stretches of Project Highway

S. No.	Proposed Chainage		Total Land width	Type of Stretches Urban / Rural
1	54.6	59.5	50	Rural
2	59.5	61.4	40	Urban
3	61.4	65.9	50	Rural
4	65.9	69.0	40	Urban
5	69.0	81.2	50	Rural
6	81.2	81.5	40	Urban
7	81.5	132.6	50	Rural
8	132.6	133.8	40	Urban
9	133.8	156.1	50	Rural
10	156.1	157.6	40	Urban
11	157.6	163.6	50	Rural

2.3 Traffic

Table A-2 : Traffic Forecast on Tada - Nellore section on NH-5 during 1999 - 2035

S. No.	Category	Year							
		1999	2005	2010	2015	2020	2025	2030	2035
NELLORE-TADA SECTION ON NH5									
1.	Nellore (Ch. 163/200)								
	Vehicle	9678	14701	20918	29903	42956	62034	90083	131579
	PCU	22628	33366	46181	64035	88944	123800	172720	241565
2.	Gudur (131/600)								
	Vehicle	7324	11082	15721	22403	32086	46197	66887	97436
	PCU	18168	26754	36990	51215	71038	98710	137430	191808
3.	Naidupet (105/000)								
	Vehicle	5593	8284	11512	16020	22335	31201	43680	61294
	PCU	15583	22876	31525	43458	59952	82754	114310	158029

Table A-3 Observed Traffic Volume on Project Highway during December 1999

Mode of Traffic	105/200 (Naidupet)	131/600 (Gudur)	163/200 (Nellore)
Old Tech. Car/Jeep/Van	310	839	1023
New Tech. Car/Jeep/Van	420	497	650
Auto-Rickshaw	30	84	219
Scooter/Motor-Cycle	177	954	1285
Mini-bus	44	87	39
Buses	618	898	1094
Tempo/L.C.V.	208	292	292
Ordinary Trucks 2-Axle	4519	3639	4247
3-Axle & Above	544	601	639
Tractor	15	27	51
Tractor with Trailor	29	74	138
Cycle	103	206	594
Cycle-rickshaw	4	25	51
Hand-cart	2	1	3
Animal-drawn	10	4	7
Others	17	5	5
Grand total	**5970**	**7849**	**10338**
PCU total	**16404**	**19375**	**23123**

Cross pedestrian traffic is predominant in the urban stretches and specially near intersections.

2.4 Pavement Composition and Condition

Pavement Condition Survey

The pavement condition assessment data was collected in the form E2 that was included in the QAP document. These data are presented in Appendix A5.2 as a separate Annexure B of the Final Feasibility Report. The referencing for this assessment is the same as the Road Inventory and the data collected includes :

- Visual Riding Quality
- Surface Type
- Cracking Area
- Pot Holed Area
- Raveled Area
- Pavement Edge Fretting
- Shoulder Condition

The information was collected in the form of percentage area cracking, pot-holed and raveled pavements, and pavement edge fretting by length (m).

The data collected in the condition survey had been processed and road segments of more or less equal performance identified using the criteria given in IRC 81-1999.

Pavement Roughness

The roughness survey was carried out by using the fifth wheel Bump Integrator by the Highway Research station, Chennai after calibration. The data was recorded during four runs (two in each direction) for each km of the road and the data processed and the BI value, for the average of the 4 runs furnished by HRS by km. The results of the survey are expressed in terms of BI and IRI and presented in tabular form. The processed data was analysed using the cumulative difference approach to identify homogeneous road sections with respect to surface roughness and presented in Appendix A5.3 of the Final Feasibility Report.

Between km 100 and 120, road improvement works are being carried out under separate Contract. The first 4-km had recently been completed and included in the survey however it was not possible to survey the remainder of this section due to the road works.

The average IRI for each of the sections considered for economic evaluation was between 4.32 and 5.2 with the exception of the recently completely road improvement between km 100 and 104 which had an IRI of 2.78. These values are used as in input to the HDM model. For the Section between km 104 and 120 currently under construction an IRI of 2.78 is assumed being that recorded for 4 kms of road improvement recently completed.

Pavement Structural Strength

The structural strength survey was carried out using a Benkelman Beam in accordance with the procedure given in IRC 81-1997.

Tests were carried out at 500 m intervals on each side of the road, 0.9 m from the edge of the pavement. Initially sections where the pavement was considered to have failed were not tested however subsequently a second survey was carried on these areas in order that a complete record was available for the pavement design. No testing was carried out however between km 100 and 120 which is currently being improved under a separate contract.

The results of the Benkleman beam tests are given in Appendix A5.3 of the Final Feasibility Report and include the measured deflection, pavement temperature, natural moisture content, type of subgrade soil, PI value, corrected temperature, seasonal correction and the corrected deflection.

Pavement Composition

Trial pits were dug at 500m intervals on alternate sides of the existing road. The pits were 50+50cm taken at the junction of the pavement and the shoulder and excavated to subgrade level. Each pavement layer was recorded by thickness and type. The subgrade type was recorded and classified in accordance with IRC 1498-1970. The results of this survey are included in Appendix A5.3 of the Final Feasibility Report prepared by the Consultants (SWK).

Sub-grade Characteristics

Trial pits one metre square was excavated in the hard/earth shoulder to subgrade level adjacent to the carriageway at 5-km intervals. The exposed surface was leveled and field density and dynamic cone penetrometer tests carried out in each test pit. The Dynamic Cone Penetrometer (DCP) testing was carried out using TRL type equipment and 20 blows were applied with three replications carried out at each test pit. Field moisture tests were carried out at each location. The results of the DCP, field density and moisture content testing are given in Appendix A5.3 of Final Feasibility Report prepared by the Consultants (SWK).

From each trial pit a 50-kg. disturbed sample was collected for subsequent laboratory testing which included :

Proctor density
CBR at three energy levels
Swell test
Atterberg Limits
Grain size analysis

The complete range of tests has currently been carried out for all the location and the results of which are included in the Materials Report submitted by the Consultants (SWK) along with the PPR for Package B and C.

2.5 Drainage

There is no significant drainage system along the existing Project Highway. Adequate care must be taken in doing the detailed design of the drainage system along the highway.

2.6 Road Geometry

The horizontal geometry of the existing road is generally acceptable for the proposed design speed of 100 kph, however there are a number of areas where local curve improvement will be necessary .

2.7 Abutting Landuse

The project highway is characterised by mainly agricultural lands. Only at the urban locations there is a commercial activity along the highway but this is only for a short distance. The Appendix B of the Final Feasibility Report contains the details of road inventory and condition survey.

2.8 Cross Drainage Structure

Culverts

The culvert inventory and condition survey was carried out between 3rd and 7th February 2000. The number and type of culverts along the project road occurring in Andhra Pradesh are given in Table A-4 below.

Table A-4 : Numbers and types of Culvert

Description	Total
Slab Culvert	117
Pipe Culvert	85
Total	**202**

Various details pertaining to the culverts were collected including type, location, general condition, span, length, etc., The general purpose of the culverts was considered to be the provision of a crossing for the irrigation streams and drainage. In a few cases it has been to facilitate the crossing of pipelines. The majority of the culverts have been neglected and not received routine maintenance consequently they were found to be heavily silted and in some cases inhibited the flow. General defects that were observed, were erosion of the bed, leaching of abutment walls, edge breaking of slabs, corrosion of reinforcement, obstruction of the vent due to the growth of vegetation, etc., The detailed findings of the inventory and condition survey are provided in Appendix A5.6 of the Final Feasibility Report submitted by the Consultant (SWK).

Bridges

A detailed bridge inventory and condition survey was carried out on all the bridges between km 52.8 to km 163.6. The site survey has revealed the following details and are indicated in Table A-5

Table A-5 : List of Bridges along the Project Highway

Details	Numbers
Number of Bridges	40
Number of ROBs	2
Major bridges (including ROB)	8
Minor Bridge	34

The most commonly observed distress in RCC bridges is as follows :

(i) Cracking, cracks could be of different types
(ii) Scaling
(iii) Spalling of concrete
(iv) Leaching
(v) Rust stains
(vi) Delamination
(vii) Deformation

Visual observations carried out during the condition survey were mainly made to find out the above listed distresses. In addition to the superstructures, the masonry substructure was inspected to locate cracks and loose mortar in joints specially for pier and abutments. The wing walls and the return walls were inspected to locate any separation of these from the abutment. Any unusual differential settlement which gives rise to cracks in the return or wing walls were looked for.

The details of inventory and condition survey are enclosed in the Final Feasibility Report Appendix A5.4.

2.9 Existing Facilities

The Andhra Pradesh State Road Transport Corporation has developed bus stops along the highway, but these bus stops have to be re-located due to the four laning of the existing highway. There are a total of 39 bus stops along the project highway.

A number of Petrol pumps are also along the project highway. The list of petrol pumps along the project highway is indicated in Table A-6 below :

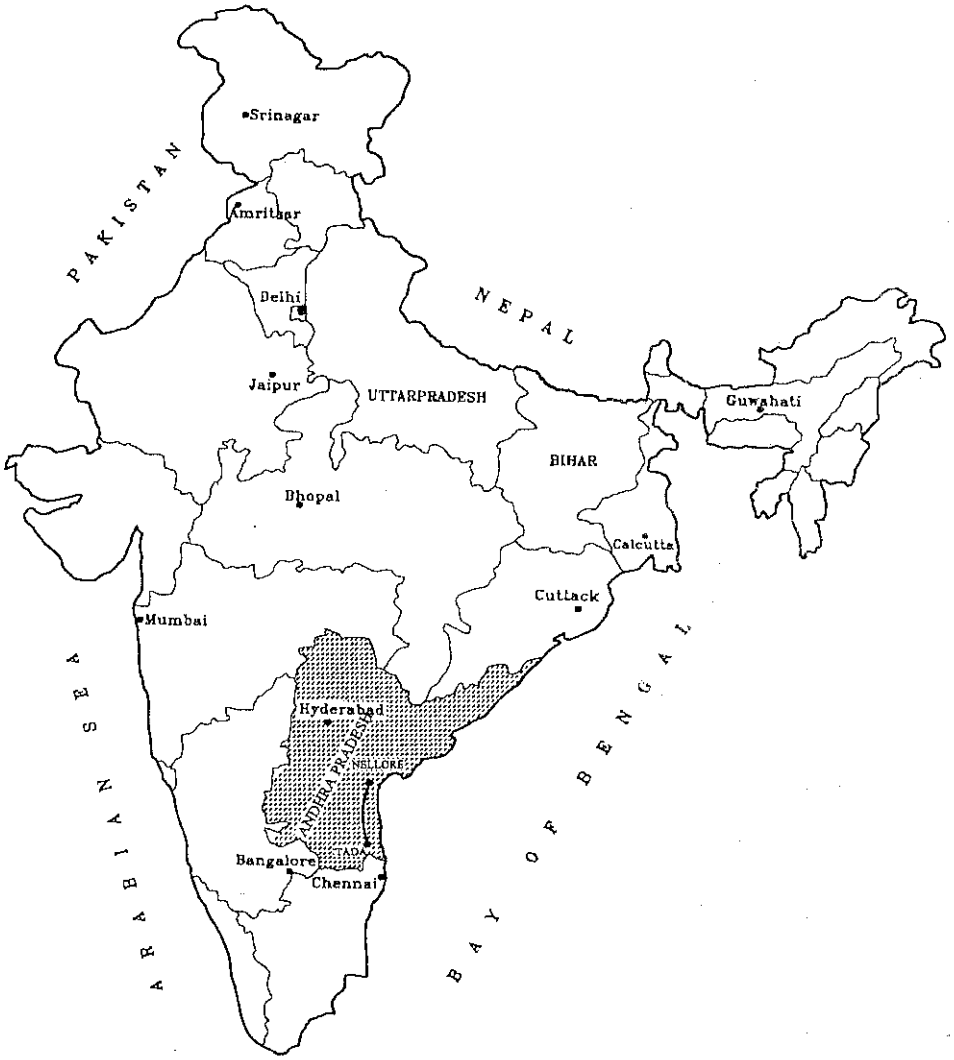
Table A-6 : List of Petrol Pumps along the Project Highway

S.I. No.	Location of Petrol Pumps (Km) Existing (Km)	Adjoining Settlement (Name of Village)
1	61.6	Tada
2	64.0	Tondur Society
3	66.6	Tada
4	74.2	Pulivendra
5	77.4	Pulivendra
6	80.6	Kotapolur
7	82.4	Nadanavari Kandriga
8	89.6	Akkrapakam
9	92.6	Doravarichatram
10	104.8	Naidupet
11	105.0	Naidupet
12	114.0	Vengamamba Puram
13	120.1	Raju Palem
14	120.4	Kadivedu
15	129.7	Chillakuru
16	132.5	Gudur
17	132.6	Gudur
18	141.8	Manubolu
19	141.8	Manubolu
20	143.3	Manubolu
21	143.6	Bandepalli
22	152.1	Anupalle Padu
23	155.6	Kanupura
24	162.8	Chemudugunta
25	163.1	Chemudugunta

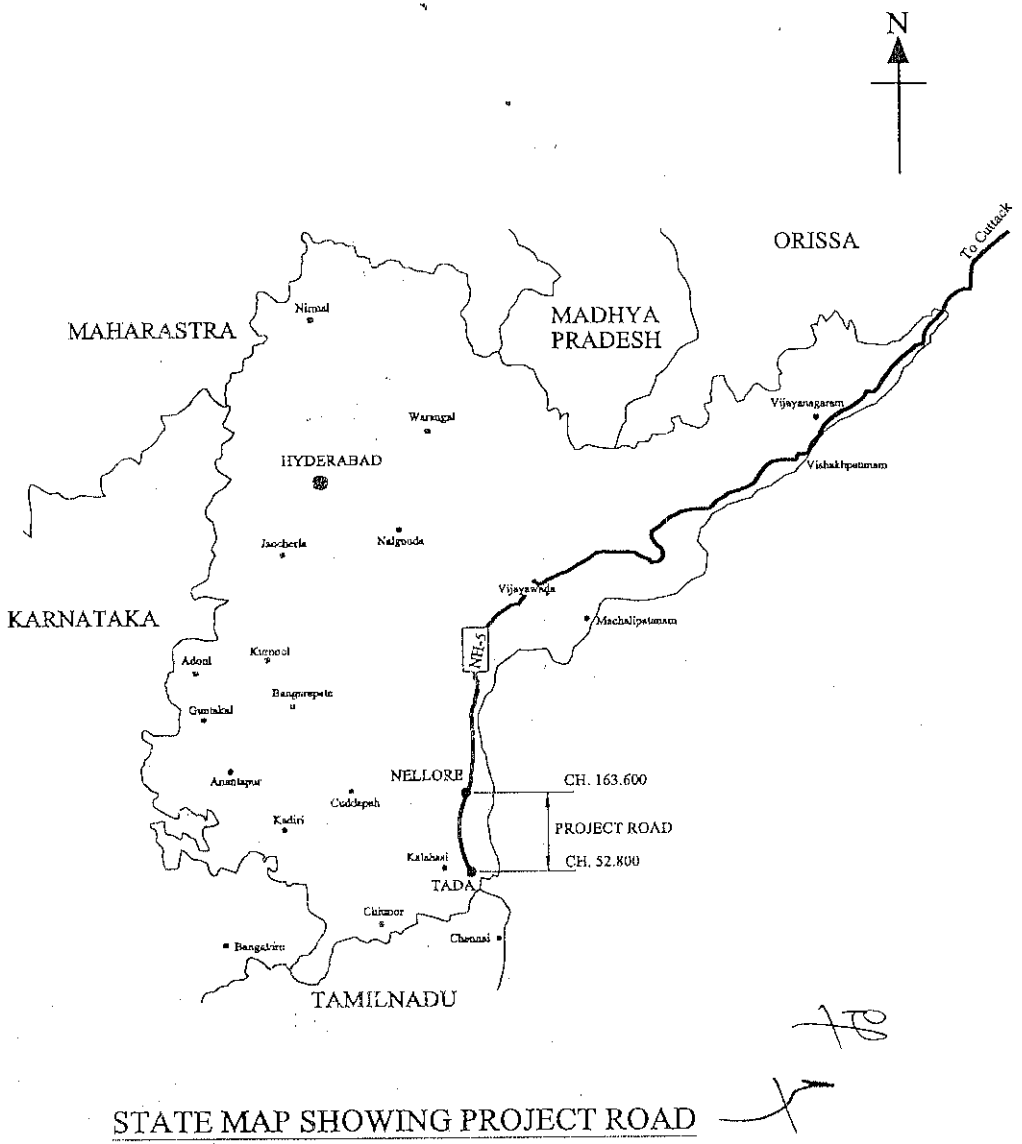
There are no significant dhabhas along the project corridor. There are small hotels along the project highway details of which are indicated in table A-7 below. There are few telephone STD booths generally in the urban stretches.

Table A-7 List of Dhabhas along the Project Highway

SI. No.	Name of Village	Location of Dhabhas (Km) Existing (Km)
1	Ramapuram	55.2
2	Doravarisatram	94.0
3	Budanam	123.4
4	Manubolu	141.0
5	Bandepalle	144.7



INDIA MAP SHOWING PROJECT ROAD



STATE MAP SHOWING PROJECT ROAD

FIGURE A-1 INDEX PLAN FOR TADA - NELLORE

(NH-5)

SCHEDULE A2

SITE OF THE PROJECT

1. GENERAL

National Highway No. 9 takes off from NH4 at Pune in the State of Maharashtra and after passing through Hyderabad, the capital city of Andhra Pradesh, joins NH5 at Vijayawada. It passes through the districts of Sangareddy, Hyderabad, Nalgonda and Krishna. Thus, it is an important National Highway, which connects two major National Highways, Nos 4 & 5, and also connects Hyderabad with Vijayawada, the two largest towns of Andhra Pradesh, one the State Capital and the other a big commercial and business centre.

The distance from Hyderabad to Vijayawada is 270 km. But in this project, four laning of the reach from km 217 (Nandigama) to km 252.00 (Ibrahimpatnam) only has been included. However, CIDBI shall operate, maintain and collect toll on recently four laned reach from km 252.00 (Ibrahimpatnam) to km 265 (Vijayawada).

This stretch of road passes through the agricultural belt of the State. The terrain is generally plain and the gradients are flat. The area is predominantly black cotton soil and is rich and fertile.

At the stretch between km 242 to km 252, there are hillocks on the left side of the road, slightly away from the main road, where good quality hard rock is available. As such, a number of stone crushers have been established all along this stretch of the road on both the sides.

There is a major river Muniveru, crossing the National Highway in km 226.

River Krishna is running almost parallel to the National Highway.

Index Map is enclosed at Annex-A2.

2. DESCRIPTION PROJECT HIGHWAY

2.1 Road Inventory

The Project Highway from km 217 to km 252 has been strengthened to have a carriageway width of 7.0 m with 1.5 m wide paved shoulder on either side under National Highways Project under loan assistance of ADB (Loan No. 1274-IND). This work has been completed in October 2000.

2.2 Land Details

The available ROW along the Project Highway is detailed at Annex-B.

2.3 Traffic

The Average Daily Traffic flow (both directions) at Ibrahimpatnam in Vijayawada-Nandigama Section on the basis of special classified volume count undertaken by CIDBI for a continuous period of 7 days was of the order of 12,440 vehicles (26,847 PCUs). Traffic flows are mainly heterogeneous in nature primarily dominated by goods traffic. The share of multi-axle vehicles with goods traffic was 6%. Average Annual Daily Traffic (AADT) by using seasonal factor for December was estimated as 13,945 vehicles (30,202 PCUs). The traffic forecasts based on estimated growth rates are detailed below :-

Category	Year							
	1999	2005	2010	2015	2020	2025	2030	2035
Vehicles	13023	21218	31322	46520	69534	101180	147950	217463
PCUs	29004	44971	63797	90729	129400	180700	252930	354962

2.4 Pavement Composition Of Existing Two Lane Carriageway

Recently, the existing two lane carriageway has been brought to 7 m width (with GSB-300 mm; WMM-300 mm) strengthened with 130 mm DBM + 40 mm BC after PCC. Hard shoulders to 1.5 m width on either side have been provided with a crust of 300 mm GSB + 430 mm WMM + 40 mm BC. Soft shoulders of 1.0 m width on either side have been provided.

2.5 Drainage

The road side drainage along the Project Highway has been improved. In urban areas drains and paving of open areas have been provided. The reaches where overtopping was experienced have been raised.

2.6 Road Geometry

The alignment of the Project Highway in some stretches is straight but in a major portion, there are a number of curves. All the curves have been improved to conform to acceptable geometric standards in terms of super elevation, sight distance and radius of curvature except in Paritala Village.

2.7 Abutting Land use

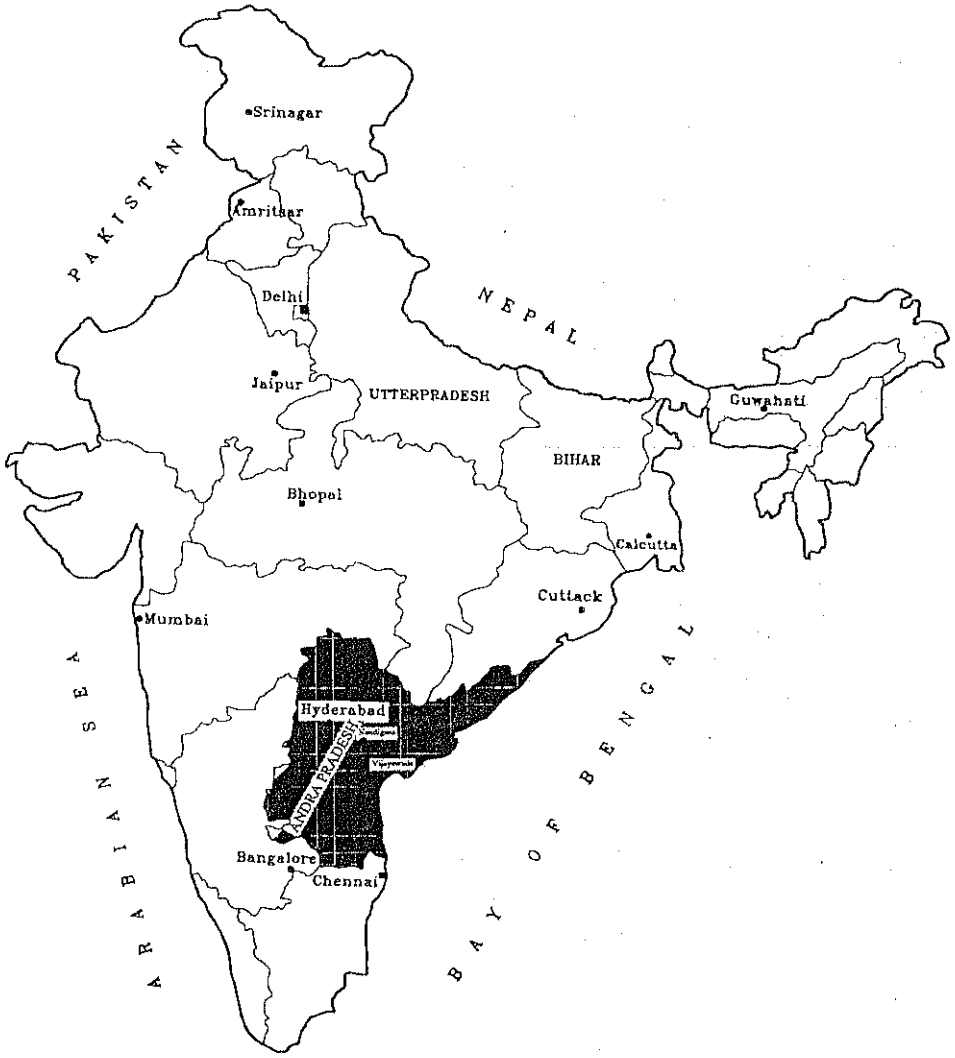
The project highway is characterised by a mix of ribbon development and agricultural lands.

2.8 Cross Drainage Structure

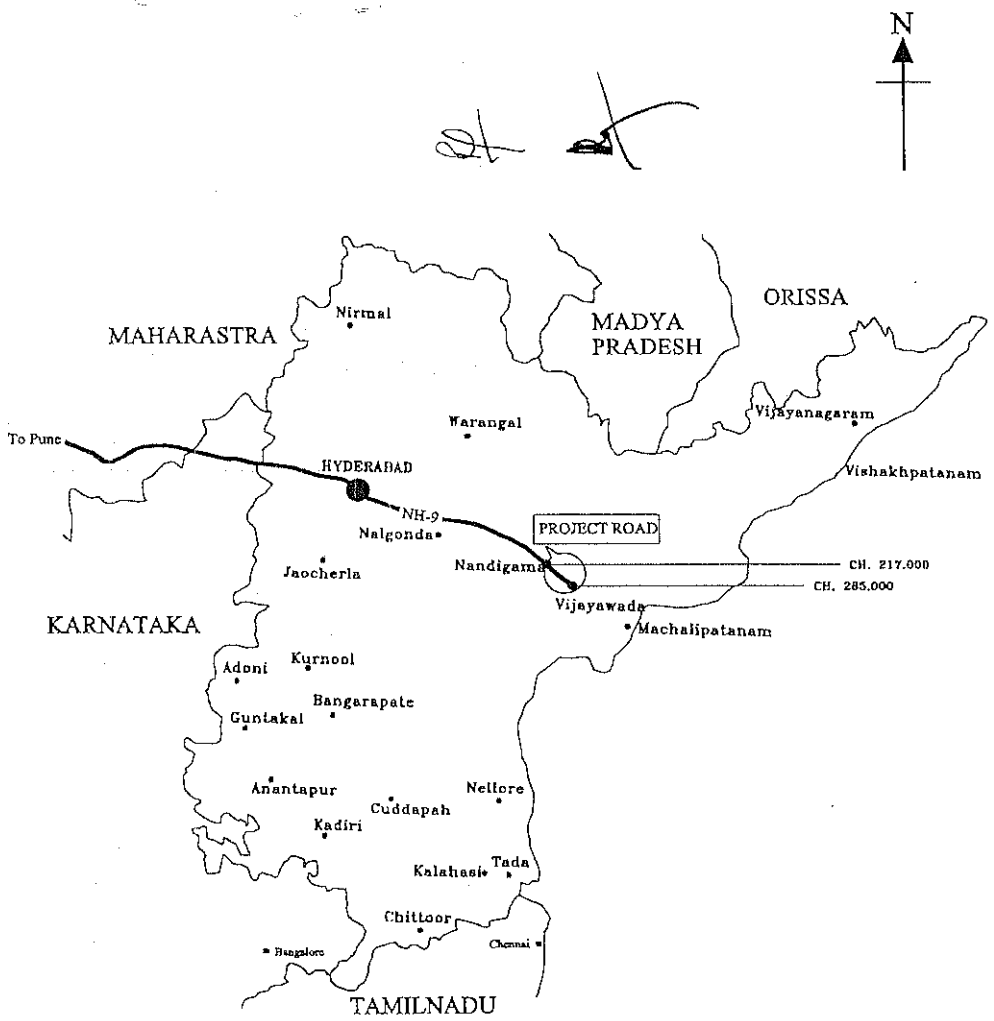
There are 72 cross drainage structures along the Project Highway, out of which 2 are major bridges 5 are minor bridges and remaining 65 are culverts. The location and span of major and minor bridges are given below :-

MJB No. 226/1 (km 226-10V x 46.30 m) and 241/1 (km 240.060-5V x 16.45 m)

MNB No. 231/1 (km 230.365-1V x 10.5 m); 234/1 (km 233.220-3V x 5.78); 247/1 (km 246.020-4V x 5.2); 248/1 (km 247.450-3V x 5.36) and 252/2 (km 251.640-2V x 5.2)



INDIA MAP SHOWING PROJECT ROAD



STATE MAP SHOWING PROJECT ROAD

FIGURE A-2 INDEX PLAN FOR VIJAYAWADA - NANDIGAMA (NH-9)

SCHEDULE B1

SCOPE OF THE PROJECT

1. GENERAL

The following sections of this schedule briefly highlight the scope of the work of the Project Highway. The description of the requirements for the various elements of the Project Highway given herein under are the minimum requirements that the Concessionaire needs to undertake/provide for improvement of the same.

2. THE PROJECT HIGHWAY

The Consultant (SWK) on behalf of NHAI for the above section has carried out the detailed design. The Concessionaire is at the liberty to use his own design but the basic requirements of the design to IRC and MOST specifications have to be adhered to. The Concessionaire shall prepare the working drawings for all the components relevant for the improvement and upgradation of the Project Highway. The maintenance of the different elements of the Project Highway and facilities thereon shall follow the minimum maintenance requirements as described in Schedule L. All the designs and drawings which are in deviation from the one produced by NHAI shall be reviewed by the Independent Consultant prior to execution.

2.1 CORE CONSTRUCTION REQUIREMENT

2.1.1 In the planning, design and execution of the works and other works in connection with the repair, maintenance or improvement of the Project Highway and functions associated with the construction of the Project Highway and roadside facilities, the Concessionaire shall take all such actions and do all such things (including, but not limiting to, organizing itself, adopting measures and standards, executing procedures, including inspection procedures and highway patrols, and engaging and managing contractors, agents and employees) as will:-

a. enable the NHAI to provide an acceptably safe highway in respect of its condition (structural safety) and use (road safety); and

b. enable the NHAI to fulfill its statutory and common law obligations; and

2.1.2 enahle the NHAI to provide a congestion free uninterrupted flow of traffic on the Project Highway.

2.1.3 enable the NHAI to provide a level of highway service to the public not inferior to that provided on the trunk road during construction or improvement works;

2.1.4 enable the police, local authorities, and other with statutory duties or functions in relation to the Project Highway or adjoining roads to fulfil those duties and functions;

2.1.5 minimise the occurrence and adverse effects of accidents and ensure that all accidents and emergencies are responded to as quickly as possible;

2.1.6 minimise the risk of damage, destruction or disturbance to third party property;

2.1.7 ensure that members of the public are treated with all due courtesy and consideration;

2.1.8 provide a safe, clear and informative system of road signs;

2.1.9 comply with any specified programme requirements, including for the completion of the new road;

2.1.10 enable standards of reliability, durability, accessibility, maintainability, quality control and assurance and fitness for purpose appropriate to a highway of the character of the Project Highway to be achieved throughout the Contract Period;

2.1.11 ensure adequate off-street parking facilities such as rest areas and truck lay bys for both passenger and goods vehicles;

2.1.12 provide adequate bus bays for stopping of buses and bus shelters for commuters to wait under protection; and

2.1.13 achieve a high standard in the appearance and aesthetic quality of the Project Highway and achieve integration of the Project Highway with the character of the surrounding landscape through both sensitive design and sensitive management of all visible elements including those on the existing road.

2.2 Cross Sections

The project highway shall be widened to have a 4 lane divided carriageway facility. The details of type of cross-section shall be to IRC and MOST requirements and specifications.

The detailed design for the main carriageway, service roads and important junctions must be carried out. The horizontal and vertical controls are to be governed by the IRC and MOST specifications and requirements. The length and locations of the services road will be as per the table below :-

Item No.	Element	Location	Unit	Qty
1	Service Road	LHS of km 55.300 - km 56.050 (750 m) RHS of km 55.300 - km 56.150 (850 m) LHS of km 59.100 - km 59.725 (625 m) RHS of km 59.250 - km 59.825 (625 m) LHS of km 65.000 - km 66.250 (1250 m) RHS of km 65.350 - km 66.800 (1450 m) LHS of km 74.350 - km 75.750 (1400 m) LHS of km 93.475 - km 94.250 (775 m) LHS of km 131.225 - km 132.475 (1250 m) RHS of km 131.425 - km 132.450 (1025 m) RHS of km 136.225 - km 137.200 (975 m) RHS of km 155.200 - km 155.950 (750 m) LHS of km 162.250 - km 163.100 (850 m) RHS of km 162.850 - km 163.000 (450 m)	Km	14

The utility service including optical fibre cable layout plan has been prepared by the Consultant (SWK) which has been confirmed with the electrical and telephone authorities.

2.3 Pavements

2.3.1 Flexible Pavement

A number of different pavement design methods were analysed as indicated in Table B-2 below :

Table B-2 Pavement Design Methods

Pavement Design	Design Type	Design Method
1	Overlay design	IRC:81-1997, TRRL 833, AASHTO Design Manual, Analytical Empirical Design
2	Flexible pavement rehabilitation	IRC:37-1999, approved draft, AASHTO Design Manual, Analytical Empirical Design RN 31, extrapolated
3 + 4	New rigid pavements	IRC:58-1988, AASHTO Design Manual, Cement Manufacturers' Association Method, PCA design method

2.3.2 The recommended design is suggested based on the above methods and for a design life of 20 years but from practical consideration it appears appropriate to reduce the thickness from 230 mm to 220 mm for section km 110.0 to km 134.4 (existing) and from 210 mm to 200 mm for section km 52.8 to km 66.1 (existing) thus reducing the design life slightly to 18 years. For other sections the design life is of 20 years.

The recommended design are shown in Table B-3

Table B-3 Pavement Composition for Project Highway

Designation of Pavement Layer	Main Carriageway		Service Road
	Km 52.8 - 110	Km 110 - 163.6	
Asphalt Concrete	50 mm	50 mm	40 mm
Dense Bituminous Asphalt	160 mm	180 mm	
Bituminous Macadam			50 mm
Wet Mix Macadam	250 mm	250 mm	200 mm
Granular Sub-base	180 mm	180 mm	100 mm
Subgrade (CBR ≥ 6%)	500 mm	500 mm	500 mm

2.3.3 Overlay Design

A number of methods were studied for the overlay pavement design and recommended design is based on the mean of the values obtained from all the methods as the variation in thickness were minimal.

The recommended designs (values rounded to nearest cm) are shown in Table B-4.

Table B-4 Recommended Overlay Design

From km	To km	Length km	Required overlay mm
52.8	66.1	13.3	130
66.1	110.0	37.8	140
120.0	134.4	14.4	160
134.4	163.6	29.2	170

The section km 110- 120 is presently being strengthened. According to the Specification the strengthening is based on Benkelman Deflections and a projected traffic of 168 million ESALs, using IRC 81. As the traffic projection is higher than our projection, there is no need for additional strengthening.

The methodology adopted for the pavement design can be obtained from the PPR report submitted by the Consultants (SWK).

2.3.4 Rigid Pavement Design

The design for rigid pavement was based on various methods and the recommended design to be adopted at the Toll areas, Check post and the Truck lay bys are as indicated in Table B-5.

Table B-5 Rigid Pavement Composition for Project Highway

Designation of Pavement Layer	Check Post, Toll Area & Truck Layby	
	Km 52.8 - 110	Km 110 – 163.6
Dowelled PCC	270 mm	280 mm
Lean concrete sub-base	100 mm	100 mm
Subgrade (CBR > 6%)	500 mm	500 mm

2.3.5 Joints

Contraction joints with dowel bars shall be provided.

2.4 Geometric Improvements

2.4.1 Complete geometric improvement must be carried out and the horizontal and vertical alignments shall conform to IRC and MOST specifications and requirements.

2.4.2 Trees with large girth and of high social significance, which are being affected due to the improvement of road, should be considered for transplantation and transplantation will be the responsibility of NHAI.

2.5 Slope Protection and Drainage

The improvements in the drainage and the slope erosion shall be made as per the requirements of IRC and MOST specifications.

2.5.1 Drainage Measure

Following drainage measure has been adopted in the design:-

- Side ditches of full width on both sides of carriageway in rural section
- Covered pucca drains underneath the side walk in the urban sections
- Covered pucca drains underneath the median between main carriageway and service road in the urban sections;
- Chute drains along with shoulder drains in high embankment (3m and above);
- Median drains at super elevated sections; and
- Covered pucca drains underneath the side walk of proposed facility (bus bays, truck laybys etc.) in rural sections

2.5.2 Protection Measures

Following measures has been adopted

- Side slopes of embankment 3 m or high shall be protected by turfing or stone pitching at high water table areas.
- Embankments less than 3 m in height shall be turfed.

2.6 Traffic Signage and Pavement Markings

2.6.1 Traffic signs and pavement markings shall include roadside signs, overhead signs, kerb-mounted signs and road markings along the Project Highway. The design and marking for the Project Highway shall be as per the design standards indicated in Schedule D. The locations for various treatments shall be finalized in consultation with the Independent Consultant.

2.6.2 The overhead signs shall be the reflectorised types with high intensity retroreflective sheeting of encapsulated type. The height, lateral clearance, location and installation shall be as per relevant clauses of MOST specifications and drawings. Overhead signs, shall be installed ahead of major intersections, toll plazas, rest places and limits of urban areas.

2.7 Kilometer Stones, Hectometer Stones and Boundary Stones

The following shall be provided on the Project Highway as per the standards spelt out in Schedule D.

i. Kilometer Stones

Kilometer stones shall be provided and scripted as per IRC standard for National Highways.

ii. *Hectometer Stones*

Hectometer stones at every 200 m interval shall be provided on the Project Highway as per IRC standard for National Highways.

iii. ***Road land boundary stones***

Road land boundary stones shall be provided on the Project Highway as per IRC standard for National Highway to demarcate the road land boundary.

The installation and scripting on kilometer and hectometer stones shall be done in consultation with the independent Consultant.

2.8 Pedestrian Guard Rail and Safety Barrier

Pedestrian Guard Rail and Safety Barrier shall be provided in consultation with the Independent Consultant observing the following criterion.

i) Pedestrian guard rail shall be provided at places where pedestrian activity is high, intersections mentioned in Table B-6 and bus bay mentioned in Schedule-C.

ii) Safety barriers shall be provided at locations of bridge approaches and high embankments (3m and above)

iii) Kerb median shall be provided at places where median width is 1.5 m and also in the lengths where median tapers from 4.5 m to 1.5 m.

2.9 Intersections

The following are the locations for the major junctions to be improved along the project Highway. The improvements have to be carried out as per the IRC and MOST specification.

Table B-6 Location of Intersection

Location	Proposed (Km)
Kodalur	77.716 (L)
Sulurupet Market	78.886 (R)
Srikalahasthi Road	80.238 (L)
Naidupet	106.193 (R)
Naidupet	106.292 (L)
Sulurupet - Sriharikota Jn	81.050 (R)
Ojili	120.126 (R)
Vidya Nagar	120.334 (R)
Gudur	133.938 (L)

Note : R or L indicates Right or Left side while travelling from Tada to Nellore.

The treatment at the intersections shall be in accordance with the latest IRC/MOST guidelines spelt out in Schedule D.

2.10 Cross – Drainage Structures

2.10.1 Culverts

All the cross-drainage structures shall be designed in accordance with the design standards set in Schedule D. All the cross drainage structures for the new carriageway shall be designed for 3 lane capacity. The details of recommended improvements for culverts have been dealt in the PPR report of the Consultants (SWK)

2.10.2 New Bridges

There are forty-two bridges out of which forty bridges are across rivers/streams and two across the railway tracks. All the new bridges shall have the width for three-lane and the existing bridges have to be retained after necessary repair and rehabilitation.

The rivers are both major and minor. The streams cater for the storm water flow from the nearby agricultural fields or open land.

2.10.3 Underpasses

To cater for the pedestrian crossings the main carriageway underpasses have been proposed at various locations as detailed in Schedule C.

These underpasses will have a clear span of 6.00 m with a vertical clearance of 2.5 m. Approach embankments on the main carriageway at pedestrian underpasses will be supported by reinforced earth retaining walls in order to minimise land acquisition.

2.10.4 Geotechnical Investigation

Complete Geotechnical Investigation has been carried out at the bridge locations. These details are available with the Client. However, if the Concessionaire wants he can carry out his own investigation with prior approval from the Independent Consultant.

2.10.5 Existing Bridge Rehabilitation

In all there are thirty-nine bridges and two ROB along the project highway. Non-structural defects such as damage to the handrail, development of potholes in wearing coat and damage to the expansion joint have been observed in almost all bridges. In addition structural defects have also been observed in some of the bridges. In order to identify the defects detailed inspection will be carried out using M.B.I.U.

As per MOST's circular all bridges are to be provided with the crash barrier. Hence it is proposed to replace all existing bridge handrails which are structurally unsafe with crash barriers. It has also been recommended to replace expansion joints and lay a new wearing coat at all bridge locations.

SCHEDULE B2

SCOPE OF THE PROJECT

1. GENERAL

The following sections of this schedule, briefly highlight the scope of the work of the Project Highway. The description of the requirements for the various elements of the Project Highway given herein are the minimum requirements.

2. THE PROJECT HIGHWAY

CIDBI shall carryout engineering surveys, investigations and detailed engineering designs and prepare the working drawings for all the components relevant for the improvement and upgrading of the Project Highway to fulfil the scope of the project as envisage hereinunder. The designs shall comply with design, specifications and standards outlined in Schedule D. The maintenance of the different elements of the Project Highway and facilities thereon shall follow the minimum maintenance requirements as described in Schedule L. All the designs and drawings shall be reviewed by the Independent Consultant prior to execution.

2.1 CORE CONSTRUCTION REQUIREMENT

2.1.1 In the planning, design and execution of the works and other works in connection with the repair, maintenance or improvement of the Project Highway and functions associated with the construction of the Project Highway and roadside facilities, CIDBI shall undertake to fulfill its obligations, including, but not limited to, organizing itself, adopting measures and standards, executing procedures, including inspection procedures and highway patrols, and engaging and managing contractors, agents and employees as will :

a. enable the NHAI to provide an acceptably safe highway in respect of its condition (structural safety) and use (road safety); and

b. enable the NHAI to fulfil its statutory and common law obligations

2.1.2 Enable the NHAI to provide a congestion free uninterrupted flow of traffic on the Project Highway;

2.1.3 Enable the NHAI to provide a level of highway service to the public not inferior to that provided on the trunk road during construction or improvement works;

2.1.4 Enable the police, local authorities, and other with statutory duties or functions in relation to the Project Highway or adjoining roads to fulfil those duties and functions;

2.1.5 Minimise the occurrence and adverse effects of accidents and ensure that all accidents and emergencies are responded to as quickly as possible;

2.1.6 Minimise the risk of damage, destruction or disturbance to third party property;

2.1.7 Ensure that members of the public are treated with all due courtesy and consideration;

2.1.8 Provide a safe, clear and informative system of road signs;

2.1.9 Comply with any specified programme requirements, including for the completion of the new road;

2.1.10 Enable standards of reliability, durability, accessibility, maintainability, quality control and assurance and fitness for purpose appropriate to a highway of the character of the Project Highway to be achieved throughout the Contract Period;

2.1.11 Ensure adequate off-street parking facilities for both passenger and goods vehicles;

2.1.12 Provide adequate bus bays for stopping of buses and bus shelters for commuters to wait under protection; and

2.1.13 Achieve a high standard in the appearance and aesthetic quality of the Project Highway and achieve integration of the Project Highway with the character of the surrounding landscape through both sensitive design and sensitive management of all visible elements including those on the existing road.

2.1.14 Undertake proper safety audit through Independent Consultant before COD.

2.1.15 Carry out accident recording and reporting (to Independent Consultant/NHAI) by type on regular basis.

2.1.16 Ensure adequate safety to the Project workers on the work site.

2.2 Cross Sections

The Project Highway shall be widened to have a 4 lane divided carriageway facility including construction of all cross drainage works (major/minor bridges and culverts) and development of at grade intersections. Typical cross sections enclosed shall be followed along with the minimum construction criterion, mentioned below for the development of the Project Highway. The road level of the new carriageway shall be the same as that of the existing carriageway road level modified for providing unidirectional camber. It is preferable to construct new two lanes eccentric to existing 2 lanes either on LHS or RHS for widening should be on the basis of extent of shifting of utilities viz electrical, telephone, water mains, etc., cutting of trees, problems involved in land acquisition, etc and based on siting of new bridges). New bridges to be constructed shall have the width for two-lane carriageway.

Reach		Propose Location of new two lanes w.r.t. existing two lanes
From	To	
Km 217	Km 221	Bypass to Nandigama Town on RHS
Km 221	Km 222.7	LHS
Km 222.7	Km 225.1	RHS
Km 225.1	Km 226.3	LHS (New 2 lane Keesara Bridge on U/S side of existing 2 lane bridge)
Km 226.3	Km 226.8	Centre (Existing Toll Plaza area should be modified to 4 lanes)
Km 226.8	Km 231.5	LHS
Km 231.5	Km 233.4	RHS
Km 233.4	Km 240.0	Bypass to Kanchikacherla and Paritala villages
Km 240.0	Km 251.5	RHS
Km 251.5	Km 252.0	LHS

2.3 Construction of new 2 lane bypasses including construction of all cross drainage works (major/minor bridges and culverts) and development of at grade intersections :

2.3.1 Bypass to Nandigama Town :

The project reach from km 217 to km 221.2 passes through Nandigama town. The right of way in this reach is restricted and the reach is densely populated with commercial and residential areas existing on either side of the road. In order to cater the requirements for 30 years concession period, it is advisable to provide a 2 lane bypass to this town on RHS from km 217 to km 221 (5 km) and utilise the already strengthened existing 2 lanes for one direction of traffic.

2.3.2 Bypass to Kanchikacherla and Paritala :

Bypass to Kanchikacherla : The road from km 229.6 to km 236.7 passes through Kanchikacherla. The right of way in this reach is restricted and the reach is densely populated with commercial and residential areas existing on either side of the road. In order to cater the requirements for 30 years concession period, it is advisable to provide a 2-lane bypass to this town on RHS.

Bypass to Paritala Village : The road passes through Paritala Village from km 236.7 to km 242.2. Towards Vijayawada end of the village in km 239, there is a narrow neck. On LHS there are graveyard and high bund and on RHS, there are residential houses. The road has 6 sharp curves in one km (km 238 to km 239) and no sight distance is available. The design speeds in this reach are as low as 50 kmph. This is a very hazardous location from a traffic safety point of view. During the studies in 1993 for preparation of DPR for strengthening of this road, bypass for 3 km on RHS (southern side) was considered but the same was dropped as the proposal at that time was only for strengthening of the existing 2 lanes.

In CIDBI proposal, a four lane bypass has only been provided for Kanchikacherla town between km 233.400 to km 237.00 (3.7 km). It is advisable to provide a combined 2 lane bypass for Kanchikacherla and Paritala villages from km 233.4 to km 240.0 (7 km approx.) on RHS and utilise the already strengthened existing 2 lanes for one direction of traffic.

2.4 Pavement

The detailed pavement design including overlay and pavement characteristics requirements of the Project Highway and that of the service roads in Urban Sections shall be done in accordance with Schedule D. Pavement may be rigid or flexible, except for toll plaza, where rigid pavement is specified. The crust should be designed for a life of 20 years design period with provision for rehabilitation at the end of 20 years design period during the remaining concession period.

Pavement testing works will be carried out to ascertain the pavement life of the previously strengthened portions of the existing highway as well as the sections of the existing highway to be strengthened under this contract.

2.5 Slope Protection and Drainage

The improvements in the drainage and the slope erosion shall be made as per the following norms:

2.5.1 Drainage Measures

Following measures shall be adopted :

- Chute drains along with shoulder drains in high embankment (3 m and above);
- Median drains at super elevated sections; and
- Covered pucca drains underneath the sidewalk of proposed facility (bus bays, truck laybys, etc.) in rural sections.

2.6 The cattle crossings of size 2.5 x 4 m in the following 7 villages need to be provided to avoid crossing of cattle on 4 lane highway.

Avithavaram, Keesara, Donabanda, Kethanakonda, Mulapadu, Jupudi and Ibrahimpatnam.

2.7 Rest areas in km 245-246 (RHS). There are existing dhabas in this reach. Hence it is proposed to construct a rest area in this reach on RHS. The land for rest areas shall be acquired by NHAI at NHAI's cost and provided to CIDBI.

2.8 Toll Plaza at Ibrahimpatnam is to be constructed.

2.9 Bus bays and bus shelters shall be provided on new 2 lanes as per site requirements.

2.10 Safety Barrier : W steel beam safety barrier shall be provided at locations of bridge approaches and high embankments (3m and more). Kerbed median shall be provided where the level difference between the two carriageways is more than 1.5 m.

2.11 Traffic Signage and Pavement Markings

Traffic signs and pavement markings shall include roadside signs, overhead signs, kerb mounted signs and road markings along the project highway. The design and marking for the Project Highway shall be as per the design standards indicated in Schedule D and the locations for various treatment shall be finalised in consultation with the Independent Consultant.

The overhead signs shall be the reflectorised type with high intensity retro-reflective sheeting of encapsulated type. The height, lateral clearance, location and installation shall be as per relevant clauses of MOST specifications.

Overhead signs shall be installed ahead of major intersections, toll plazas, rest places and urban areas as per detailed design requirement.

2.12 CIDBI shall operate, maintain and collect toll on recently four laned reach from km 252.00 (Ibrahimpatnam) to km 265 (Vijayawada).

SCHEDULE C1

PROJECT FACILITIES

1. GENERAL

The following sections of this schedule provide the minimum spatial and functional requirements of the facilities to be provided on the Project Highway with an aim to cater to the envisaged demand till the end of the concession period. The Concessionaire shall review the adequacy of the proposed facilities at regular intervals of 5 years and accordingly provide additional facilities with necessary approval from the Independent Consultant in order to meet the demand of the road users till the end of the concession period. The land for Toll Plazas, Rest Areas, Truck Lay Bys and Bus Bays shall be acquired by NHAI at NHAI' cost.

2. TOLL PLAZA

Minimum two toll plazas shall be provided, one near Tada end and other before Nellore end. The possible location for toll plaza at Tada end is between km 72.770 to km 73.230 and that at Nellore end between km 145.710 to km 146.170. At these locations there is sufficient land available on either side of the highway to accommodate the additional lanes for tollbooths. The layout of the toll plaza shall be such that there is no possibility of the traffic bypassing it.

"Open System" of toll collection shall be provided on the Project Highway. 4(Four) lanes in each direction, toll plazas with semi-automatic system of toll collection system comprising equipment of vehicle classification, direction and diagnostic information shall be provided.

The design for toll plaza shall conform to the standards set in Schedule D of the Concession Agreement.

3. REST AREA

Rest Areas have been suggested at the locations indicated in the Table C-1. The layout and location plan for the rest area and conceptual design for the dhabha at rest area shall conform to the standards set in Schedule D of the Concession Agreement.

Table C-I : Indicative Location for Rest Areas along Project Highway

Location (Proposed Km)	Name of nearest Village/Town
101.050 (L)	Naidupet
151.400 (L)	Venkatachalem
153.500 (R)	Venkatachalem

Note : R or L indicates Right or Left side while travelling from Tada to Nellore.

4. LAY-BYS

4.1 Truck lay-bys

Proposed locations for truck lay-bys are indicated in Table C-2. Basic facilities such as drinking water and toilets, with proper disposal system shall be provided at suitable location for a lay-by.

Table C-2 : Indicative Location for Truck Lay-bys along Project Highway

Location (Proposed Km)	Name of nearest Village/town
67.300 to 67.500 (LHS)	Tada
69.400 to 69.600 (RHS)	Tada
124.300 to 124.500 (RHS)	Ojilli

4.2 Bus bays

Bus bays and Bus shelter shall be provided on the Project Highway at 39 (Thirty-Nine) locations as mentioned in Table C-3 herein under. Bus bays and bus shelters shall be constructed as per the IRC and MOST specification.

Table C-3 : Indicative Location for Bus Bays along Project Highway

LHS		RHS	
Approx. Chainage	Type	Approx. Chainage	Type
54725	BS2	54750	BS1
56900	BS1	56800	BS1
57612	BS2	57612	BS2
58625	BS1	58625	BS1
59150	BS1	59250	BS1
59850	BS2	59850	BS2
60650	BS3	60650	BS3
63730	BS1	63690	BS1
65140	BS2	65235	BS1
67610	BS2	67730	BS2
68250	BS2	68410	BS2
71410	BS1	71500	BS1
73920	BS1	73920	BS1
76430	BS1	76520	BS1
82200	BS1	82310	BS1
85120	BS1	85160	BS1
88800	BS1	88820	BS1
90570	BS1	90650	BS1
95440	BS2	95440	BS2
101830	BS1	101830	BS1
104480	BS1	104560	BS1
113200	BS1	113230	BS1
120370	BS1	120150	BS1
121570	BS1	121530	BS1
125920	BS1	125980	BS1
128400	BS1	128270	BS1
133265	BS3	133150	BS3
142780	BS2	142670	BS2

LHS		RHS	
Approx. Chainage	Type	Approx. Chainage	Type
143460	BS1	143450	BS2
144750	BS1	144650	BS1
146210	BS1	146170	BS1
149715	BS1	149830	BS1
151600	BS1	151620	BS1
154300	BS1	154250	BS1
157685	BS1	157460	BS1
158930	BS1	159000	BS1
159500	BS1	159630	BS1
162960	BS1	162950	BS1
164650	BS3	164700	BS3

6. PEDESTRIAN FACILITIES

Pedestrian underpass shall be provided at 8 (eight) locations indicated in Table C-4 in order to ensure safety of pedestrians and light motor vehicles at major towns along the Project Highway while crossing.

Table C-4 Pedestrian Underpasses

SI.No.	Name of Place	Location (Proposed Km)
1	Ramapuram	57.700
2	Arambakkam	60.650
3	Tada	67.500
4	Sulurpet	80.970
5	Doravarisatram	95.350
6	Chillakur	133.205
7	Manubolu	142.300
8	Venkatachalem	156.870

7. CATTLE CROSSING

As such there is no need for any cattle crossing along the highway but the Concessionaire is at the liberty to select such locations in consultation with the Independent Consultant.

8. EMERGENCY TELEPHONE COMMUNICATION SYSTEM

The Project Highway shall be provided with an independent emergency telephone communication system by the Concessionaire to function as a Public Access Telephone System (PATS) for the use of road users in case of distress and seeking assistance from the nearer Traffic Aid Post in emergency. The emergency telephone shall be located at every 2 km interval along the entire Project Highway.

The functional elements are described under Specifications and Standards, Schedule D.

9. TRAFFIC CONTROL AND MANAGEMENT

2 (Two) Traffic Aid Posts (TAPS) shall be provided on the Project Highway at the locations of the proposed toll plazas, one TAP at each toll plaza. TAP shall form an integral part of the toll plaza complex, for which a suitable plot size shall be allocated at each location.

The TAPs shall be equipped with adequate communication system, information collection and data processing system. On receipt of distress signal from PATS it shall take immediate steps to extend help to the road user at the specified location. In case of TAPs inability to provide immediate help on account of its resource constraint, it shall inform the Control Center about it and the Control Center shall in turn direct the other TAP to do the needful.

The TAP shall maintain regular records of all the information and action taken reports (ATR) and passes it on to the Control Center on daily basis.

The emergency service along the Project Highway at Traffic Aid Posts shall include the following :

i) Ambulance (Accident /Trauma) with medical accessories and equipment
ii) Fire tender
iii) Tow away truck and cranes
iv) Highway Patrolling

In addition to the above, the facility to ensure the safety of the road users as well as the work force involved in construction activities on the Project Highway shall be provided (Refer Schedule B1). During construction period a system for traffic management depending on the site requirement shall be evolved in consultation with the Independent Consultant.

10. ADMINISTRATIVE, OPERATION AND MAINTENANCE BASE CAMP

There shall be two base camps, one at each toll plaza as described herein under .The main base camp shall be at Nellore end Toll Plaza and the secondary base camp shall be at Tada end Toll Plaza.

The Main Administrative, Operation and Maintenance Base Camp shall be provided to cater to the requirement of the following services.

- Central Traffic Control
- Central Toll Control Patrol
- Highway Maintenance
- Facilities for storage and repair of maintenance equipment and vehicles.

The main base camp shall be housed adjacent to the toll complex on Nellore end Toll Plaza. The layout of the different buildings and facilities shall be finalised in consultation with the Independent Consultant.

The Administrative building shall primarily house the Control Center, the security headquarters, the Central Store, the toll audit and data processing units in addition to other secondary facilities such as computer room, office space, stores, sanitary facilities, canteen etc. The main base camp shall have adequate parking space for staff and visitors.

The maintenance area shall have a centrally located building to over look the maintenance work shop activities consisting welding shop, painting shop, washroom, tyre repair shops, storage area for lubricants. spare parts etc. A separate storage area shall be earmarked for inflammable materials. The maintenance block shall have enough space to park the equipment's and machinery deployed for maintenance activities. Adequate parking space shall be earmarked for the staff vehicles and visitors' vehicles. Also in addition there shall be adequate and well illuminated covered parking space for all the maintenance vehicles.

The secondary base camp shall be established adjacent to the toll plaza complex on Tada end. The layout of the different buildings and facilities shall be fmalised in consultation with the Independent Consultant. The secondary base camp shall be primarily for housing TAP and the machinery and equipment required there for.

In addition, the base camps shall have an electric room and supplies room to cater to the power requirements of the camp. The electric room shall also have a standby generator to provide the required power in case of failure of normal power.

The camps shall have adequate lighting during dark periods and night.

There shall be underground fuel storage area with delivery facilities at the campsites to be adequate to cater to the demands of maintenance and patrolling activities.

The base camps shall not have more than one entry and one exit point. Both of these shall be manned by security personnel at all times.

The camps shall be landscaped so as to protect the area from dust and noise from the Project Highway.

The laboratory facility to be established for testing of various materials related to road construction and maintenance shall be located at the main base camp.

11. HIGHWAY LIGHTING

The lighting shall be provided at intersection in classified urban areas on the Project Highway, grade separators, toll plaza, main administrative and maintenance base camp, secondary base camp. Traffic aid posts shall be provided in accordance with the standards set in Schedule D.

12. LANDSCAPING

Landscape treatment of the Project shall be undertaken through planting of trees and ground cover of appropriate varieties and landscaping a surplus land in the ROW and median.

Shrubs of low height shall be planted in the median of highway. Plantation scheme shall be prepared in consultation with the Forest Departrnent, Andhra Pradesh Government and the Independent Consultant.

13. ENVIRONMENT

In view of the statutory requirement of environmental clearance for Highway Project, the NHAI decided to carry out environmental and social impact assessment of the proposed widening and strengthening of the Project Highway.

The environmental and social assessment study has accordingly, been carried out and is presented in a report titled :-

"Final Environmental Impact Report and Resettlement Action Plan." - August 2000.

The said report brings out the baseline environmental and social conditions, envisaged impacts of the project, mitigation measures proposed and suitable management plan for monitoring and implementation of measures.

The Project Highway during design, construction, operation and maintenance shall conform to the environmental rules and regulations in force. The Concessionaire shall be responsible for the same. As such a copy of the report in question is enclosed herewith for his guidance. However this does not absolve him from performance according to the laws on environment.

14. FACILITY PLAN

All the facilities such as toll plazas, bus bays, lay bys etc., to be provided along the Project Highway.

SCHEDULE C2

PROJECT FACILITIES

1. GENERAL

The following sections of this schedule provide the minimum spatial and functional requirements of the facilities to be provided on the Project Highway with an aim to cater to the envisaged demand till the end of the concession period. The concessionaire shall review the adequacy of the proposed facilities at regular intervals of 5 years and accordingly provide additional facilities with necessary approval from the Independent Consultants in order to meet the demand of the road users till the end of the concession period. The land for Toll Plazas, Rest Areas, Truck Lay Bys and Bus Bays shall be acquired by NHAI at NHAI' cost.

2. TOLL PLAZA

One toll plaza shall be provided near Ibrahimpatnam. The possible location of the toll plaza will be firmed up based on the land availability on either side of the highway to accommodate the additional lanes for the tollbooths. The layout of the toll plaza shall be such that there is no possibility of the traffic bypassing it.

"Open System" of toll collection shall be provided on the Project Highway. 4(Four) lanes in each direction, toll plazas with semi-automatic system of toll collection system comprising equipment of vehicle classification, direction and diagnostic information shall be provided.

The design for toll plaza shall conform to the standards set in Schedule D of the Concession Agreement.

3. REST AREA

Rest Areas have been suggested at the locations indicated in the Table C-1. The layout and location plan for the rest area and conceptual design for the dhabha at rest area shall conform to the standards set in Schedule D of the Concession Agreement.

Table C-1 : Location for Rest Areas along Project Highway

Location (Proposed Km)	Name of nearest Village/Town
245.5 (R)	Mulapadu

Note: R or L indicates Right or Left side while travelling from Nandigama to Vijayawada.

4. LAYBYS

4.1 Truck lay bys

Proposed locations for truck lay bys are indicated in Table C-2. Basic facilities such as drinking water and toilets, with proper disposal system shall be provided at suitable location for a lay-by.

Table C-2 : Location for Truck Laybys along Project Highway

Location (Proposed Km)	Name of nearest Village/town
245.7	Mulapadu

4.2 Bus bays

Bus bays and Bus shelter shall be provided on the Project Highway at 10 locations as mentioned in Table C-3 herein under. Bus bays and bus shelters shall be constructed as per the IRC and MOST specification.

Table C-3: Location for Bus Bays along Project Highway

Existing			Proposed	
S. No.	Chainage	Village name	On widening portion	On bypass
1	251.650	Ibrahimpatnam	Required on one side	
2	248.600	Jupudi	Required on one side	
3	246.800	Mulapadu	Required on one side	
4	243.800	Kethana Konda	Required on one side	
5	242.500	Donabanda	Required on one side	
6	238.300	Paritala		Required
7	231.900	Kanchi Kacherla	Required on one side	
8	226.400	Keesara	Required on one side	
9	223.000	Avithavaram	Required on one side	
10	220.200	Nandigama		Required

6. PEDESTRIAN FACILITIES

Pedestrian underpass shall coincide with cattle crossing locations indicated in Table C-4 in order to ensure safety of pedestrians and light motor vehicles at major towns along the project highway while crossing.

7. CATTLE CROSSING

To be provided at the following villages.

Table C-4 Cattle Crossing Locations

C.C.No.	Name of Place	Location (Proposed Km)
1	Avithavaram	Between 223-224
2	Keesara	Between 226-227
3	Donabanda	Between 242-243
4	Kethanakonda	Between 244-245
5	Mulapadu	Between 246-247
6	Jupudi	Between 248-249
7	Ibrahimpatnam	Between 251-252

8. EMERGENCY TELEPHONE COMMUNICATION SYSTEM

The project highway shall be provided with an independent emergency telephone communication system by the Concessionaire to function as a Public Access Telephone System (PATS) for the use of road users in case of distress and seeking assistance from the nearer Traffic Aid Post in emergency. The telephone booths shall be located at every 2 km interval along the entire Project Highway.

The functional elements are described under Specifications and Standards, Schedule D.

9. TRAFFIC CONTROL AND MANAGEMENT

1 (One) Traffic Aid Post (TAPS) shall be provided on the Project Highway at the location of the proposed toll plaza. TAP shall form an integral part of the toll plaza complex, for which a suitable plot size shall be allocated.

The TAPs shall be equipped with adequate communication system, information collection and data processing system. On receipt of distress signal from PATS it shall take immediate steps to extend help to the road user at the specified location. In case of TAPs inability to provide immediate help on account of its resource constraint, it shall inform the Control Center about it and the Control Center shall in turn direct the other TAP to do the needful.

The TAP shall maintain regular records of all the information and action taken reports (ATR) and passes it on to the Control Center on daily basis.

The emergency service along the Project Highway at Traffic Aid Posts shall include the following :

i) Ambulance (Accident /Trauma) with medical accessories and equipment
ii) Fire tender
iii) Tow away truck and cranes
iv) Highway Patrolling

In addition to the above, the facility is to ensure the safety of the road users as well as the work force involved in construction activities on the Project Highway shall be provided. During construction period a system for traffic management depending on the site requirement shall be evolved in consultation with the Independent Consultant.

10. ADMINISTRATIVE, OPERATION AND MAINTENANCE BASE CAMP

There shall be one sub base camp, at the toll plaza as described herein under .The sub base camp shall be at **Ibrahimpatnam Toll Plaza in km 252**

The layout of the different buildings and facilities shall be formalised in consultation with the Independent Consultants. The sub base camp shall be primarily for housing TAP and the machinery and equipment required there for.

In addition, the base camp shall have an electric room and supplies room to cater to the power requirements of the camp. The electric room shall also have a standby generator to provide the required power in case of failure of normal power.

The camp shall have adequate lighting during dark periods and night.

There shall be underground fuel storage area with delivery facilities at the campsites to be adequate to cater to the demands of maintenance and patrolling activities.

The base camp shall not have more than one entry and one exit point. It shall be manned by security personnel at all times.

The camp shall be landscaped so as to protect the area from dust and noise from the Project Highway.

11. HIGHWAY LIGHTING

The lighting shall be provided at intersection in classified urban areas on the Project Highway, grade separators, toll plaza, main administrative and maintenance base camp, secondary base camp. Traffic aid posts shall be provided in accordance with the standards set in Schedule D.

12. LANDSCAPING

Landscape treatment of the Project shall be undertaken through planting of trees and ground cover of appropriate varieties and landscaping a surplus land in the ROW and median.

Shrubs of low height shall be planted in the median of highway. Plantation scheme shall be prepared in consultation with the Forest Department, Andhra Pradesh Government and the Independent Consultants.

13. ENVIRONMENT

In view of the statutory requirement of environmental clearance for Highway Project, the NHAI decided to carry out environmental and social impact assessment of the proposed widening and strengthening of the Project Highway.

The environmental and social assessment study has accordingly, been carried out and is presented in a report titled:-

"Final Environmental Impact Report and Resettlement Action Plan." - August 2000.

The said report brings out the baseline environmental and social conditions, envisaged impacts of the project, mitigation measures proposed and suitable management plan for monitoring and implementation of measures.

The Project Highway during design, construction, operation and maintenance shall conform to the environmental rules and regulations in force. The Concessionaire shall be responsible for the same. As such a copy of the report in question is enclosed herewith for his guidance. However this does not absolve him from performance according to the laws on environment.

14. FACILITY PLAN

All the facilities such as toll plazas, bus bays, lay bys etc., to be provided along the Project Highway.

SCHEDULE D

STANDARDS AND SPECIFICATION

1. INTRODUCTION

1.1 Specifications and Standards for construction, operation and maintenance of the Project Highway (including facilities), between the existing km 52.800 to km 163.600 from Tada to Nellore of NH-5 and from existing km 217 to km 265 from Nandigama to Vijayawada of NH-9 in Andhra Pradesh are described herein under in this designated Schedule D - Specifications and Standards.

1.2 The following terminology used in the concession agreement will carry the meaning shown against each of them for the contractual and professional understanding in the implementation of Schedule D.

i) National Highways Authority of India (NHAI)	Employer
ii) Concessionaire	Company responsible to implement the provisions of the Concession agreement.
iii) Independent Consultant (IC)	Consulting Engineering firm appointed by the NHA1 in consultation with the concessionaire to review the designs furnished by the Concessionaire and oversees the construction, operations and maintenance of the Project Highway during the concession period.

1.3 The Concessionaire shall employ various agencies to design, construct, operate and maintain the Project Highway. In doing so, it shall follow Schedule D in addition to other documents included in the Concession agreement. The Schedule D in question uses the terms Contractor and Engineer particularly with reference to the Ministry of Surface Transport specifications for Road and Bridge works (Third Revision, (1997) [hereinafter referred as MOST Specifications]. In implementation of the said specifications, the terms Contractor and Engineer used therein shall carry the meaning and/or reference as indicated hereinafter :

i) Contractor	The Contractor(s) employed by the Concessionaire to execute the Project Highway

1.4 Schedule D comprising specifications and standards (inclusive of reference to codes and manual(s) for construction, operation and maintenance of the Project Highway on the basis of the Concession Agreement is sub-divided in four parts, namely;

- General
- Specifications
- Standards
- Annexures (pertaining to special and additional technical specification)

which are described herein as under :

2. GENERAL

2.1 The Project Highway is a portion of the National Highway No.5 and No 9 as such all works related to the Project Highway shall conform to the Indian Roads Congress (IRC) standards, Codes, Guidelines and Special Publications as applicable to National Highways and MOST specifications with all updates till 30 days before the date of DPP submission by the Concessionaire. In the absence of any definite provisions on any particular issue related to the specifications and/or standards, reference may be made to the latest codes and specifications of Bureau of Indian Standards, British Standards, AASHTO, ASTM or any other International Standards in that order. But, where even these are silent, the construction and completion of the works shall conform to sound engineering practice with the approval of the Independent Consultant/NHAI.

2.2 Amendments and/or modifications carried out by the Ministry of Surface Transport (Roads Wing) in the MOST specifications and IRC standards, and codes are available to public 30 days before the date of receipt of DPP shall be followed.

2.3 All building works shall conform to Central Public Works Department (CPWD) specifications -I & II for all building works and standards given in the National Building Code (NBC) as amended and/or modified from time to time. However, whenever any specific provision for any building works is given in the MOST specifications, IRC standards and codes, those shall apply. For the purpose of this clause, building works shall be deemed to include road furniture, landscape elements and / or any other works incidental to the building works.

2.4 In case, any further amendments and/or modifications in the said specifications and/or standards and codes come into force after the said date (clause 2.1 above) and have financial impact shall be settled according to the Concession Agreement.

2.5 Insofar as amended/modified/added clause supersedes a clause or part thereof in the said specifications and standards, then any reference to the superseded clause elsewhere shall be deemed to refer to the amended/modified/added clause or part there of.

2.6 If amended/modified/added clause comes in conflict or be inconsistent with any of the provisions of the said specifications and standards, the amended/modified/added clause shall always prevail.

2.7 The Concessionaire shall plan and implement the quality assurance programme for the Project Highway and finalise it in consultation with the Independent Consultant as least one month prior to the commencement of the work.

2.8 The quality and/or the quantities of various items shall primarily be the responsibility of the Concessionaire. The Independent Consultant shall, however ensure and/or verify it by devising suitable means. On noticing any deficiency in the quality and/or quantity, corrective measure as ordered by the Independent Consultant shall be carried out by the Concessionaire at the Concessionaire's cost to the satisfaction of the Independent Consultant. In case of any disagreement or non-compliance by the Concessionaire, the dispute will be referred to NHAI to resolve it in terms of the Concession Agreement.

3. SPECIFICATIONS

3.1 'Specifications' herein under mean the specifications relating to the quality and other requirements for the Project Highway as set forth in this schedule designated as Schedule D and any modifications there-of, or additional there-to as included in the design and engineering for the Project Highway submitted by the Concessionaire to and expressly approved by the Independent Consultant.

3.2 Any specifications and materials used shall be consistent with MOST specifications and other publications referred to therein.

3.3 The materials to be used in the work of the Project Highway (including facilities thereon) shall conform to MOST specifications. However, where the said specifications are silent in regard to specification for the material in questions, in that case, specifications under Indian Standard/BIS/AASHTO/British Standards/ASTM shall apply in that order. But even where these standards are silent, the Concessionaire shall get the specifications for the material in question approved by the Independent Consultant prior to its use in the work.

3.4 Guidelines on Selection of the Grade of Bitumen and Use of Anti-stripping Agents for Bituminous Materials and Mixes as given in Appendix 4 and 5 of MOST Specifications shall be followed.

3.5 In addition to road and bridge works, there will be other works, described herein under on the Project Highway. Wherever the tailor made specifications are not available for these works, specific approval of the Independent Consultant shall be obtained by the Concessionaire in respect to that particular item of work.

3.5.1 HIGHWAY LANDSCAPING

3.5.1.1 Planting along the highway shall follow a variety of schemes depending upon location requirement as per the IRC : SP : 21-1979. The choice of trees to be planted shall also be made as per IRC : SP : 21-1979 : "Manual on Landscaping". Eucalyptus (all species) is not recommended for planting. Local, indigenous species that grow in high salinity microclimate shall be planted.

3.5.1.2 On medians and as under-crop, planting of dust and gaseous substance-absorbing shrubs such as nerium oleander album is recommended. To ensure survival from herbivorous animals, shrubs/plants containing latex shall only be planted.

3.5.1.3 Preparation of schemes for highway development, restriction on building lines, control lines, control of access, prevention unauthorised occupation of land and removal of encroachment shall be as per IRC : SP : 15-1974.

3.5.1.4 The treatment of the highway embankment slopes shall be as per the recommendations of IRC : 56-1974, depending upon the soil types involved. Pitching-works on the slopes shall be as per the MOST specifications.

3.5.1.5 Construction of CC (M-20) footpaths for pedestrians shall be as per MOST specifications.

3.5.2 BUILDING

3.5.2.1 All building works shall be designed to meet the functional requirements and shall be compatible with the regional architecture and microclimate. Locally available materials shall be given preference but not at the cost of construction quality. All brick and stone masonry works shall be of first class type and as per good practice. All steel works shall conform to section 6, Part VI of the NBC and section 1900 and 2000 of MOST specifications for Road and Bridge Works.

3.5.2.2 All building works shall conform to Central Public Works Department (CPWD) specifications for class I building works and standards given in the National Building Code (NBC) as amended and/or modified from time to time. However, whenever any specific provision for any building works is given in the MOST Specifications/IRC standards those shall apply. For the purpose of this clause, building works shall be deemed to include road furniture, landscape elements or any other works incidental to the building works.

3.5.2.3 All the open spaces around the building(s) shall be landscaped. Boundary walls, fencing, controlled entry points and cattle-catcher at all entry and exit points to the building shall be provided to protect them from intruders and animals.

3.5.2.4 The design of water distribution and storage systems, laying of mains and pipes, cleaning and disinfecting of the water supply system shall be as per relevant clauses of section I, Part IX of the NBC.

3.5.2.5 The design, layout and construction of drains for sewage disposal system with all ancillary works such as connections, manholes and inspection chambers and septic tanks shall be as per relevant clauses of Section 2, Part IX of the NBC. Each septic tank, if provided, shall have a soak pit of adequate size. The location of the septic tanks and subsurface absorption system shall be as per clause 12.15.1 of part III of NBC.

3.5.2.6 The design and location of all electrical installations, distribution system, wiring, fittings, accessories and lightning protection of buildings shall be as per relevant clauses of Section 2, Part VII of the NBC.

3.5.3 HIGHWAY LIGHTING SYSTEM

3.5.3.1 The following codes shall be followed while designing the lighting system on the Project Highway for different locations such as grade separated junctions, bridges, junction of slip roads with elevated roads, pedestrian crossing, toll plazas, base camps, traffic aid posts etc.,

i) IS:I944 (Parts I and II) - 1970
ii) IS:1944 (Part V) -1981; and
iii) IS:1944 (Part VI -1981)

The layout of the lighting system together with type of luminaries and level of illumination for different locations shall be determined in consultation with the Independent Consultant.

3.5.3.2 Overhead electric power and telecommunication lines erected within the RoW by the Concessionaire shall be provided with adequate clearance so that safe use of road is not affected. Vertical and horizontal clearance shall conform to the IRC:32-1969.

3.5.4 EMERGENCY TELEPHONE SYSTEM

3.5.4.1 Telephone facilities on the Project Highway shall be provided for Road Users by the Concessionaire.

3.5.4.2 This shall be a telephone system connected to Traffic Aid Post(s), which shall co-ordinate emergency services like fire, ambulance, police and retrievals of breakdown vehicles, besides emergency highway maintenance operations.

3.5.4.3 The communication system hereinafter referred to as the Public Access Telephone system (PATS), is envisaged to be a toll free telephone system which can be used with a very little effort. It is intended not to have any handset, but on pushing the button of PATS, the telephone system in control room of Traffic Aid Post(s) gets activated.

3.5.4.4 Telephone Instrument

The equipment shall be very robust and durable. It shall be housed in a metal cover. The receiver cord of the handset shall be covered in a metallic wire mesh anchored firmly to the instrument. The support pole shall be firmly embedded into concrete with necessary hold fast. The telephone cable shall be carried through a conduit of mild steel from the instrument along the booth pole and thereafter to TAP through underground placement along the utility corridor of the highway provided for this purpose.

However, where the telephone cables, running parallel to the highway on either side, have to cross the highway, it shall be done through underground cable.

3.5.5 TOLL PLAZA

3.5.5.1 Toll Plaza Complex

Tollbooths shall be structurally sound and capable to withstand extreme weather conditions of the region. They shall have clear visibility of approaching vehicles and shall be strong to withstand all forces as per relevant clauses of Section 1, Part VI of NBC. The buildings of the toll plaza complex shall conform to the clause 3.5.2 of this schedule.

3.5.5.2 The Toll Plaza complex including its canopy, having 5.5m clear height for all the portion covering 4 lanes on either side and 6.5m clear height in the portion of outer lane for oversized vehicles and non tollable vehicles. Tollgates shall be provided with check barriers, which can be electrically operated from the tollbooths. High mast lighting shall be provided. Power supply is from the public power supply system and standby diesel generating sets of adequate capacity shall be provided.

3.5.5.3 The Toll Plaza Complex shall have its surface and sub surface drainage system.

3.5.5.4 Fire fighting equipment including smoke detectors and audiovisual alarm system shall be planned and installed as per section 4.17.1 of NBC.

3.5.5.5 The pavement of the service lanes shall be of cement concrete and shall be designed as stipulated under pavement design, pavement marking shall conform to the IRC and MOST requirements.

3.5.5.6 The toll collection system shall be semi-automatic type and it shall be equipped with entry lane control equipment, a vehicle detector on entry lane which counts the number of vehicles and their axle numbers and a ticket issuing machine which issues a toll ticket at the press of a

button on the touch panel. A computer system for operating and controlling these equipments shall be established at the Toll Plaza Complex booths.

3.5.6 TRAFFIC SAFETY MEASURES

3.5.6.1 Highway Patrolling

3.5.6.1.1 Traffic Aid Posts (TAPS) for Highway Patrolling established at Nellore Toll Plaza, Tada Toll Plaza and Ibrahimpatnam Toll Plaza shall be manned by 1 {one) Sub Inspector, 3 (three) head constables, 6 (six) constables, 1 (one) male nurse, 1 (one) compounder, 1 (one) helper for ambulance and 1 (one) photographer. The Concessionaire shall reach an agreement for hiring the aforesaid personnel with the concerned department of the State Government of Andhra Pradesh.

3.5.6.1.2 Each Traffic Aid Post shall be equipped with a tow truck, Diesel Jeep or Station Wagon, ambulance, Motorcycle and other equipment as per requirement. All the vehicles shall conform to the Motor Vehicles Act 1988.

3.5.6.2 Pedestrian Guard Rails and Safety Barriers

3.5.6.2.1 The Pedestrian Guard Rails along the Highway shall be constructed as per IRC standards.

3.5.6.2.2 The Metal Crash Barrier shall conform to IS: 10748.

3.5.7 TRAFFIC CONTROL

3.5.7.1 Traffic Signals

3.5.7.1.1 There shall be no traffic signals on National Highway except at at-grade intersections. For pedestrians in the urban areas, underpasses or overhead pedestrian bridges are provided as pedestrian facility.

3.5.7.2 Highway Signs

3.5.7.2.1 The road signs erected on the Project Highway shall conform to IRC 67-1977, Code of Practice for Road signs. Road signs such as Chevron, overhead etc., not covered by IRC 67 will be as per BIS/ AASHTO/BS in that order after approval by the Independent Consultant.

3.5.7.2.2 All road signs shall be of retro-reflectorised type made of high intensity grade with encapsulated lens type reflective sheeting, fixed over aluminium sheeting as per MOST specifications.

3.5.7.2.3 The overhead signs shall be placed on a structurally sound gantry structure approved by the Independent Consultant. The said sign shall be reflectorised type with high / intensity retro reflective sheeting of encapsulated type. The height, lateral clearance and installation shall be as per the MOST Specifications. The background colour shall be green with white (silver) letters/signs.

3.5.7.2.4 Speed control signs shall be erected with permission of the appropriate authorities / and in consultation with the Independent Consultant.

3.5.7.3 Pavement Markings

3.5.7.3.1 Pavement markings shall be as per IRC:35-1997. These markings shall be applied to road centre lines, edge line, zebra crossing lines and at parking areas (diagonal markings) by means of an approved self propelled machine which has a satisfactory cut-off valve capable of applying broken lines automatically.

3.5.7.3.2 Road markings shall be of thermoplastic material with glass reflectorising beads as per relevant clauses of Section 803 of MOST specifications.

3.5.8 PROJECT VEHICLES AND EQUIPMENT FOR OPERATION

3.5.8.1 All the vehicles used for activities pertaining to the highway operation shall conform to the Motor Vehicles Act 1988.

3.5.8.2 All the gadgets, equipment or any systems used for operation and maintenance of the highway shall be of standard make and shall conform to international standards.

3.5.9 ROAD FURNITURE AND FACILITIES ON ROADSIDE

3.5.9.1 Road furniture on the Project Highway provided as per IRC Codes shall meet Ministry of Surface Transport (MOST) specifications. Where any item not covered by it, then its specification shall conform to BIS/AASHTO/British standard/ASTM in that order after approval by the Independent Consultant.

3.5.9.2 Roadside facilities such as Litterbins, Public Toilets and Drinking Water Kiosks where recommended to be provided shall follow the Specifications spelt out hereunder.

3.5.9.3 Litterbins: The litterbins shall be simple in shape and their colour and finish shall be conspicuous. Litterbins shall be post mounted and/or swivel type. The mounting and fixing components shall be robust. The bins shall have drainage holes for periodic flushing. These shall also be theft, vandal and fireproof. It shall be resistant to wear and tear and the material and design shall be such as to require minimal maintenance.

3.5.9.4 Public Toilets: The public toilets shall be simple in design and the area around the toilet block shall be paved with cement concrete tiles or any other suitable material, and have cross slope so as to ensure speedy disposal of water. The structure shall conform to relevant sections of clause 3.5.2 of this schedule.

3.5.9.5 Drinking Water Kiosk: The design of the water kiosk shall be such as to require minimal maintenance. Areas around the kiosk shall be paved with cement concrete tiles or any other suitable material and have cross slope so as to ensure speedy disposal of water. The water supplied shall conform to IS: 10500: 1991 for quality and purity for potable water.

3.5.10 PICKUP BUS STOPS

3.5.10.1 The bus stop structure shall be structurally safe and functional so as to protect the waiting passengers adequately from sun and rain.

3.5.11 TRUCK PARKING LAY-BYS

3.5.11.1 The layout of the truck lay-bys and facilities thereon shall be governed by site requirement so as to cater to the estimated parking demand and shall be approved by the Independent Consultant. Parking shall be parallel to the road and the lay-bye shall be setback from the edge of the carriageway. The lay-bys shall be landscaped with low-density plantation to provide shade.

3.5.11.2 The parking spaces shall be so paved by pavement quality cement concrete to withstand vehicle loads and forces due to frequent acceleration and deceleration of vehicles. Parking bays/lots shall have proper cross slope and drainage. They shall be marked with paint as per IRC:35-1997 to demarcate parking and circulation space. Lighting shall be provided as per IS:1944 (Part I and II) - 1970.

3.5.11.3 The parking lay-bys shall have drinking water kiosk, independent of other existing facilities and of adequate capacity. The kiosks shall be well sheltered from the sun and rain and areas around it shall be suitably and adequately paved with proper drainage to ensure disposal of spilt water.

3.5.11.4 The parking lay-bys shall have toilet facility of adequate capacity. It shall have covered soak pits and shall be away from the drinking water facility.

3.5.12 ADMINISTRATIVE, OPERATION AND MAINTENANCE BASE CAMP

3.5.12.1 The guide on the space requirement of the various main facilities at the Base Camp shall be as under :

Nellore end	Area (Indicative)
Administrative Block including Central Control Room	741 sqm
Equipment & Store	330 sqm
Paint & Sign Shop	183 sqm
Welding Shop	110 sqm
Washroom & Type Repair Shop	110 sqm
Garage & Tool Room	255 sqm
Parking for large vehicle (4 nos.)	700 sqm
Parking Area 45 no. @ 52.5 sqm	2362 sqm
Petrol pump & its office	600 sqm
Staff parking (2 wheeler & 4 wheeler) & visitors	260 sqm
Total	5651 sqm
Circulation area 20%	1130 sqm
Plot Area Total	6781 sqm
(say 7000 sqm)	

Tada end and Ibrahimpatnam and other Secondary Base Camps	Area (Indicative)
Only Maintenance Camp	
Maintenance Block	220 sqm
Equipment & Store	330 sqm
Paint & Sign Shop	183 sqm
Welding Shop	110 sqm
Washroom & Tyre Shop	110 sqm
Garage & Tool Room	255 sqm
Parking for large vehicle	700 sqm
Parking area 25 nos. @ 52.5 sqm/no.	1312 sqm
Total	3220 sqm
Circulation @ 20%	644 sqm
Plot Area Total	3864 sqm
(Say, 4000 sqm)	

All the structures inside the Administrative, Operation and Maintenance Base Camp shall conform to clause 3.5.2.1 of this schedule. The areas stated above are indicative and actual area requirements shall be subject to detailed design.

3.5.12.2 The roads inside the Administrative and Maintenance Base camp shall be of the same flexible pavement material specifications as the adjoining highway and widths of all internal roads and pathways of the Administrative, Operation and Maintenance Base Camp shall conform to clause 4 of part III of NBC. Location, design and illumination of all advertising and signage shall be as per IRC: 46-1972. Suitable planting shall flank all the access, exit, internal roads and paved areas.

3.5.12.3 The design of water distribution and storage systems, laying of mains and pipers, cleaning and disinfecting of the water supply system shall be as per relevant clauses of Section 1, Part IX of the NBC. The Water supply to the Base camp shall be either from a public water supply system or from a safe underground water source. The sanitary facilities shall be positioned away from the drinking water facility.

3.5.12.4 The design, layout and construction of drains for sewage disposal system with all ancillary works such as connections, manholes and inspection chambers and septic tanks shall be as per relevant clauses of Section 2, Part IX of the NBC. Each septic tank, if provided, shall have a soak pit of adequate size. The location of the septic tanks and subsurface absorption system shall be as per clause 12.15.1 of part III of NBC. Separate sanitary facility shall be provided for men and women as per the NBC. The sanitary facilities shall be positioned away from the drinking water facility.

3.5. 12.5 The design, planning, construction and installation of air conditioning system, if any, and equipment installed in the buildings for maintaining condition of air temperature, humidity, purity and distribution shall be as per section 3 part VIII of the NBC.

3.5.12.6 The design and location of all electrical installations, distribution system wiring, fittings, accessories and lightning protection of buildings shall be as per relevant clauses of Section 2, Part VIII of the NBC. Adequate stand-by power generation units shall support the power supply system.

3.5.12.7 All parking space in the Administrative and Maintenance Base camp shall be paved to withstand vehicle loads and forces due to frequent acceleration and deceleration of vehicles. Parking bays/lots shall have proper cross slope and drainage. They shall be marked with paint as per IRC:35-1997 to demarcate parking and circulation space. Parking lots shall be adequately illuminated and night-time illumination shall not be less than 10 lux. Lighting installation shall be designed and provided as per IS:1944 (Part II and I) 1970.

3.5. 12.8 There shall be security posts at all exit points and the camp shall be properly fenced. The Administrative, Operation and Maintenance Base Camp shall be protected from intruders and animals. Boundary walls, fencing, controlled entry points and cattle-catchers at all exits shall be provided as required.

3.5.13 Toll Plaza, TAP and Base Camp Complex

The Toll Plaza Complex at Tada-Nellore end, Sullurpet end and Ibrahimpatnam will consist the following facilities. The guide on the area required is given against each facility and the actual area requirements shall be subject to detailed design.

3.5.13.1 Tada - Nellore end complex given against each facility

- Main base camp including Administration block - 7000 sqm
- Toll Plaza building - 1875 sqm
- Traffic Aid Post - 500 sqm

3.5.13.2 Tada end and Ibrahimpatnam

- Secondary base camp - 4000 sqm
- Toll plaza building - 1875 sqm
- Traffic Aid Post - 500 sqm

The layout and area requirement of facilities at the above locations shall be prepared in consultation with the Independent Consultant.

4. DESIGN STANDARDS

4.1 Design Standards comprise Ministry of Surface Transport, Roads Wing (MOST), policy circulars and IRC codes, guidelines and special publications applicable to National Highways. Where the said standards are silent on any item, the following standards in order of preference shall be adopted with the approval of the Independent Consultant/NHAI.

i. Bureau of Indian Standards (BIS)
ii. American Association of State Highway and Transport Officials (AASHTO)
iii. British Standards (BS)
iv. American Society of Testing Materials (ASTM)
v. Any other National or International Standard suggested by the Concessionaire.

4.3 Litterbins

4.3.1 The litterbins shall be located at no more than 100-m intervals in the rest area and the truck parking lay-bys. The bus stops shall be provided with at least one litterbin.

4.3.2 The capacity of the litterbin shall be as per requirement, subject to a minimum of 30 litres.

4.4 Public Toilets

4.4.1 Requisite number of urinals, WC and bathing places supported by adequate water supply and sewage facilities and appurtenances as per the NBC shall be provided at truck parking lay-bys, subject to a minimum of 4 WC, 5 urinals and 3 bathing places. Number of urinals, WC and bathing spaces in all other places including the rest areas will be as per the NBC. The entrance of the ladies toilet shall be clearly segregated from the men's toilet.

4.4.2 At least 2-m wide area around the toilet blocks shall be paved with adequate cross slopes and drainage to ensure speedy disposal of water.

4.5 Drinking Water Kiosk

4.5.1 Drinking water kiosks at the truck lay-bys shall have a minimum of 4 taps of push button type. The drinking water kiosks shall be easily accessible to children and handicapped people. The water kiosk shall be properly segregated and shall be at least 3-m away from the toilet block, if any.

4.5.2 Water storage in the drinking water kiosks shall be as per the NBC, subject to a minimum of 200 litres. At least 2-m area around the drinking water kiosks shall be paved with adequate cross slopes and drainage to ensure speedy disposal of spilt water.

4.6 Highway Lighting System

4.6.1 The night-time illumination in the areas used by pedestrian shall not be less than 10 lux. In urban areas, it is recommended that semi-cut-off luminaries shall be provided.

4.6.2 The layout of masts, their height and spacing shall be fixed in consultation with the Independent Consultant so that the minimum illumination level prescribed in 4.6.1 above is achieved.

4.7 Telephone Systems

4.7.1 Design Parameters

1. Easy to Use : Should be easy to use, even for those who have never used a telephone before;

2. Instructions : Although the design is envisaged to be simple, instructions should be prominently displaced both in English, Hindi and the vernacular language of the region i.e. Telugu.

3. Identification: Each emergency telephone should have its identification number prominently displayed.

4. Climatic Conditions: It should be designed keeping in mind outdoors climatic conditions in the region with resistance to rain, heat and dust.

5. Vandal proof: As PATS is to be unmanned, it should be strong enough to withstand vandalism or handling by aggressive users.

6. Installation : it should be based on wire-line technology, connected to the TAPS and control room.

7. Distance between emergency telephone : the unmanned telephone shall be installed at regular intervals of 2 km along the highway. Emergency telephone shall be robust to withstand vandalism or aggressive use.

4.7.2 Bypass Circuit: to ensure uninterrupted communication in case of failure of the main circuit a bypass circuit shall also be installed.

4.7.3 Toll Free: For road users the emergency telephone shall be free of charge.

4.8 Toll Plaza

4.8.1 The design of toll plaza shall be done in accordance with the guidelines given in the Schedule C. The design shall aim at optimising efficiency of toll collection and minimising vehicle delays.

4.8.2 Toll Collection System shall be semi-automatic. The number of service lanes required shall be designed judiciously to cater the traffic for entire Project Period. There shall be a separate lane for traffic not required to pay fees.

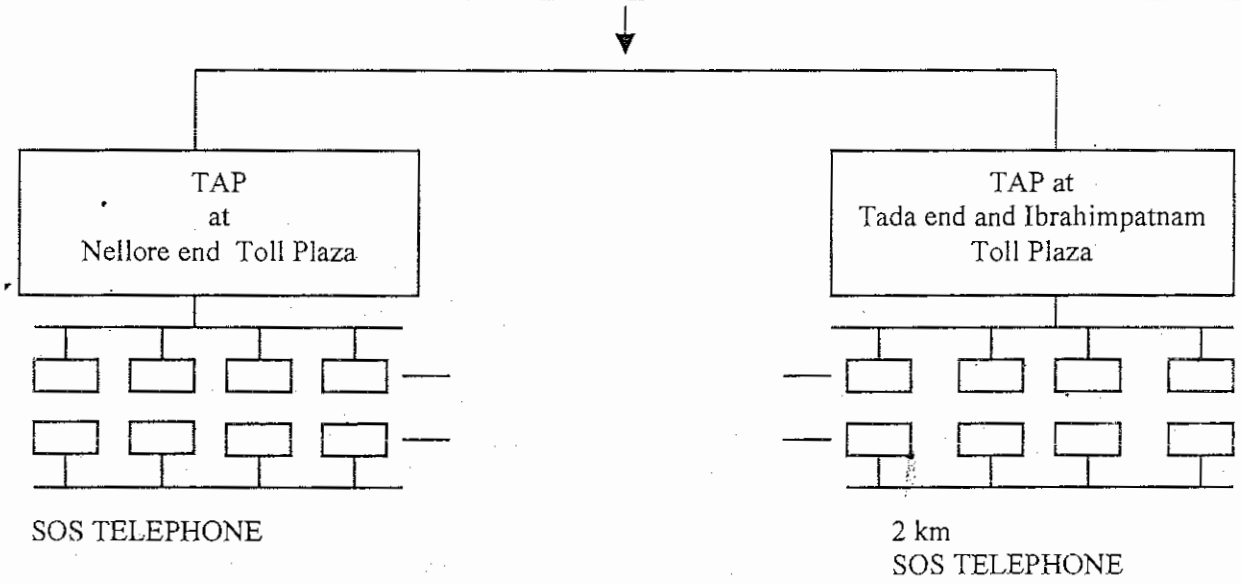
4.8.3 The height of the canopy shall be such that a vertical clearance of 5.5m is provided. For the oversized vehicle lane the vertical clearance shall be 6.5m.

4.9 Traffic Safety Measures

4.9.1 Highway Patrolling

4.9.1.1 The Traffic Aid Posts (TAPs) shall be set up at the toll plaza locations as per Schedule C along the Project Highway. A control centre shall be established at Nellore end Toll Plaza Complex for co-ordinating the telephone central system and the TAPs. Communication with TAPs shall be through RAT and with patrolling teams through VHF radios. The telephone system at the Control Centre shall get activated once the person pushes the button of the phone from any of the emergency (free charge) telephone. The Control Centre shall be equipped with a system to identify (without the necessity of caller mentioning or identifying) the location of emergency telephone and to record the nature of incident in least possible time. The emergency call from any emergency telephone is also expected to activate the TAPs with a warning bell. The operator (or receiver) shall be directly responsible to handle the situation by giving instructions to attached facilities (or traffic control centres). Schematic diagram of system of phones, TAPs and the Control Centre is shown in the following figure.

Figure D-1



- TAP : Traffic Aid Post
- Distance are representative

4.9.1.2 The minimum sizes of the rooms in the TAP shall be as per Section 12 of the NBC and sanitary convenience shall be provided as per clause 5.5.1 (Table 1) of the NBC. The TAP shall adequately house a sub-inspector's room, a constable's room, first aid room, waiting room and a pantry. Covered parking space shall be provided for the vehicle(s) operated by the TAP.

4.9.2 Pedestrian Guard Rails and Safety Barriers

4.9.2.1 The layout of Pedestrian guardrails at crossings, road intersections shall be as per IRC standards. On kerbed road sections, guardrails shall be at least 15 cm away from the edge of carriageway.

4.9.2.2 The metal crash barriers shall be located at Sharp horizontal curves, high embankments, bridge approaches.

4.10 Traffic Control (on side road)

4.10.1 The road traffic signals, its configuration, size, location and other requirements shall be as per IRC : 93 - 1985 and IS 7537 - 1974.

4.11 Highway Signs

4.11.1 The design and location of route marker signs for national highways shall be as per the IRC 2-1968. The design and placement of highway kilometer stones, the dimensions of stones, size, colour, arrangement of letters shall be as per IRC : 26-1967 and IRC : 8-1980. The design,

location and materials to be used for Road delineators shall be as per IRC : 79-1981. The colour, configuration, size and location of size of traffic signs shall be as per IRC : 67-1977.

4.11.2 For the road signs the standards set in IRC 67-1977, code of practice for road signs shall be followed. As regards, the overhead signs the standards prescribed by MOST shall be followed. Where these are silent, standards prescribed in BIS/British Standards/AASHTO/ASTM or any other international standard in that order shall be adopted in consultation with the Independent Consultant.

4.11.3 On kerbed road sections the edges of the road signs shall be at least 60 cm away from the edge of the kerb, whereas on non-kerbed road sections the edge of the signs shall be at a distance of 2 m from the edge of the carriageway.

4.12 Pavement Markings

4.12.1 Pavement markings shall be designed and provided in accordance with IRC : 35-1997 - "Code of Practice for Road Markings" in consultation with the Independent Consultant.

4.13 Pickup Bus Stops

4.13.1 The layout, design and location of the pickup bus stop shall be as per IRC and MOST specifications.

4.13.2 Pedestrian guardrails shall be provided along the road or the bus bay of the bus stop for adequate length for pedestrian safety, not exceeding 20 m on either side.

4.14 Truck Parking Lay-by

4.14.1 The parking length at lay-by for each vehicle shall not be less than 15 m and parking width for each vehicle shall be 2.75 m. The length of the lay-by shall be as per parking requirement subject to a minimum of 100m and to a minimum with reference to the raised separator between the lay-by and the carriageway shall be 3m in rural sections. The parking spaces shall be parallel to the road. Parking lots shall be adequately illuminated and night time illumination shall not be less than 10 lux.

4.14.2 Truck servicing facility shall be provided at the rate of 1 service bay for every 25 truck parking space provided truck servicing bays shall be properly screened by means of planting so as not to be visually disturbing. Motor garage, if provided shall have an area at the rate of 30 m^2 for each vehicle serviced. The clear height of the garage shall not be less than 4.9 m and it shall be adequately illuminated as per relevant clause of Part VIII of the NBC.

4.15 Administrative, Operation and Maintenance Base Camp

4.15.1 The Administrative and Maintenance Main Base Camp located at Nellore end Toll Plaza Complex shall be easily accessible from the Project Highway and its location shall be such that it does not hamper the efficient functioning of the Project Highway.

4.15.2 The design of the camp shall be functionally sound and the area shall be appropriately landscaped and illuminated. The total built up area shall not exceed 33% of the plot area and circulation area shall not be more than 30% of the total area. There shall be adequate parking space for all the maintenance vehicles in the Administrative and Maintenance Base camp. The size of each parking space for each maintenance vehicle shall not be less than 5 m. x 10.5 m. All internal roads and pathways of the camp shall conform to clause 4 of part III of NBC. Suitable planting shall flank all the access, exit, internal roads and paved areas.

4.16 Landscaping

4.16.1 Trees shall be planted in rows and on either side of the road with staggered pitch as per the IRC : SP : 21-1979. Indicative arrangement for plantation of trees shall be in accordance with the MOST Technical Circular No. NHI-41 (34)169 dated the 6th December, 1969. A range of 10-15 m centre to centre is recommended for spacing of trees (in direction parallel to the road). Setback distance of trees needed in different situations shall be as per the IRC : SP : 21-1979 and the IRC: 66-1976. The distance between the kerb if any and the nearest edge of tree trunk shall be at least 2 m. Shrubs in medians shall not normally exceed 1-1.5 m in height and shall be as per IRC: SP : 21-1979.

4.16.2 The Environment and Social Impact Assessment Report, March 1999 (Clause 13-Schedule C) shall be followed in respect of plantation.

4.16.3 For safe traffic operation, vertical clearance between the crown of the carriageway and lowest part of the overhang of the tree available across the roadway shall conform to the IRC requirements.

APPLICABLE PERMITS

(to be obtained before/on financial closure)

1. **Ministry of Finance / RBI**

   i) Approval for foreign Investment and foreign loans, if required
   ii) Approval for import of equipment and machinery for construction and operation, if required
   iii) Exemption on Excise duty on construction material, if required.

2. **Department of Telecommunication**

   i) Permission / clearance for setting up of wireless system, if required
   ii) Clearance / permission for the use of optical fibre cables of DOT, if required

3. **State Government Permits**

Quarrying Permits :

- Permits for extraction of boulder from quarry from ADM Mines
- Permit for installation of crusher from village panchayat and Pollution Control Board
- License for explosives from Explosive controller
- Explosive license for storing Diesel

Electricity :

- Permission required from SEB for installation of DG
- Permission for electrical connection, if power source is available

Water :

- If water has to be taken -from river/ reservoir, permission to be obtained from State Irrigation Department

Batching Plant :

- License from inspection of factories
- NOC consent from pollution department

Asphalt Plant :

- Clearance required from village panchayats & Pollution Control Board

Borrow Earth :

- Permission required from village panchayat and ADM mines for Government & private land
- Permission from irrigation department if land taken from irrigation land
- Permission for cutting of trees

Schedule F

BANK GUARANTEE FOR PERFORMANCE SECURITY

The National Highways Authority of India
1-A, Eastern Avenue, Maharani Bagh, New Delhi - 110 065.

WHEREAS.....
*[Name and address of Concessionaire] has undertaken, in pursuance of Concession Agreement ..... dated ..... to execute.

(Herein after called "the .....)

AND WHEREAS it has been stipulated by you in the said Concession Agreement that the Concessionaire shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Concession Agreement.

AND WHEREAS we have agreed to give the Concessionaire such a Bank Guarantee;

NOW THEREOF we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Concessionaire up to a total of ..... [amount of Guarantee] .....
[in words], such sum being payable in the types and proportions of currencies in which the Concession Agreement Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of ..... [amount of Guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Concessionaire before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Concession Agreement or of the Works to be performed there under or of any of the Concession Agreement documents which may be made between you and the Concessionaire shall in any way release us from any liability under this guarantee, and we hereby waive notice of any change, addition or modification.

This guarantee shall be valid until [ ].

SIGTURE AND SEAL OF THE GUARANTOR

.....

NAME OF THE BANK

.....

ADDRESS

.....

DATE

.....

in the presence of

.....

(Name and Occupation)

.....

(Name and Occupation)

.....

(An amount is to be inserted by the Guarantor, representing the percentage of the ..... Price specified and denominated either in Indian Rupees/or in a freely convertible currency acceptable to the .....)

SCHEDULE OF USER FEE

TO BE PUBLISHED IN THE GAZETTE OF INDIA

EXTRAORDINARY

PART 11 - Section 3 Sub Section (ii)

PUBLISHED BY AUTHORITY

MINISTRY OF ROAD TRANSPORT & HIGHWAY

(ROADS WING)

New Delhi, the

NOTIFICATION

Whereas the National Highways Authority of India on behalf of the Government has entered into an agreement with M/s ..... for the development of Tada-Nellore and Nandigama-Vljayawada Section which is part of National Highways No.5 from km.52.8 and ends at km. 163:6 and part of National Highways No. 9 from km. 216 to km. 265, both in the State of Andhra Pradesh.

And whereas, having regard to the expenditure involved in building, maintenance, management and operation of the said stretch of National Highway, interest on the capital invested, reasonable returns, the volume of traffic and the period of such agreement, the Central Government has decided to determine the rates of fee and period of fee collection. Now, therefore, in exercise of the powers conferred under sub rule 2 read with sub rule 1 of rule 3 of "National Highways (Collection of fees by any person for the use of sections of National Highways/permanent bridge/temporary bridge on National Highway) Rules 1997 hereinafter referred to as 'the said rules, the Central Government hereby decides to authorise M/s ..... to collect and retain the fees from different categories of mechanical vehicles from ..... to ..... at the rates specified in the Schedule Annexed herewith subject to the terms and conditions of the said agreement and the said rules.

SCHEDULE OF USER FEE

(Rates of fees to be recovered from the users of NH-5 from km.52.8 to km.163.6 and NH-9 from km.217 to km.265 effective as on ..... 2001).

S.No.	CATEGORY OF VEHICLE	BASE FEE # RATE OF FEE PER VEHICLE PER TRIP (IN RUPEES PER KM)
(1)	(2)	(3)
1.	A car, passenger van or jeep	0.40
2.	Light Goods Vehicle (LGV)	0.70
3.	Truck	1.40
4.	Bus	1.40
5.	Earth moving equipment and Heavy construction machinery including oversized vehicles carrying boilers, turbines, generators, etc.	3.00

To be specified in Rupees (up to two decimal places) per Trip per vehicle in the notification

Notes :

1. The aforesaid Fee will be revised with effect from July 1 for one year. The revised fee shall be computed ("Computed Fee") as follows:

$$\text{Base Fee} \times \frac{WPI_1}{WPI_0}$$

Where

- WPI_0 = is the WPI on March 31, 1997
- WPI_1 = is the WPI on March 31 preceding the fee-revision date.

The Actual Fees to be charged shall be rounded off to the nearest five Rupees.

2. Following types of vehicles are exempted from the toll :

Ambulances, fire tenders, and official vehicles transporting and accompanying the President of India, the Vice-President of India, the Prime Minister of India, Ministers of the government of India, Governors, Lt. Governors, Chief Ministers, Presiding Officers of Central and the state legislatures having jurisdiction, leaders of opposition in Lok Sabha, Rajya Sabha and the State legislatures having jurisdiction, Ministers of the STG, judges of the Supreme Court of India and of the High Courts having jurisdiction, Secretaries and Commissioher of STG, Foreign Dignitaries on State visit to India, Heads of Foreign Missions stationed in India using cars with CD symbol,

executive magistrates, officers of MOST and NHAI, persons required to use the Project Highway for discharging their statutory obligations under various contracts with NHAI like maintenance and consultancy contracts; and Central and State forces in uniform including armed forces, para military forces and police.

3. The following discounted rates shall be applicable to Local Personal Traffic (Dept) and Local Commercial Traffic (Dept). (COPY)

4. NHAI will compute the actual fees and the revised fees to be charged to users as soon as possible after March 31 every year and display the same on boards erected in the vicinity of the toll booths before the rate increase is to be effective.

SCHEDULE H1

PROJECT COMPLETION SCHEDULE FOR SECTION OF NH-5 (TADA TO NELLORE)

Name of the Project : Widening of existing 2-lanes to 4-lanes divided carriageway facility including rehabilitation of existing 2-lanes from (a) km 52.8 to 163.6 on Tada-Nellore Section of National Highway No. 5("NH-5)" in Andhra Pradesh, India and (b) km 217 to 252 on Nandigama-Ibrahimpatnam Section of National Highway No. 9 ("NH-9)" on build, operate and transfer ("BOT") basis, and (c) operation, maintenance and collection of fees of NH-9 from km 253 to 265 on Ibrahimpatnam-Vijayawada Section in Andhra Pradesh, India.

SECTION OF NH-5 FROM TADA TO NELLORE (KM 52.8 TO KM 163.6)

Sl. No.	Project Mile Stone	Execution Duration and Completion Period of Project Mile Stones	Remarks
	Years	2001 (1–12) · 2002 (1–12) · 2003 (1–12)	
	Month	1 2 3 4 5 6 7 8 9 10 11 12 · 1 2 3 4 5 6 7 8 9 10 11 12 · 1 2 3 4 5 6 7 8 9 10 11 12	
1	Signing of Concession Agreement	X	Start of Concession Agreement from date of signature. Period is reckoned from the said date.
2	Financial Close		As per Concession Agreement.
3	Detailed Site Survey and Investigations		
4	Detailed Designs and Working Drawings		
5	Construction of Civil Works		
5.1	New Carriageway, drainage structures and road furniture		
5.2	Widening and Strengthening of Existing 2-Lanes Carriageway, drainage structures and Road Furniture		Work on new carriageways will not be executed concurrently in the same stretch of the Project Highway.
5.3	Major Structure		
	a) Major Bridges		
	b) Minor Bridges		
6	Utilities		
7	Construction and installation of Toll Plazas and Equipment		
8	Tests on Completion of the Facility		As per Schedule J of Concession Agreement.
9	Opening of the Project Highway to Traffic Commercially	X	Opening to traffic commercially after obtaining Completion / Provisional certificate.

SCHEDULE H2

PROJECT COMPLETION SCHEDULE FOR SECTION OF NH-9 (NANDIGAMA TO VIJAYAWADA)

Name of the Assignment : Widening of existing 2-lanes to 4-lanes divided carriageway facility including rehabilitation of existing 2-lanes from (a) km 52.8 to 163.6 on Tada-Nellore Section of National Highway No. 5("NH-5)" in Andhra Pradesh, India and (b) km 217 to 252 on Nandigama-Ibrahimpatnam Section of National Highway No. 9 ("NH-9)" on build, operate and transfer ("BOT") basis, and (c) operation, maintenance and collection of fees of NH-9 from km 253 to 265 on Ibrahimpatnam-Vijayawada Section in Andhra Pradesh, India.

SECTION OF NH-9 FROM NANDIGAMA TO VIJAYAWADA (KM 217 TO KM 265)

Sl. No.	Project Mile Stone	Execution Duration and Completion Period of Project Mile Stones																																	Remarks
		Years	1												2											3										
		Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
1	Signing of Concession Agreement				X																																Start of Concession Agreement from date of signature. Period is reckoned from the said date.
2	Financial Close																																				As per Concession Agreement.
3	Detailed Site Survey and Investigations																																				
4	Detailed Designs and Working Drawings																																				
5	Construction of Civil Works																																				
5.1	New Carriageway, drainage structures and road furniture																																				
5.2	Widening and Strengthening of Existing 2-Lanes Carriageway, drainage structures and Road Furniture																																				Work on new carriageways will not be executed concurrently in the same stretch of the Project Highway.
5.3	Major Structure a) Major bridges b) Interchanges																																				
6	Road Side Facilities																																				
7	Construction and Installation of Toll Plazas and Equipment																																				
8	Tests on Completion of the Facility																																				As per Schedule J of Concession Agreement.
9	Opening of the Project Highway to Traffic Commercially																																				Opening to traffic commercially after obtaining Completion / Provisional certificate.

SCHEDULE I

DRAWINGS

1. The Project Highway drawings, as defined in Clause 1.1 Definitions, Article 1, Definitions and Interpretation, Chapter 1 – Preliminary of the Concession Agreement shall consist: -

a) Drawings submitted by the Concessionaire as part of the bid (Item 2 of this Schednle I), incorporating modifications accepted by NHAI for the Contract Agreement, if any.

b) Working Drawings of all the components / elements of the Project Highways as determined by NHAI/ Independent Consultant, and

c) 'As Built' Drawings for the Project Highway components / elements as determined by Independent Consultant / NHAI. As built drawings shall be duly certified by Independent Consultant.

2. Annexures 'A' & 'B' of this schedule gives the list of Drawings (only drawing as defined in Dictionary) of the main components / elements of the Project Highways submitted by a bidder with his bid.

SCHEDULE I(A)

Annexure A

NH-5: TADA TO NELLORE (Km 52.800 TO Km 163.600)
LIST OF DRAWINGS TO BE SUBMITTED BY BIDDERS

S.No	DRAWING NO.	DRAWING TITLE
1	SWK/NH-5/AP-7/KP/01 SWK/NH-5/AP-8/KP/01	KEY PLAN
2	SWK/NH-5/CS/01	DETAILS OF ROAD CROSS SECTIONS
3	SWK/NH-5/CS/02	DETAILS ROAD CROSS SECTIONS (SUPERELEVATED SECTIONS)
4	SWK/NH-5/AP-7/TAB/01 SWK/NH-5/AP-8/TAB/01	CROSS-SECTION TYPE, LOCATION OF SERVICE ROAD & LEGENDS
5	SWK/NH-5/AP-7/PP/01	ROAD PLAN & PROFILE FROM KM 54.30 TO 55.00
6	SWK/NH-5/AP-7/PP/02	ROAD PLAN & PROFILE FROM KM 55.00 TO 56.00
7	SWK/NH-5/AP-7/PP/03	ROAD PLAN & PROFILE FROM KM 56.00 TO 57.00
8	SWK/NH-5/AP-7/PP/04	ROAD PLAN & PROFILE FROM KM 57.00 TO 58.00
9	SWK/NH-5/AP-7/PP/05	ROAD PLAN & PROFILE FROM KM 58.00 TO 59.00
10	SWK/NH-5/AP-7/PP/06	ROAD PLAN & PROFILE FROM KM 59.00 TO 60.00
11	SWK/NH-5/AP-7/PP/07	ROAD PLAN & PROFILE FROM KM 60.00 TO 61.00
12	SWK/NH-5/AP-7/PP/08	ROAD PLAN & PROFILE FROM KM 61.00 TO 62.00
13	SWK/NH-5/AP-7/PP/09	ROAD PLAN & PROFILE FROM KM 62.00 TO 63.00
14	SWK/NH-5/AP-7/PP/10	ROAD PLAN & PROFILE FROM KM 63.00 TO 64.00
15	SWK/NH-5/AP-7/PP/11	ROAD PLAN & PROFILE FROM KM 64.00 TO 65.00
16	SWK/NH-5/AP-7/PP/12	ROAD PLAN & PROFILE FROM KM 65.00 TO 66.00
17	SWK/NH-5/AP-7/PP/13	ROAD PLAN & PROFILE FROM KM 66.00 TO 67.00
18	SWK/NH-5/AP-7/PP/14	ROAD PLAN & PROFILE FROM KM 67.00 TO 68.00
19	SWK/NH-5/AP-7/PP/15	ROAD PLAN & PROFILE FROM KM 68.00 TO 69.00
20	SWK/NH-5/AP-7/PP/16	ROAD PLAN & PROFILE FROM KM 69.00 TO 70.00
21	SWK/NH-5/AP-7/PP/17	ROAD PLAN & PROFILE FROM KM 70.00 TO 71.00
22	SWK/NH-5/AP-7/PP/18	ROAD PLAN & PROFILE FROM KM 71.00 TO 72.00
23	SWK/NH-5/AP-7/PP/19	ROAD PLAN & PROFILE FROM KM 72.00 TO 73.00
24	SWK/NH-5/AP-7/PP/20	ROAD PLAN & PROFILE FROM KM 73.00 TO 74.00
25	SWK/NH-5/AP-7/PP/21	ROAD PLAN & PROFILE FROM KM 74.00 TO 75.00
26	SWK/NH-5/AP-7/PP/22	ROAD PLAN & PROFILE FROM KM 75.00 TO 76.00
27	SWK/NH-5/AP-7/PP/23	ROAD PLAN & PROFILE FROM KM 76.00 TO 77.00
28	SWK/NH-5/AP-7/PP/24	ROAD PLAN & PROFILE FROM KM 77.00 TO 78.00
29	SWK/NH-5/AP-7/PP/25	ROAD PLAN & PROFILE FROM KM 78.00 TO 79.00
30	SWK/NH-5/AP-7/PP/26	ROAD PLAN & PROFILE FROM KM 79.00 TO 80.00
31	SWK/NH-5/AP-7/PP/27	ROAD PLAN & PROFILE FROM KM 80.00 TO 81.00
32	SWK/NH-5/AP-7/PP/28	ROAD PLAN & PROFILE FROM KM 81.00 TO 82.00

S.No	DRAWING NO.	DRAWING TITLE
33	SWK/NH-5/AP-7/PP/29	ROAD PLAN & PROFILE FROM KM 82.00 TO 83.00
34	SWK/NH-5/AP-7/PP/30	ROAD PLAN & PROFILE FROM KM 83.00 TO 84.00
35	SWK/NH-5/AP-7/PP/31	ROAD PLAN & PROFILE FROM KM 84.00 TO 85.00
36	SWK/NH-5/AP-7/PP/32	ROAD PLAN & PROFILE FROM KM 85.00 TO 86.00
37	SWK/NH-5/AP-7/PP/33	ROAD PLAN & PROFILE FROM KM 86.00 TO 87.00
38	SWK/NH-5/AP-7/PP/34	ROAD PLAN & PROFILE FROM KM 87.00 TO 88.00
39	SWK/NH-5/AP-7/PP/35	ROAD PLAN & PROFILE FROM KM 88.00 TO 89.00
40	SWK/NH-5/AP-7/PP/36	ROAD PLAN & PROFILE FROM KM 89.00 TO 90.00
41	SWK/NH-5/AP-7/PP/37	ROAD PLAN & PROFILE FROM KM 90.00 TO 91.00
42	SWK/NH-5/AP-7/PP/38	ROAD PLAN & PROFILE FROM KM 91.00 TO 92.00
43	SWK/NH-5/AP-7/PP/39	ROAD PLAN & PROFILE FROM KM 92.00 TO 93.00
44	SWK/NH-5/AP-7/PP/40	ROAD PLAN & PROFILE FROM KM 93.00 TO 94.00
45	SWK/NH-5/AP-7/PP/41	ROAD PLAN & PROFILE FROM KM 94.00 TO 95.00
46	SWK/NH-5/AP-7/PP/42	ROAD PLAN & PROFILE FROM KM 95.00 TO 96.00
47	SWK/NH-5/AP-7/PP/43	ROAD PLAN & PROFILE FROM KM 96.00 TO 97.00
48	SWK/NH-5/AP-7/PP/44	ROAD PLAN & PROFILE FROM KM 97.00 TO 98.00
49	SWK/NH-5/AP-7/PP/45	ROAD PLAN & PROFILE FROM KM 98.00 TO 99.00
50	SWK/NH-5/AP-7/PP/46	ROAD PLAN & PROFILE FROM KM 99.00 TO 100.00
51	SWK/NH-5/AP-7/PP/47	ROAD PLAN & PROFILE FROM KM 100.00 TO 101.00
52	SWK/NH-5/AP-7/PP/48	ROAD PLAN & PROFILE FROM KM 101.00 TO 102.00
53	SWK/NH-5/AP-7/PP/49	ROAD PLAN & PROFILE FROM KM 102.00 TO 103.00
54	SWK/NH-5/AP-7/PP/50	ROAD PLAN & PROFILE FROM KM 103.00 TO 104.00
55	SWK/NH-5/AP-7/PP/51	ROAD PLAN & PROFILE FROM KM 104.00 TO 105.00
56	SWK/NH-5/AP-7/PP/52	ROAD PLAN & PROFILE FROM KM 105.00 TO 106.00
57	SWK/NH-5/AP-7/PP/53	ROAD PLAN & PROFILE FROM KM 106.00 TO 107.00
58	SWK/NH-5/AP-7/PP/54	ROAD PLAN & PROFILE FROM KM 107.00 TO 108.00
59	SWK/NH-5/AP-7/PP/55	ROAD PLAN & PROFILE FROM KM 108.00 TO 109.00
60	SWK/NH-5/AP-7/PP/56	ROAD PLAN & PROFILE FROM KM 109.00 TO 110.00
61	SWK/NH-5/AP-7/PP/57	ROAD PLAN & PROFILE FROM KM 110.00 TO 111.00
62	SWK/NH-5/AP-7/PP/58	ROAD PLAN & PROFILE FROM KM 111.00 TO 112.00
63	SWK/NH-5/AP-8/PP/01	ROAD PLAN & PROFILE FROM KM 111.50 TO 112.00
64	SWK/NH-5/AP-8/PP/02	ROAD PLAN & PROFILE FROM KM 112.00 TO 113.00
65	SWK/NH-5/AP-8/PP/03	ROAD PLAN & PROFILE FROM KM 113.00 TO 114.00
66	SWK/NH-5/AP-8/PP/04	ROAD PLAN & PROFILE FROM KM 114.00 TO 115.00
67	SWK/NH-5/AP-8/PP/05	ROAD PLAN & PROFILE FROM KM 115.00 TO 116.00
68	SWK/NH-5/AP-8/PP/06	ROAD PLAN & PROFILE FROM KM 116.00 TO 117.00
69	SWK/NH-5/AP-8/PP/07	ROAD PLAN & PROFILE FROM KM 117.00 TO 118.00

S.No	DRAWING NO.	DRAWING TITLE
70	SWK/NH-5/AP-8/PP/08	ROAD PLAN & PROFILE FROM KM 118.00 TO 119.00
71	SWK/NH-5/AP-8/PP/09	ROAD PLAN & PROFILE FROM KM 119.00 TO 120.00
72	SWK/NH-5/AP-8/PP/10	ROAD PLAN & PROFILE FROM KM 120.00 TO 121.00
73	SWK/NH-5/AP-8/PP/11	ROAD PLAN & PROFILE FROM KM 121.00 TO 122.00
74	SWK/NH-5/AP-8/PP/12	ROAD PLAN & PROFILE FROM KM 122.00 TO 123.00
75	SWK/NH-5/AP-8/PP/13	ROAD PLAN & PROFILE FROM KM 123.00 TO 124.00
76	SWK/NH-5/AP-8/PP/14	ROAD PLAN & PROFILE FROM KM 124.00 TO 125.00
77	SWK/NH-5/AP-8/PP/15	ROAD PLAN & PROFILE FROM KM 125.00 TO 126.00
78	SWK/NH-5/AP-8/PP/16	ROAD PLAN & PROFILE FROM KM 126.00 TO 127.00
79	SWK/NH-5/AP-8/PP/17	ROAD PLAN & PROFILE FROM KM 127.00 TO 128.00
80	SWK/NH-5/AP-8/PP/18	ROAD PLAN & PROFILE FROM KM 128.00 TO 129.00
81	SWK/NH-5/AP-8/PP/19	ROAD PLAN & PROFILE FROM KM 129.00 TO 130.00
82	SWK/NH-5/AP-8/PP/20	ROAD PLAN & PROFILE FROM KM 130.00 TO 131.00
83	SWK/NH-5/AP-8/PP/21	ROAD PLAN & PROFILE FROM KM 131.00 TO 132.00
84	SWK/NH-5/AP-8/PP/22	ROAD PLAN & PROFILE FROM KM 132.00 TO 133.00
85	SWK/NH-5/AP-8/PP/23	ROAD PLAN & PROFILE FROM KM 133.00 TO 134.00
86	SWK/NH-5/AP-8/PP/24	ROAD PLAN & PROFILE FROM KM 134.00 TO 135.00
87	SWK/NH-5/AP-8/PP/25	ROAD PLAN & PROFILE FROM KM 135.00 TO 136.00
88	SWK/NH-5/AP-8/PP/26	ROAD PLAN & PROFILE FROM KM 136.00 TO 137.00
89	SWK/NH-5/AP-8/PP/27	ROAD PLAN & PROFILE FROM KM 137.00 TO 138.00
90	SWK/NH-5/AP-8/PP/28	ROAD PLAN & PROFILE FROM KM 138.00 TO 139.00
91	SWK/NH-5/AP-8/PP/29	ROAD PLAN & PROFILE FROM KM 139.00 TO 140.00
92	SWK/NH-5/AP-8/PP/30	ROAD PLAN & PROFILE FROM KM 140.00 TO 141.00
93	SWK/NH-5/AP-8/PP/31	ROAD PLAN & PROFILE FROM KM 141.00 TO 142.00
94	SWK/NH-5/AP-8/PP/32	ROAD PLAN & PROFILE FROM KM 142.00 TO 143.00
95	SWK/NH-5/AP-8/PP/33	ROAD PLAN & PROFILE FROM KM 143.00 TO 144.00
96	SWK/NH-5/AP-8/PP/34	ROAD PLAN & PROFILE FROM KM 144.00 TO 145.00
97	SWK/NH-5/AP-8/PP/35	ROAD PLAN & PROFILE FROM KM 145.00 TO 146.00
98	SWK/NH-5/AP-8/PP/36	ROAD PLAN & PROFILE FROM KM 146.00 TO 147.00
99	SWK/NH-5/AP-8/PP/37	ROAD PLAN & PROFILE FROM KM 147.00 TO 148.00
100	SWK/NH-5/AP-8/PP/38	ROAD PLAN & PROFILE FROM KM 148.00 TO 149.00
101	SWK/NH-5/AP-8/PP/39	ROAD PLAN & PROFILE FROM KM 149.00 TO 150.00
102	SWK/NH-5/AP-8/PP/40	ROAD PLAN & PROFILE FROM KM 150.00 TO 151.00
103	SWK/NH-5/AP-8/PP/41	ROAD PLAN & PROFILE FROM KM 151.00 TO 152.00
104	SWK/NH-5/AP-8/PP/42	ROAD PLAN & PROFILE FROM KM 152.00 TO 153.00
105	SWK/NH-5/AP-8/PP/43	ROAD PLAN & PROFILE FROM KM 153.00 TO 154.00
106	SWK/NH-5/AP-8/PP/44	ROAD PLAN & PROFILE FROM KM 154.00 TO 155.00

S.No	DRAWING NO.	DRAWING TITLE
107	SWK/NH-5/AP-8/PP/45	ROAD PLAN & PROFILE FROM KM 155.00 TO 156.00
108	SWK/NH-5/AP-8/PP/46	ROAD PLAN & PROFILE FROM KM 156.00 TO 157.00
109	SWK/NH-5/AP-8/PP/47	ROAD PLAN & PROFILE FROM KM 157.00 TO 158.00
110	SWK/NH-5/AP-8/PP/48	ROAD PLAN & PROFILE FROM KM 158.00 TO 159.00
111	SWK/NH-5/AP-8/PP/49	ROAD PLAN & PROFILE FROM KM 159.00 TO 160.00
112	SWK/NH-5/AP-8/PP/50	ROAD PLAN & PROFILE FROM KM 160.00 TO 161.00
113	SWK/NH-5/AP-8/PP/51	ROAD PLAN & PROFILE FROM KM 161.00 TO 162.00
114	SWK/NH-5/AP-8/PP/52	ROAD PLAN & PROFILE FROM KM 162.00 TO 163.00
115	SWK/NH-5/AP-8/PP/53	ROAD PLAN & PROFILE FROM KM 163.00 TO 164.00
116	SWK/NH-5/SR/01	TYPICAL DETAIL OF SERVICE ROAD IN URBAN & RURAL AREAS
117	SWK/NH-5/AP-7/SR/02	VERTICAL PROFILE FOR SERVICE ROAD – HANUMAN TEMPLE
118	SWK/NH-5/AP-8/SR/01	VERTICAL PROFILE FOR SERVICE ROAD – CHILLAKUR (SHEETS 1 TO 2)
119	SWK/NH-5/AP-8/SR/02	VERTICAL PROFILE FOR SERVICE ROAD – MONUBOLU (SHEETS 1 TO 2)
120	SWK/NH-5/AP-7/SR/03	VERTICAL PROFILE FOR SERVICE ROAD – RAMAPURAM
121	SWK/NH-5/AP-8/SR/03	VERTICAL PROFILE FOR SERVICE ROAD – VENKATACHALAM (SHEETS 1 TO 2)
122	SWK/NH-5/AP-7/SR/04	VERTICAL PROFILE FOR SERVICE ROAD – ARAMBAKKAM (SHEETS 1 TO 2)
123	SWK/NH-5/AP-8/SR/04	VERTICAL PROFILE FOR SERVICE ROAD – FCI GODOWN
124	SWK/NH-5/AP-7/SR/05	VERTICAL PROFILE FOR SERVICE ROAD – CHECK POST (SHEETS 1 TO 2)
125	SWK/NH-5/AP-8/SR/05	VERTICAL PROFILE FOR SERVICE ROAD – BUJI BUJI NELLORE (SHEETS 1 TO 2)
126	SWK/NH-5/AP-7/SR/06	VERTICAL PROFILE FOR SERVICE ROAD – TADA (SHEETS 1 TO 5)
127	SWK/NH-5/AP-7/SR/07	VERTICAL PROFILE FOR SERVICE ROAD – DORAVARISTRAM
128	SWK/NH-5/AP-7/JN/01	DETAIL AT SULURPET JUNCTION – PLAN
129	SWK/NH-5/AP-8/JN/01	DETAIL AT GUDUR JUNCTION – PLAN
130	SWK/NH-5/AP-7/JN/02	DETAIL AT SULURPET JUNCTION – PROFILE
131	SWK/NH-5/AP-8/JN/02	DETAIL AT GUDUR JUNCTION – PROFILE
132	SWK/NH-5/AP-7/JN/03 SWK/NH-5/AP-8/JN/03	TYPICAL DETAIL OF JUNCTION TYPE – J1
133	SWK/NH-5/AP-7/JN/04 SWK/NH-5/AP-8/JN/04	TYPICAL DETAIL OF JUNCTION TYPE – J2
134	SWK/NH-5/AP-7/JN/05 SWK/NH-5/AP-8/JN/05	TYPICAL DETAIL OF JUNCTION TYPE – J3 & MEDIAN CROSSING
135	SWK/NH-5/AP-7/JN/06	VERTICAL PROFILE OF JUNCTION J1 & J2
136	SWK/NH-5/AP-7/STD/01 SWK/NH-5/AP-8/STD/01	OVERLAY CONSTRUCTION DETAILS & APPROACH TO BRIDGES
137	SWK/NH-5/STD/02	DETAILS OF RIGID PAVEMENT

S.No	DRAWING NO.	DRAWING TITLE
138	SWK/NH-5/AP-7/DRN/01	PLAN SHOWING DRAINAGE SCHEMES ALONG SERVICE ROAD (SHEETS 1 TO 6)
139	SWK/NH-5/AP-8/DRN/01	PLAN SHOWING DRAINAGE SCHEMES ALONG SERVICE ROAD (SHEETS 1 TO 4)
140	SWK/NH-5/DRN/02	MEDIAN DRAINAGE DETAILS AT SUPERELEVATED SECTIONS – RURAL AREAS
141	SWK/NH-5/DRN/03	HIGH EMBANKMENT PROTECTION & DRAINAGE DETAILS
142	SWK/NH-5/AP-7/UP/01 SWK/NH-5/AP-8/UP/01	DETAILS OF PEDESTRIAN UNDERPASSES
143	SWK/NH-5/RF/01	GA OF SINGLE SIDE SINGLE GUARD RAIL SYSTEM
144	SWK/NH-5/RF/02	RC RAILING & FRICTION SLAB AT UNDERPASS
145	SWK/NH-5/RF/03	MEDIAN BARRIER & CHANNEL DRAIN IN URBAN AREAS
146	SWK/NH-5/RF/04	TYPICAL DETAILS OF ROAD SIDE FURNITURE
147	SWK/NH-5/SIGN/01	DETAILS OF TRAFFIC SIGNS (SHEETS 1 TO 2)
148	SWK/NH-5/SIGN/02	DETAILS OF TRAFFIC SIGNS & PAVEMENT MARKINGS
149	SWK/NH-5/SIGN/03	DETAILS OF TRAFFIC SIGNS AT TOLL, REST AREA & JUNCTIONS
150	SWK/NH-5/SIGN/04	GANTRY MOUNTED OVERHEAD TRAFFIC SIGNS
151	SWK/NH-5/AP-7/CUL/01 SWK/NH-5/AP-8/CUL/01	TYPICAL DETAIL OF R.C PIPE CULVERT
152	SWK/NH-5/AP-7/CUL/02 SWK/NH-5/AP-8/CUL/02	TYPICAL GA DETAIL FOR SLAB CULVERT
153	SWK/NH-5/CUL/03	TYPICAL GA DETAIL FOR SMALL SPAN BRIDGES
154	SWK/NH-5/CUL/04	TYPICAL REINFORCEMENT DETAILS FOR SMALL SPAN BRIDGES
155	SWK/NH-5/TOLL/01	LAYOUT PLAN FOR TOLL PLAZA, TRAFFIC ISLAND & TOLL BOOTH
156	SWK/NH-5/TOLL/02	DETAIL OF TOLL PLAZA, TOLL BOOTH AND CANOPY
157	SWK/NH-5/TOLL/03	TOLL PLAZA ADMINISTRATION AND MAINTENANCE BUILDING – PLAN
158	SWK/NH-5/TOLL/04	TOLL PLAZA ADMINISTRATION AND MAINTENANCE BUILDING – SECTION
159	SWK/NH-5/TOLL/05	DETAIL OF SEPTIC TANK & SOAKAWAY
160	SWK/NH-5/BUS/01	TYPICAL DETAIL FOR SHELTER
161	SWK/NH-5/BUS/02	LAYOUT PLAN FOR PICK-UP BUS STOPS
162	SWK/NH-5/AP-7/LP/01	LAYOUT OF LORRY PARK AT TADA (KM 67.260 – 67.500)
163	SWK/NH-5/LP/01	DETAIL OF DHABHA AT LORRY PARK (KM 124.300 – 124.500)
164	SWK/NH-5/LP/02	DETAIL OF DHABHA AT LORRY PARK
165	SWK/NH-5/AP-7/REST/01	SITE LAYOUT – REST AREA
166	SWK/NH-5/AP-8/REST/01	REST AREA – SITE LAYOUT (KM 151.400)
167	SWK/NH-5/REST/02	DETAIL OF DHABHA AT REST AREA
168	SWK/NH-5/AP-8/REST/02	REST AREA 2 – SITE LAYOUT (KM 153.500)
169	SWK/NH-5/REST/03	DETAIL OF DHABA AT REST AREA

Note: These drawings are indicative and detailed construction drawings conforming to IRC Standards and MOST Specifications to be prepared in consultation with the Independent Consultant and NHAI.

NH-9: VIJAYAWADA - NANDIGAMA (KM 217.000 TO KM 252.000)
LIST OF DRAWINGS TO BE SUBMITTED BY BIDDERS

S. NO	DRAWING NO.	DRAWING TITLE
1	PD/RDS/TYP/STD/002	Content Sheet No. 1
2	PD/RDS/TYP/STD/003	Index Map
3	PD/RDS/TYP/STD/004	Elements Of Curves
4	PD/RDS/TYP/STD/005	Superelevation Principles
5	PD/RDS/PLSP/217.0-217.7/001	Plan & Profile Km 217.000 To 217.700
6	PD/RDS/PLSP/217.7-218.4/002	Plan & Profile Km 217.7000 To 218.400
7	PD/RDS/PLSP/218.4-219.1/003	Plan & Profile Km 218.400 To 219.100
8	PD/RDS/PLSP/219.1-219.8/004	Plan & Profile Km 219.100 To 219.800
9	PD/RDS/PLSP/219.8-220.5/005	Plan & Profile Km 219.800 To 220.500
10	PD/RDS/PLSP/220.5-221.2/006	Plan & Profile Km 220.500 To 221.200
11	PD/RDS/PLSP/221.2-221.9/007	Plan & Profile Km 221.200 To 221.900
12	PD/RDS/PLSP/221.9-222.6/008	Plan & Profile Km 221.900 To 222.600
13	PD/RDS/PLSP/222.6-223.3/009	Plan & Profile Km 222.600 To 223.300
14	PD/RDS/PLSP/223.3-224.0/010	Plan & Profile Km 223.300 To 224.000
15	PD/RDS/PLSP/224.0-224.7/011	Plan & Profile Km 224.000 To 224.700
16	PD/RDS/PLSP/224.7-225.4/012	Plan & Profile Km 224.700 To 225.400
17	PD/RDS/PLSP/225.4-226.1/013	Plan & Profile Km 225.400 To 226.100
18	PD/RDS/PLSP/226.1-226.8/014	Plan & Profile Km 226.100 To 226.800
19	PD/RDS/PLSP/226.8-227.5/015	Plan & Profile Km 226.800 To 227.500
20	PD/RDS/PLSP/227.5-228.2/016	Plan & Profile Km 227.500 To 228.200
21	PD/RDS/PLSP/228.2-228.9/017	Plan & Profile Km 228.200 To 228.900
22	PD/RDS/PLSP/228.9-229.6/018	Plan & Profile Km 228.900 To 229.600
23	PD/RDS/PLSP/229.6-230.3/019	Plan & Profile Km 229.600 To 230.300
24	PD/RDS/PLSP/230.3-231.0/020	Plan & Profile Km 230.300 To 231.000
25	PD/RDS/PLSP/231.0-231.7/021	Plan & Profile Km 231.000 To 231.700
26	PD/RDS/PLSP/231.7-232.4/022	Plan & Profile Km 231.700 To 232.400
27	PD/RDS/PLSP/232.4-233.1/023	Plan & Profile Km 232.400 To 233.100
28	PD/RDS/PLSP/233.1-233.8/024	Plan & Profile Km 233.100 To 233.800
29	PD/RDS/PLSP/233.8-234.5/025	Plan & Profile Km 233.800 To 234.500
30	PD/RDS/PLSP/234.5-235.2/026	Plan & Profile Km 234.500 To 235.200

S. NO	DRAWING NO.	DRAWING TITLE
31	PD/RDS/PLSP/235.2-235.9/027	Plan & Profile Km 235.200 To 235.900
32	PD/RDS/PLSP/235.9-236.6/028	Plan & Profile Km 235.900 To 236.600
33	PD/RDS/PLSP/236.6-237.3/029	Plan & Profile Km 236.600 To 237.300
34	PD/RDS/PLSP/237.3-238.0/030	Plan & Profile Km 237.300 To 238.000
35	PD/RDS/PLSP/238.0-238.7/031	Plan & Profile Km 238.000 To 238.700
36	PD/RDS/PLSP/238.7-239.4/032	Plan & Profile Km 238.700 To 239.400
37	PD/RDS/PLSP/239.4-240.1/033	Plan & Profile Km 239.400 To 240.100
38	PD/RDS/PLSP/240.1-240.8/034	Plan & Profile Km 240.100 To 240.800
39	PD/RDS/PLSP/240.8-241.5/035	Plan & Profile Km 240.800 To 241.500
40	PD/RDS/PLSP/241.5-242.2/036	Plan & Profile Km 241.500 To 242.200
41	PD/RDS/PLSP/242.2-242.9/037	Plan & Profile Km 242.200 To 242.900
42	PD/RDS/PLSP/242.9-243.6/038	Plan & Profile Km 242.900 To 243.600
43	PD/RDS/PLSP/243.6-244.3/039	Plan & Profile Km 243.600 To 244.300
44	PD/RDS/PLSP/244.3-245.0/040	Plan & Profile Km 244.300 To 245.000
45	PD/RDS/PLSP/245.0-245.7/041	Plan & Profile Km 245.000 To 245.700
46	PD/RDS/PLSP/245.7-246.4/042	Plan & Profile Km 245.700 To 246.400
47	PD/RDS/PLSP/246.4-247.1/043	Plan & Profile Km 246.400 To 247.100
48	PD/RDS/PLSP/247.1-247.8/044	Plan & Profile Km 247.100 To 247.800
49	PD/RDS/PLSP/247.8-248.5/045	Plan & Profile Km 247.800 To 248.500
50	PD/RDS/PLSP/248.5-249.2/046	Plan & Profile Km 248.500 To 249.200
51	PD/RDS/PLSP/249.2-249.9/047	Plan & Profile Km 249.200 To 249.900
52	PD/RDS/PLSP/249.9-250.6/048	Plan & Profile Km 249.900 To 250.600
53	PD/RDS/PLSP/250.6-251.3/049	Plan & Profile Km 250.600 To 251.300
54	PD/RDS/PLSP/251.3-252.0/050	Plan & Profile Km 251.300 To 252.000
55	PD/RDS/INTD/STD/001	Typical Junction (Type "A")
56	PD/RDS/INTD/STD/002	Typical Junction (Type "B")
57	PD/RDS/INTD/STD/003	Typical Junction (Type "C")
58	PD/RDS/TYP/TCON/001	Road Marking Details
59	PD/RDS/TYP/TCON/002	Road Marking Details
60	PD/RDS/TYP/TCON/003	Traffic Signs
61	PD/RDS/TYP/TCON/004	Traffic Signs
62	PD/RDS/TYP/TCON/005	Typical Detail of Km. Stones
63	PD/RDS/TYP/TCON/006	Detail of R.C.C Guard Post And M.S. Railing

S. NO	DRAWING NO.	DRAWING TITLE
64	PD/RDS/TYP/TCON/007	Bus Bay Layout
65	PD/RDS/TYP/TCON/008	Typical Layout of Parking
66	PD/RDS/TYP/TCON/009	Typical Subway Details
67	PD/RDS/TYP/TCON/010	Typical Kerb Detail
68	PD/RDS/DR/TYP/001	Typical Lay Out Of Box Culvert
69	PD/RDS/DR/TYP/002	Box Culvert Reinforcement Details
70	PD/RDS/DR/TYP/003	Typical General Arrangement Drawings Of One Row Hume Pipe Culvert (Without Service Road)
71	PD/RDS/DR/TYP/004	Typical General Arrangement Drawings Of Two Rows Hume Pipe Culvert (Without Service Road)
72	PD/RDS/DR/TYP/005	Typical General Arrangement Drawings Of Three Rows Hume Pipe Culvert (Without Service Road)
73	PD/RDS/DR/TYP/006	Drainage Details
74	PD/RDS/DR/TYP/007	Standard Design of Retaining Wall
75	PD/RDS/CS/STD/001	Typical Cross Section (Rural Areas)
76	PD/RDS/CS/STD/002	Flexible Pavement Details
77	PD/RDS/CS/STD/003	Flexible Pavement Details Rural Areas
78	PD/RDS/CS/STD/004	Flexible Pavement Details Urban Areas

Note: These drawings are indicative and detailed construction drawings conforming to IRC standards and MOST Specifications to be prepared in consultation with Independent Engineer and National Highways Authority (NHAI).

TESTS TO BE CONDUCTED UPON COMPLETION OF THE PROJECT HIGHWAY IN TERMS OF CLAUSE XVII, SUB CLAUSES 17.1 AND 17.2

Sl. No.	Item	Test	Testing Procedure
1.0 Earthwork for embankment, subgrade construction and cut formation			
1.1	Embankment and subgrade borrow materials	Quality Audit of the following tests performed during construction for soil type, density, moisture content and CBR as required by Ministry of Surface Transport specifications for Road and Bridge works • Moisture Content test as per IS: 2720 (Part 2) • Sand Content Test according to IS: 2720 (Part 4) • Plasticity Characteristics of soils according to IS: 2720 (Part 5) • Moisture Content dry density relationship using heavy compaction according to IS: 2720 Part 3. • Deleterious content determination as per IS: 2720 Part 27 • CBR Test as per IS: 2720 (Part 16)	As per relevant parts of IS - 2720
1.2	Compaction	Quality Audit of the following Tests performed during construction as required by MOST specifications for Road and Bridge works. • Compaction density and • Determination of dry density of soils in place according to IS-2720, Part 28	As per IS-2720, Part 28
2.0 Pavement Structure			
2.1	Sub base and base courses	Quality Audit of quality control tests on soils, aggregate and moisture content - density tests and CBR tests as required by MOST specifications for Road and Bridge works. • Plasticity Characteristics of soils according to IS: 2720 Part 5 • Dry density of soils in place according to IS: 2720 Part 28 • Deleterious constituents as per IS: 2720 Part 27 • CBR test as per IS: 2720, Part 16	As per relevant parts of IS – 2720, IS 2386 and IS 5640

Sl. No.	Item	Test	Testing Procedure
		• Dry density moisture content relationship as per IS: 2720 Part 8 • Aggregate grading as per Job Mix Formula • Aggregate Impact value as per IS: 2386 (Part 4) or IS: 5640 • Flakiness and Elongation indices as per IS: 2386 (Part I)	
2.2	Bituminous base and wearing courses	Quality Audit of quality control tests on aggregates and bitumen and on bituminous mixes as laid down in clause 903.4 of MOST specifications for Road and Bridge works. • Aggregate Impact Value as per IS2386, part 4 • Flakiness and elongation Index as per IS: 2386 (Part I) • Stripping value test as per AASHTO T182 • Water absorption as per IS: 2386 (Part 3) • Soundness Test as per IS: 2386 Part 5 • Marshall stability test as per ASTM D-1559	As specified in the codes IS 2386, parts 1,3,4 and 5, AASHTO T182 and ASTM D-1559
2.3	Cement concrete Pavement	Quality audit of sampling and testing of cubes and beams for strength of concrete and quality control tests on aggregates • Aggregate Impact Value as per IS: 2386 (Part 4) • Soundness Test as per IS: 2386 (Part 5) • Alkali Aggregate Reactivity IS: 2386 (Part 7) • Strengths of Concrete (Tests on Cubes and beams) as per IS: 516 • Workability of fresh Concrete - Slump Test IS: 1199	As per relevant parts of IS 2386, IS 516 and IS1199
2.4	Riding Quality of Surface	Checking International Roughness index of the finished pavement surface for compliance with the requirement stated in clause 4.5.9 of Schedule D.	Roughness measurement by fifth wheel bump integrator (Annexure A) or an equivalent device approved by NHAI/IC
3.0 Bridges			
3.1	Cement, aggregate, reinforcement, pre-stressing steel and Concrete	Quality Audit of Tests performed during construction	The Auditing shall be carried out in accordance with the IRC special publication on Quality Assurance
3.2	Superstructure	Static load testing of any one span of the structure for carrying design load as per IRC	Test shall be carried out in accordance with Annexure B

Sl. No.	Item	Test	Testing Procedure
3.3	Bearings	Checking and verification of the bearings to ascertain proper functioning.	The inspection shall be carried out in accordance with requirement laid in MOST specifications for Road and Bridge works and shall meet the prescribed criteria.
3.4	Expansion Joints	Checking and verification of the Expansion joints to ascertain proper functioning	The inspection shall be carried out in accordance with requirement laid in MOST specifications for Road and Bridge works and shall meet the prescribed criteria.
3.5	Foundation & Substructure	Checking and verification of the Foundation settlement and rotation	The settlement of foundation for superstructure load at completion shall be measured with reference to a fixed datum. (For this purpose, the records of measurements taken before the superstructure concreting should also be available.)
4.0	Highway Lighting System	Level of illumination	The illumination level shall be measured with luxmeter following the method as specified in its manual (Annexure C).
5.0	Traffic Signals	Test in accordance with the relevant clauses of IRC: 93 and IS 7537	Meet the prescribed criteria in IRC 93 and IS 7537
6.0	Toll System Operations	1. Certified report of Factory Acceptance test (FAT) 2. Post installation site test to conform to the functionability and specifications of the contract	Real time test for individual functionality of each component which should conform both specifications / codes stipulated in the country of manufacture. It should include manual operations in case of no power.
7.0	Rest Area Operations	Test in accordance with the functioning of facilities built in RAO	Standard building safety procedures as presented by NBC

Sl. No.	Item	Test	Testing Procedure
8.0	Emergency Telephone System	Independent Systems to be developed to operate on the project site	Real time test to be carried out to conform the designed system.
9.0	Traffic Signage and Pavement Marking	Test in accordance with ASTM standard E: 810 relevant clauses of section 800 of MOST specifications for Road and Bridge works published by IRC 1997	To follow ASTM Standard E: 810 as per section 800 of MOST specifications for Road and Bridge Works published by IRC 1997

Schedule J

Annexure-A

TEST PROCEDURE FOR MEASURING INTERNATIONAL ROUGHNESS INDEX (IRI) OF THE RIDING SURFACE OF A FLEXIBLE PAVEMENT

EQUIPMENT – British Towed Fifth Wheel Bump Integrator

Test Procedure:

The following test procedure shall be adopted for the test: -

1) Check the installation and operation of the equipment is in order and meets the requirements prescribed in its operational manual. For example the towing hitch maintains the frame in an upright position but provides freedom of movement in longitudinal and transverse directions. The tyre pressure of wheels is as prescribed.

2) The instrument shall be calibrated prior to its use for measurement as prescribed in its operational manual.

3) The operators shall familiarise themselves with the 5th wheel Bump Integrator, operation using its Test Mode before commencing a survey.

4) A uniform speed of 30 km./hour, which is the specified operating speed of the British Towed Fifth Wheel Bump Integrator, shall be maintained during measurements. The readings shall be taken for each carriageway independently.

5) The equipment shall run on a lane in both the direction once and the average of two values taken for its roughness index.

6) Pavement unevenness/roughness of 2-lane carriageway shall be obtained from the average of the values of the 2 lanes recorded.

7) The roughness index value is obtained by using the following formula.

$$\text{Roughness Index Value} = \frac{B}{W} \times R \times 1 \text{ cm/km.}$$

Where

B = Number of Bumps in a section
W = Number of Wheel Revolution Counter
R = is a constant, 1000 nos. of wheel revolution counter per km.

Least count of B = 1 cm.

8) All data shall be properly recorded with appropriate referencing and stored in a prescribed manner as in the operational manual.

9) The roughness measurements shall be properly calibrated using the procedure recommended in the World Bank Technical Publication No 46.

Schedule-J

Annexure-B

LOAD TESTING OF A BRIDGE SUPERSTRUCTURE

The load test shall be carried out to check and establish the serviceability and working strength of the superstructure.

1.0 Test Load

The "Test Load" is the equivalent static load equal to the impacted working design Live Load (applied in addition to all dead loads) placed for maximum effect (bending moment, shear, deflection, etc. as the case may be) and applied either through an appropriate test loading truck or through loading platforms resting on tyre-contact area plates simulating the actual areas of wheels.

2.0 Load Application and Testing Procedure

I. Fix deflection gauges (supported on unyielding supports) under the superstructure, just touching its soffit, at the pre-marked critical 'points'.

II. Apply the test load in five equal increments (including the weight of platforms of trucks in the first increment), allowing about two hours in between completion of one load increment and commencement of the next. About an hour after completing a load increment, note the deflections and any crack patterns together with maximum crack widths.

III. After measuring the deflections, etc, one hour after applying the fifth increment, i.e. the final load increment, keep the test load maintained for about 24 hours and again measure the deflections and crack widths (if any)

IV. Remove the test load in five equal decrements, allowing about two hours in-between completion of one load decrement and commencement of the next. Note the deflections and crack widths (if any) at the end of each load decrement.

V. Note the deflection and crack widths (if any) 24 hours after removal of the test load in order to see whether the recovery is complete or there is any residual deflection, etc.

3.0 Acceptance Criteria

I. Increase and decrease in deflections at a point shall follow a linear relation, with actual deflections not exceeding the theoretically estimated ones by more than about 10%;

II. The maximum crack width in reinforced concrete shall not exceed about 0.25 mm to 0.30 mm (but no cracks in case of prestressed concrete);

III. The deflections at the end of the 24 hours of maintaining the test load shall not exceed the corresponding values at the start of this 24 hours period by 5% and

IV. The residual deflection at any point 24 hours after complete unloading shall not exceed 10% of the maximum observed deflection at that point (i.e. recovery: 90% or more);

4.0 Observation

The cracks in reinforced concrete shall close upon removal of test load but may not completely disappear.

Schedule-J

Annexure-C

Testing Procedure for Illumination intensity by Luxmeter

Instrument	:	Luxmeter (make of renowned company)
Basis	:	Comparison with a calibrated Luxmeter through a standard lamp by renowned Photometric Lab.

Test Procedure:

Following steps shall be taken for the test

- Calibration of the luxmeter.
- Put off the lights to be tested.
- Take calibrated luxmeter reading.
- Put on the lights in the area to be tested
- Observe the luxmeter reading
- Difference (positive or negative) in addition with standard light illuminance level will give the actual illuminance of existing lighting system.

Note: The testing procedure shall be as per the manual of the Luxmeter used.

SCHEDULE - K

COMPLETION CERTIFICATE

I/We, (Name of Independent Consultant) acting as Independent Consultant on the project, "Widening the existing 2-lanes to 4-lanes divided carriageway facility including rehabilitation of existing 2-lanes of (a) NH-5 from km. 52.8 to km. 163.6 on the Tada-Nellore Section in Andhra Pradesh, India; (b) NH-9 from km. 217 to km. 252 on the Nandigama-Ibrahimpatnam Section in Andhra Pradesh, India, on Build, Operate and Transfer ("BOT") basis and (c) operation, maintenance and collection of fees of NH-9 from km. 253 to km. 265 on Ibrahimpatnam-Vijayawada Section in Andhra Pradesh, India, " through the Concessionaire, (Name of Concessionaire) hereby issue this completion certificate in-terms of sub-clause 17.4 of Concession Agreement since the said project has been completed and successfully tested as per Schedule-J as stipulated in the said Concession Agreement and is ready for commissioning traffic commercially as provided in the Concession Agreement dated (Date of Agreement) between the said Concessionaire and the NHAI. The date of issue of this Completion Certificate shall be COD, as defined in the said Concession Agreement.

Dated _____

(Date of Issue)

Independent Consultant

SCHEDULE – K_1

PROVISIONAL COMPLETION CERTIFICATE

I/We (Name of Independent Consultant) acting as Independent Consultant on the project, "Widening the existing 2-lanes to 4-lanes divided carriageway facility including rehabilitation of existing 2-lanes of (a) NH-5 from km. 52.8 to km. 163.6 on the Tada-Nellore Section in Andhra Pradesh, India, on Build, Operate and Transfer ("BOT") basis," through the concessionaire, (Name of Concessionaire) hereby issue this provisional certificate of completion in-terms of sub-clause 17.5 of Concession Agreement dated (Date of Agreement), between the said Concessionaire and the NHAI, on the request of the said Concessionaire subject to the appended Punch List containing a list of outstanding items since the tests stipulated in schedule J have been successfully carried-out and all parts of Project Highway can be legally, safely and reliably placed in commercial operations though certain works and things forming part thereof are not yet complete as indicated in the said Punch List. All the items of the said Punch List shall be completed by the said Concessionaire within 180 (one hundred and eighty) days of the date of issue of this Provisional Certificate of Completion.

Dated _____

(Date of issue)

Independent Consultant

SCHEDULE – K2

PROVISIONAL COMPLETION CERTIFICATE

I/We (Name of Independent Consultant) acting as Independent Consultant on the project, "Widening the existing 2-lanes to 4-lanes divided carriageway facility including rehabilitation of existing 2-lanes of (a) NH-9 from km. 217 to km. 252 on the Nandigama-Ibrahimpatnam Section in Andhra Pradesh, India, on Build, Operate and Transfer ("BOT") basis and (b) operation, maintenance and collection of fees of NH-9 from km. 253 to km. 265 on Ibrahimpatnam-Vijayawada Section in Andhra Pradesh, India," through the concessionaire, (Name of Concessionaire) hereby issue this provisional certificate of completion in-terms of sub-clause 17.5 of Concession Agreement dated (Date of Agreement), between the said Concessionaire and the NHAI, on the request of the said Concessionaire subject to the appended Punch List containing a list of outstanding items since the tests stipulated in schedule J have been successfully carried-out and all parts of Project Highway can be legally, safely and reliably placed in commercial operations though certain works and things forming part thereof are not yet complete as indicated in the said Punch List. All the items of the said Punch List shall be completed by the said Concessionaire within 180 (one hundred and eighty) days of the date of issue of this Provisional Certificate of Completion.

Dated _____

(Date of issue)

Independent Consultant

OPERATION AND MAINTENANCE REQUIREMENTS

1. Introduction

The Concession Agreement stipulates that the Project Highway shall be constructed, operated and maintained during the Concession Period by the Concessionaire and thereafter transferred to National Highways Authority of India (NHAI). This Schedule elaborates the operation and maintenance requirements of the Concession and is to be read together with the Concession Agreement for this purpose. For clarification of doubt, the period during which the Concessionaire shall comply with the O&M requirements covers the entire Concession Period including the Construction Period. In particular, during the Construction Period, the Concessionaire is required to operate and maintain the existing two lanes as provided in the Concession Agreement and this Schedule. The Concessionaire shall operate and maintain the Project Highway such that:-

a) during the Construction Period, the two existing lanes are ordinarily open to traffic at all times, and

b) from Commercial Operations Date (COD), lane availability at the end of each year of the Concession will be a minimum of 99% on a cumulative basis. For this purpose, lane availability at the end of each year will be computed as follows:-

i) For Section of NH-5 from Tada to Nellore:-

$$\frac{(110.8 \times 4 \times \text{number of days since COD}) - \sum (\text{lane kms closed} \times \text{number of days for which closed})}{(110.8 \times 4 \times \text{number of days since COD})}$$

ii) For Section of NH-9 from Nandigama to Vijayawada:-

$$\frac{(48 \times 4 \times \text{number of days since COD}) - \sum (\text{lane kms closed} \times \text{number of days for which closed})}{(48 \times 4 \times \text{number of days since COD})}$$

- Any Lane closure due to emergency reasons shall be excluded for computing lane availability.

2. Operation and Maintenance (O&M) Requirements

2.1 The Concessionaire shall take all such actions and do all such things, including without limitation, organising itself, adopting measures and standards, executing procedures such as inspection procedures, highway patrols, engaging and managing contractors, agents and employees, as will secure:

a) The safety of users of the Project Highway, workers or other persons on the Project Highway and/or facilities there on;

b) Unimpaired performance of statutory duties and functions of the NHAI and other Authorities in relation to the Project Highway and/or other adjoining roads and facilities,

and, subject to paragraphs a) and b) above, ensure that:

2.1.1. adequate safety measures taking into account Schedule 'S' are taken up on the construction zone during the construction and operation periods.

2.1.2. delay to users of the Project Highway and of adjoining roads or facilities is minimised;

2.1.3. risk of adverse effects on the environment and on the amenity enjoyed by the owners and occupiers of property and/or land adjacent to the Project Highway, adjoining roads and facilities is minimised;

2.1.4. accidents and emergencies on the Project Highway and facilities thereon are responded to as quickly as possible and their adverse effects minimised;

2.1.5. risk of disturbance or damage or destruction to property of third party is minimised;

2.1.6. members of the public are treated with due courtesy and consideration;

2.1.7. users are given adequate information and forewarning of any event on or any other matter affecting the Project Highway which will enable them to minimise any adverse consequences on them of that event or matter;

2.1.8. members of the public and others are given adequate opportunity to bring to the attention of the Concessionaire any matters affecting its ability to meet the O&M Requirements;

2.1.9. traffic data and data relating to the operation and maintenance of the Project Highway and its facilities and events on the Project Highway are collected and disseminated such that the

NHAI and other persons or bodies with statutory duties or functions in relation to the Project Highway or adjoining roads are able to perform those duties and functions efficiently;

2.1.10. the project facilities shall be operated and maintained in order to fulfil the requirements set forth in the Concession Agreement and in this Schedule L.

2.2. TRAFFIC MANAGEMENT AND LANE CLOSURE

2.2.1. Traffic Management during Construction, Operation and Maintenance of the Project Highway is an important activity the Concessionaire has to attend to ensure safety of the road users as well as the construction workers simultaneously throughout the concession period. It is an usual activity to carry out various types of construction works at different stages and at different periods as per site requirement. Also, it is a vital activity during unforeseen and/or emergency situations arising on account of natural causes or accidents or administrative reasons.

2.2.2. Traffic Management is required during planned scheduled construction and maintenance activities. However, traffic management will also be called for during unscheduled activities such as

(i) Emergency situation arising on account of

a) Force Majeure;

b) Accident/Incident on the Project Highway;

(ii) Special repairs required on account of failure of an element of the Project Highway; and

(iii) Default of the Concessionaire with respect to an operational activity on the Project Highway.

2.2.3. The basic principles to be followed for traffic management and lane closure in this Project Highway shall be as follows:

2.2.3.1. Work programme schedule shall be prepared such that diversion roads for the main traffic are minimized. The existing two-lane carriageway is utilized to the maximum extent possible.

2.2.3.2. Measures shall be taken that the traffic is guided from a closed lane onto the operating lane without its conflict with the traffic from the opposite direction.

2.2.3.3. The activity of renewal of pavement surface and/or strengthening of the pavement structure shall not be taken up in a continuous length of more than 2 kilometers at a time to avoid long detour of the traffic.

2.2.3.4. The traffic diversion road where provided shall be appropriately designed for the traffic plying on the highway. It shall also be properly maintained during its operation period.

2.2.3.5. During traffic detour involving traffic diversion, adequate safety measures as in Schedule 'S' shall be followed.

2.2.3.6. Proper and adequate information about the maintenance activity shall be notified to the road users in advance and displayed at the work site during the Operation Period.

2.2.4. Traffic Management Plan and programme for a planned scheduled construction and/or maintenance activity shall be prepared in advance of that activity keeping 2.2.1 above in view and be approved by the Independent Consultant/NHAI as the case may be.

2.3. In case of unscheduled activities, described in 2.2.2 (i) to (iii) above, an emergency traffic management for the affected reach of the highway shall be prepared and implemented in consultation with the Independent Consultant immediately. This emergency traffic management plan shall take into account the various requirements spelt out in the Concession Agreement as well as in this schedule.

Traffic Management and Lane Closures Requirements during various situations arising on the Project Highway needing Traffic Management are detailed below:

2.4. Initial Construction Stage

2.4.1. Rural Section

i) The widening of the existing two (2) lanes carriageway shall be *either* symmetrically widened with one lane on each side *or* asymmetrically by constructing a new two (2) lane carriageway on either side of the existing carriageway to make a four (4) lane divided carriageway facility. In either case, provision shall be made to allow for a 4.5m central median.

ii) The construction sequence in this case will be as under:

a) One (1) new lane on each side of the existing two (2) lane carriageway should be constructed simultaneously or two (2) new lanes on either side of the existing carriageway be constructed in the first instance. There will be no conflict area for the main traffic using the existing two (2) lanes during the construction phase. It shall be ensured that the construction traffic does not conflict with the main traffic in this phase.

b) On completion of the two (2) new lanes done symmetrically or asymmetrically over a reasonable stretch subject to a maximum of 2km, the total traffic will be diverted on to them and the existing two lanes will be strengthened if required up to the new road level. Thereafter, the two (2) new lanes including the existing two (2) lanes shall be given bituminous base courses on the entire width uniformly.

2.4.2. *Urban Section*

i) The widening of the existing 2 lane carriageway shall be concentric to make it a 4 lane divided carriageway facility. The divider will be a 1.5 m wide central median.

In addition, a 6.5m wide service road will be provided on either side of the 4 lane carriageway facility.

ii) The construction sequence in this case will be as under:

a) Service roads and side drain on both the sides will be constructed initially. There will be no conflict area for the main traffic which will be using the existing two lanes. It will be ensured that the construction traffic does not conflict with the main traffic at exit and entry points.

b) On completion of the service roads on both sides, the main traffic will be diverted on them directionwise and the existing 2 lanes will be widened to 2 lanes on each side duly accounting for the 1.5 m wide central median. On completion of the widening upto the existing road level, the median will be constructed. On its completion, the existing road will be strengthened if required in such a manner that the bituminous base courses and the wearing course layers are laid uniformly in 2 lanes on either side of the 1.5 m wide central median. During this operation the construction traffic will not be conflicting with the main traffic on the service roads.

c) On completion of the divided 4 lane carriageway of the Project Highway, the main traffic from the service roads shall be restored on them.

2.5. Operation and Maintenance Stage

2.5.1. During the entire period of operation on the Project Highway within the Concession Period, various important activities that are to be carried out are:

a) Regular periodic maintenance activities:

i) Renewal of the wearing surface of the road pavement once every 5 years;

ii) Strengthening course to be provided on as required basis.

b) Maintenance activities arising out of the specific need(s) on account of the site conditions:

i. Strengthening course required on account of the B.B.D. values in excess of the prescribed criteria obtained during regular testing as per the Concession Agreement requirement;

ii. Wearing course required on account of the IRI values higher than the prescribed criteria obtained during regular testing as per the Concession Agreement requirement;

iii. Localised repairs in short lengths less than 500 m on account of potholes, cracking, subsidence in isolated spots or in scattered areas.

2.5.2. In order to cater to the execution of the said activities in para 2.5.1 above, the main traffic will have to be diverted to an extent that is dependent on the site requirement.

2.6. EMERGENCY STAGE

2.6.1. This stage could arise any time in an emergency situation and shall have to be addressed to on its own merits. The extent of the traffic management shall be assessed as per the site requirement and situation.

2.6.2. The emergency situation could be faced in the following three situations:

a) During the period between the award of work and commencement of the construction works on financial close.

In this situation only the existing two-lane facility is available. The traffic management will have to be tailored accordingly. Either the existing one lane will have to be closed and diverting the traffic onto the other lane and its adjoining shoulder or both the existing lanes will be closed and a diversion road provided.

b) During the period when construction works are in progress.

In this case the availability of the carriageway at site shall decide the nature and extent of the traffic diversion.

c) During the period when the Project Highway is under operation and/or maintenance. The nature of emergency requirement in this case will determine the type and extent of the traffic diversion.

Traffic Management in emergency situation shall be provided immediately in consultation with the Independent Consultant.

3. OPERATIONS

3.1. Introduction

3.1.1 The Concessionaire shall in consultation with the Independent Consultant evolve a Operation and Maintenance Manual (Maintenance Manual) as required in Sub-clause 19.2 of the Concession Agreement.

3.1.2. The said Maintenance Manual shall have two separate sections, namely

(i) Section I Operations; and

(ii) Section II, Maintenance

These are briefly described in items 3.2 and 4 of this Schedule respectively.

3.2. Section I - Operations

It shall prescribe procedures and systems for activities including but not be limited to the following for the regular and emergency operations of the Project Highway and facilities thereon.

3.2.1. Regular Operations

- Permitting smooth and uninterrupted flow of traffic during normal operating conditions.
- Functioning of the Toll System including charging and collecting the fees from the road user in accordance with the Concession Agreement.
- Functioning of the lighting system;
- Functioning of the Patrolling System
- Functioning of rescue and medical aid services
  - Ambulance
  - Tow away truck
- Functioning of the Highway Traffic Management System
  - Emergency Call Boxes (ECBs) for Road Users
  - Central Control System
- Functioning of the Project Facilities
  - Administrative, Operation and Maintenance Base Camp
  - Rest Area

- Truck Parking Lay-bys
- Electrical Services at Lay-bys, Bus Stops and Rest Area
- Potable Water supply system including supply of drinking water at truck parking lay-bys rest area etc.
- Public toilets and other sanitary facilities
- Solid wastes disposal system including those from litterbins.

3.2.2. Emergency Operations

Minimising disruption to the traffic in the event of accidents and/or incidents affecting the safety and use of the Project Highway by providing a rapid and effective response and maintaining liaison procedures with emergency services.

- Reasonably smooth and safe movement of traffic during emergency activities such as special repairs during floods, storms, hurricane and earthquakes.
- Failure of a system due to human error, electrical or mechanical failure.

3.3. The Concessionaire shall keep regular record of accidents that occur including the nature of accident, location of occurrence, time and date in the prescribed format, included in the Maintenance Manual and shall forward the monthly particulars of the same to the Independent Consultant and the NHAI regularly in the first week of the following month.

3.4. The Concessionaire shall programme inspections of the Project Highway for its smooth operations in-terms of the Concession Agreement classified in the following categories :

- Visual Inspection
- Close Inspection
- Thorough Inspection

and described herein under:

3.5. Visual Inspection

Visual Inspections are broad general inspections carried out quickly and frequently by highway /bridge maintenance engineers having knowledge of road structures. The purpose of this visual inspection is to report the obstacles to traffic and fairly obvious deficiencies, which could lead to accidents or maintenance problems. Such inspections should be frequent. The visual inspection may be carried out by visual assessment with careful observation of the specific object/item of the Project Highway for identification and for quantification of the deficiencies or damages of the Project Highway.

3.6. Close Inspection

The close inspection may be visual and/or supplemented by standard instrumental aids for assessment of defects / deficiencies of Project Highway with careful observation of specific element(s). The close inspection may be daily / periodic but it is more intensive and would require detailed examination of element of the Project Highway. It should cover all the aspects of the specific element of project Highway against a checklist. The close inspections are to be carried out quite frequently depending upon the nature of structure of Project Highway. This inspection is to be carried out by the Highway/Bridge Engineer having good knowledge of road structures with theoretical background to analyse the nature, and extent of defects/deficiencies, suggest suitable remedial measures to rectify/remedy them and quantify repair work.

3.7. Thorough Inspection

A thorough inspection is comprehensive and detailed for assessment of defects/deficiencies of the Project Highway by visual inspection or with aid of standard equipment and non-destructive testing where necessary. Such an inspection is to be carried out on the basis of comprehensive checklist of items related to the materials, condition and situation of the structure etc. The checklist is to be prepared meticulously well in advance of inspection. The thorough inspection should be undertaken during the most critical weather condition, which is generally rainy season in India. During rainy season the Road/Bridge structures are under severe condition thereby the damage and deficiencies of the Project Highway are more pronounced. The inspection carried out during the said period offer the most critical evaluation of the performance of the structure.

The thorough inspections are all the more important for Bridges, Culverts and drainage structures, as well as road pavements during adverse weather condition of monsoon period.

Besides being a qualified Highway/Bridge engineer, the inspection team leader must be familiar with design and construction features of the Highway /Bridges to be inspected so that the condition can be properly and accurately assessed for a meaningful report and quantification of repair works. The competence of team leader to recognise any structural distress/deficiencies and assess its seriousness with complete recommendation for appropriate repairs are important pre-requisites for entrusting this assignment to him.

3.8. Frequency of Inspections

The inspection frequency of various items of Project Highway has been indicated in the table L-1 hereinunder. The frequency of inspection can be suitably revised in consultation with the Independent Consultant if the emergencies so warrant.

Table L-1: Objective and Frequency of Inspection

The objective and minimum frequency of inspections under normal circumstances shall be as under. If the exigencies arise, the interval of inspection shall be reduced.

Object	Item	Daily	Monthly	Quarterly	Before and after rainy season
Riding Surface	Pavement	♦	○		●
	Expansion joints	♦	○		●
Median	Kerb	♦	○		●
Side Slopes	Shape	♦		○	●
	Turfing		♦		●
	Pitching & masonry		♦		●
	Retaining wall		○		●
Drainage	Shoulder drain	❖	○		
	Median drain	❖	○		
	Side shape drain	❖	○		
	Bridge catch basin	❖	○		
	Gullies and catch pits	❖	○		
Bridges	Superstructure			○	●
	Substructure			○	●
	Head walls and aprons			○	●
	Painting				●
	Hand rail		○	●	
Culverts	RC Culverts				●
	HP Culverts				●
Guard rails	Shoulders	♦		○	●
	Medians	♦		○	●
Traffic operation facilities	Signs		●	○	
	Crash Barrier		○	●	
	Marking	♦	○	●	
	Delineator	♦	○	●	
	Lighting	♦		○	
Other facilities	Vegetation / landscaping	♦	○	●	
	Toll plaza	♦	○		
	Way side amenities	♦	○		
Traffic conditions		♦	●	○	
Encroachments		♦	●		

LEGEND

- ♦ *visual inspection*
- ○ *close inspection*
- ● *thorough inspection*
- ❖ *visual inspection during rainy season only*

4. MAINTENANCE

4.1. Introduction

4.1.1. The Concessionaire shall maintain the Project Highway in traffic-worthy condition and the Project's Ancillary Facilities in usable condition throughout the Concession Period or any extension thereof in terms of the Concession Agreement through regular maintenance and preventive maintenance of the various items and elements of the Project Highway.

4.1.2. The Concessionaire shall maintain the existing two-lane of the Project Highway during construction of new lanes in such a manner that the unevenness index of the pavement does not exceed 3500 mm per km, or the present roughness value of the existing pavement, whichever is lesser.

4.1.3. The following MOST and IRC publications shall be referred for preparation of the said Section - II Maintenance of "Maintenance Manual"

- MOST Manual for Maintenance of Roads.
- IRC-SP-35-1990, Guidelines for Inspection and Maintenance of Bridges.
- The manufacture's Maintenance Manual(s) of the equipment including that of the Toll Collection System to be used in the Project Highway Operations shall form part of the said O&M Manual.

4.2. Maintenance Section of Maintenance Manual

The Section II Maintenance, of the Operation and Maintenance Manual, shall include the activities described hereinunder amongst other activities required for the regular and preventive maintenance of the equipment during the operations period, so that the Project Highway is maintained in a manner that at all times it complies with the specifications and standards and at the time of Divestment of Rights and Interests by the Concessionaire in terms of Article XXXVI of the Concession Agreement, it is in sound, durable and functional condition.

4.2.1. Regular Maintenance

It consists of the routine maintenance and periodic maintenance throughout the Concession Period and extension thereof, if any, for all elements of the Project Highway.

4.2.2. Preventive Maintenance

Preventive Maintenance shall include the activities related to each element and the system as a whole of the Project Highway to ensure that during the Concession Period and at its end is in sound, durable and functional condition.

4.2.3. Special Repairs

Damages occurring due to natural calamities like heavy floods, sand storms, hurricanes, cyclones, earthquakes to any element or system of the Project Highway, shall be rectified and the system restored to function as per programme prepared in consultation with Independent Consultant. All such activities shall fall under the Maintenance and shall form a part of the said Maintenance Manual.

4.3. Lane Closure

4.3.1. Lane closure is a vital activity during construction and/or maintenance in the Concession Period that the Concessionaire shall carry out in an organised, planned and disciplined manner.

4.3.2. Lane closure involves traffic management in the affected reach of the highway. As such it is always a time bound activity and the Operation and Maintenance Manual incorporates it accordingly. In case where the Concessionaire fails to perform in time a penalty shall be levied on the Concessionaire for the delay in reopening the closed lane to the traffic in terms of the Concession Agreement.

4.3.3. The basic principles to be followed in preparation of a planned lane closure shall be as follows:

4.3.3.1. The activity of renewal of pavement surface and/or strengthening of the pavement structure shall be taken up in one lane of the two-lane carriageway so that one lane of that carriageway is available to the traffic.

4.3.3.2. The activity of renewal or strengthening, item 2.5.1 above, shall not be carried out in a continuous length of more than 2 km in Rural section and 1 km in Urban section so that the closure of a lane is not more than 2 days and 1 day in Rural and Urban section respectively.

4.3.3.3. Lane closure adopted for diverting the main traffic on account of the traffic management during construction works of the Project Highway shall be governed by the approved programme of construction.

4.3.3.4. Lane closure in short lengths less than or equal to 500 metres for carrying out a routine maintenance activity 'defined in item 2 of this schedule shall not be more than for a continuous period of 1 day.

4.3.3.5. The lane closure needed on account of emergency shall be distinguished from the lane closure described in item 4.3.3 above. The lane closure on account of the emergency shall be dealt with under sub clause 19.9, Emergency De-Commissioning, Article XIX Operation and Maintenance, Chapter IV, Project Development and Operation of the Concession Agreement.

4.4. Minimum Requirements of Maintenance Activities

4.4.1. Major Breaches in the Roadway

Major breaches in the roadway of any type endanger safety of traffic and cause obstruction in movement of vehicles. These breaches shall be repaired urgently. Steps as mentioned in O&M manual shall be followed by the Concessionaire for repairing the breaches.

The Concessionaire shall ensure speedy restoration of traffic and take immediate action to repair the damages as permanent measures for the Project Highway. The restoration of traffic shall be made within 24 hours of its occurrence. The permanent measures shall be completed within an acceptable period.

4.4.2. Minor cuts, rut or blockage

Minor cuts, rut and damages on Project Highway which do not completely obstruct the traffic but endanger the safety of traffic, shall be attended to on an urgent basis. For this purpose any cut which is in width more than 1 m shall be repaired within 24 hours. Any minor blockage, which partially obstructs the traffic and endangers safety, shall be removed by the Concessionaire immediately.

4.4.3. Branches of trees

The branches of the roadside trees if hanging closer than 5.5m over the road level of the Project Highway shall be cut, trimmed or lopped within 24 hours.

4.4.4. Shoulders

If the shoulders are deformed or scoured and are lower than 25mm from the adjacent carriageway, these shall be corrected by excavation, filling, dressing and compacting a material matching the existing material and it shall conform to the relevant MOST Specifications. In case of earthen shoulder repairs shall be carried out as per MOST Specifications 3003.

4.4.5. Damaged Culverts/Bridges

The treatment for the damaged culverts/bridges shall be assessed at site after ascertaining the damaged portion as per site exigencies. The repair shall be carried out expeditiously.

4.4.6. Drainage / Side Drains

4.4.6.1. Routine maintenance under this category shall cover pipe drainage system, slot drains, porous drains, gullies, catch-pits, open grills, ditches, side drains and median drainage etc.

4.4.6.2. If the side drains / median drains where provided, and other drainage structures have been silted up in such a manner that it is causing obstruction in flow of water, the same shall be cleared off regularly in order to keep the drains free from obstructions all the time.

4.4.6.3. If the drainage system of Project Highway is covered and damaged, it obstructs the flow of water causing damage to the road pavement. Such damaged structures shall be reconstructed to required shape, size and proper slope.

4.4.7. Cross Drainage Works

4.4.7.1. Where the bed of a culvert gets silted up and causes obstruction in flow of water, the de-silting operation shall be done regularly. The scouring of piers and abutment of bridges and culverts shall be observed carefully particularly before and after rainy season and suitable remedial measures as deemed fit to site conditions shall be taken.

4.4.7.2. If any settlement crack appears in substructure and superstructure of the CD works beyond permissible limits, the same shall be carefully observed and suitable remedial measures as per sound engineering practice taken.

4.4.8. Pavement Distress

Maintenance procedure for correcting distress in bituminous pavements shall include patching, crack sealing, surface treatment and pothole filling.

4.4.8.1. Cracking

Cracking of bituminous pavements shall include all types of cracks such as hairline, alligator, longitudinal, transverse, shrinkage, reflective and edge cracking, linear and slippage etc. The minimum requirement and criteria for crack sealing shall be as under:

i) If the width of the cracks is less than 3mm and resulting into settlement of pavement upto 10mm in depth and exceeding in area more than 1sqm at a place, such cracking shall be sealed by fog sealing in accordance with the MOST Specification 3004-2.

ii) If the width of cracks is more than 3mm and causing settlement of the pavement upto 10mm and the area of cracked surface exceeds 0.5sqm at a place, such cracked surface shall be repaired by slurry sealing in accordance with MOST Specification 516.

iii) If the cracked portion has settled more than 10mm and its area exceeds 0.5 sqm, such areas shall be repaired by patching as per MOST Specification 3004. In case of alligator cracks, the permanent repair by full depth patching shall be carried out. The slippage cracks shall be repaired by removing the affected bituminous layer and replacing it with surface patch. In edge cracking, if shoulders are not providing adequate lateral support, the shoulder shall be reconstructed with good quality materials.

4.4.8.2. Rutting

If the depth of rut exceeds 10mm with a length of 10m at a place in the wheel track of pavement surface, the same shall be repaired by full depth patching.

4.4.8.3. Corrugations and Shoving

If corrugations and shoving in the pavement area exceeds 1 sq. m at a place and depth / height of corrugation / shoving exceeds 10mm, the same shall be treated by full depth patching.

4.4.8.4. Settlement or Grade Depressions

If the settlements and grade depressions exceed 1 sqm in area and their depth is within 10mm, such defects shall be treated by skin / full depth patching.

4.4.8.5. Upheaval or Swell

If upheaval or swell exceeds 0.5 sq. m in area and its height is more than 10mm, such defects shall be treated.

4.4.8.6. Ravelling

If the ravelling of bituminous pavement exceeds 1 sq. m in area, slurry seal treatment shall be applied in accordance with the MOST Specification.

4.4.8.7. Potholes

If the bowl shaped pothole in the pavement exceeds 0.5 sq. m in area and 10mm in depth irrespective of the numbers existing on the pavement shall be repaired by patching / pothole filling in accordance with MOST Specification 3004-1.

4.4.8.8. Skid Hazards

Skid hazards, irrespective of size, shall be corrected by improving the surface drainage and skid resistance including cleaning the surface of contamination, surface treatments or milling or resurfacing.

4.4.8.9. Bleeding or Flushing

Bleeding or flushing of the pavement irrespective of the area shall be repaired by application of hot sand.

4.4.8.10. Polished Aggregate

The treatment for this type of defect is to cover the surface with skid resistant repairs.

4.4.8.11. Loss of Cover Aggregate

If the loss of cover aggregate occurs in area exceeding 1 sq. m of the pavement, treatment of seal coat shall be applied.

4.4.8.12. Longitudinal / Transverse Streaking

If the longitudinal and transverse streaking appears on the pavement surface in area exceeding 5sq. m, the same shall be treated by application of new surface treatment or by a second treatment over the streak surface.

4.4.9. If any defect other than those mentioned above occurs on the pavement of the Project Highway, the same shall be rectified/corrected by the Concessionaire as per directions laid out in IRC 82-1982 and based on sound engineering practice.

4.5. Periodic Maintenance of Pavement

The framework of activities relating to pavement maintenance and rehabilitation in respect of flexible and rigid pavement are given in the flow charts in Appendix 3.1 and Appendix 3.2 respectively. The Concessionaire shall set forth in the Operations and Maintenance Manual the detailed procedures to be followed under each of these activities, and also choose the operational and performance criteria from the IRC/MOST standards and specifications for each of the performance indicators covered under pavement condition survey, roughness and BBD deflections. Where such criteria is not specified in the standards, the Concessionaire, for the purpose of routine maintenance shall set forth such criteria so as to conform to international standards or sound pavement maintenance practices in consultation with the Independent Consultant for using them as criteria.

4.5.1. Pavement Riding Quality

The riding quality of the pavement shall be ensured by satisfying the minimum requirements given herein under.

i) Surface roughness of the Project Highway on completion of construction shall be 2500 mm/km as measured by the 5th wheel Bump Integrator.

ii) Surface roughness shall not exceed 3500 mm/km during the service life of pavement at any time. A renewal coat of 25 mm of bituminous concrete shall be laid every 5 years after initial construction or where the roughness value reaches 3500 mm/km whichever is earlier to bring it to initial value of 2500 mm/km.

4.5.2. Structural Condition of the Pavement

I) The structural condition of the flexible pavement of the Project Highway shall be assessed every year by taking Benkelman Beam Deflections and working out characteristic deflections of homogeneous sections of the Project Highway as per IRC-81-1997. Wherever the characteristic deflection exceeds 0.8 mm a bituminous overlay shall be provided appropriately designed according to IRC-81-1997 or its latest versions or amendments to it.

II) In the case of cement concrete pavement, joints shall be thoroughly inspected every year and the loss of sealing compounds made good.

.6. Other Maintenance Activities

.6.' Maintenance of Bridges and Other Structures

The Concessionaire shall set forth in the Operation and Maintenance Manual the detailed procedures to be followed for the maintenance and repairs of bridges and other structures keeping in view IRC-SP-35 : 1990 'Guidelines for the Inspection and Maintenance of Bridges' in consultation with the Independent Consultant. The flow chart for Bridge and Culverts maintenance activities is given in Appendix 3.3.

6.2. Maintenance of Traffic Signals

The traffic signals shall be maintained at all times as per clause 18 of IRC: 93 : 1985 and shall be periodically inspected, maintained and repaired so as to be in satisfactory working condition all the time.

4.6.3. Maintenance of Highway Lighting System

4.6.3.1. Maintenance of all lighting installations and related appurtenances shall be as per relevant clauses of IS : 1944 (Part I-V) 1981.

4.6.3.2. Lighting wherever provided shall be maintained by the Concessionaire in a condition nearly similar to original condition.

4.6.3.3. The faults shall be repaired instantly and lighting restored. and missing and damaged items shall be replaced instantly.

4.6.3.4. Cleaning shall be done at regular intervals to be mentioned in the Maintenance Manual to ensure that lighting is not below the specified standard.

4.6.3.5. All installations shall be safeguarded against weathering and ageing effect by repainting and other preventive measures.

4.6.3.6. The servicing of stand-by power generation units shall be carried out in accordance with the manufacturer's instructions.

4.6.4. Maintenance of Highway Signs and Pavement Markings

4.6.4.1. All traffic signs and markings shall always be kept clean, visible and in correct alignment and position.

4.6.4.2. Any damage to traffic signs which reduces or threatens to reduce full and clear visibility shall be rectified within twenty four (24) hours of its occurrence. If they are used as base for posters ,the posters shall be removed and the signs cleared within 24 hours. Signs shall be washed using detergent solution followed by clean water to maintain their visibility and reflectivity unimpaired due to dust etc.

4.6.4.3. Any part of traffic signs damaged due to weathering, corrosion, vandalism or any other cause shall be replaced by the Concessionaire within seven days.

4.6.4.4. Any mandatory sign including those for traffic safety and toll which is damaged beyond repair shall be replaced within 2 days and all other signs with similar condition shall be replaced within 3 days.

4.6.4.5. Appropriate devices for measuring the luminosity and reflectivity shall be used to check visibility and reflectivity of signs, delineators and markings. These shall be replaced by

similar material if the reduction in the level of these two requirements falls below 50% of the original level.

4.6.4.6. Line marking with thermo plastic paint shall be carried out as soon as practicable after any overlay/renewal coat is provided.

4.6.5. Maintenance of Pickup Bus Stops

4.6.5.1. Maintenance of pickup bus stops shall include attending to repairs to the bus-bay pavement and also to various parts of the passenger shelter and connected facilities as and when necessary. Replacement of irreparable items shall be done expeditiously.

4.6.6 Maintenance of Control Centre

4.6.6.1. There shall be periodic inspection and maintenance of the Control Centres. This shall include attending to repairs and maintenance (both regular and periodic) to various parts of the building and connected services and facilities as and when necessary, and replacement of irreparable items of work. Cleaning & disinfecting of the water supply systems, inspection and maintenance of drainage/sanitation systems and electrical installations shall be as per relevant clauses of NBC.

4.6.6.2. Maintenance of Emergency Telephone system including its equipment shall include periodic servicing, checking of the system, replacement of components, attending to all necessary repairs and other incidentals to keep the system in working condition.

4.6.6.3. All the vehicles shall be maintained in smooth running condition at all times. In the event of any vehicle being off the road for maintenance or on account of breakdown, substitute vehicle shall be provided immediately.

4.6.6.4. At the end of the Concession Period or the extended period thereof, Control Centres together with all equipment in working order shall be handed over to NHAI.

4.6.7. Maintenance of Buildings

4.6.7.1. Maintenance of buildings shall include routine maintenance and attending to repairs to various parts of the building and connected services as and when necessary, and replacement of irreparable items of work, cleaning & disinfection of the water supply systems, inspection and maintenance of drainage/sanitation systems and electrical installations shall be as per relevant clauses of NBC.

4.6.7.2. At the end of the Concession Period or the extended period thereof, all buildings shall be in useable condition and handed over to NHAI.

4.6.8. Maintenance of Road Furniture and Facilities

4.6.8.1. Maintenance of road furniture and facilities shall include attending to repairs to various parts of the road furniture and connected services as and when necessary, and replacement of irreparable items of work in reasonable period.

4.6.8.2. At the end of the Concession Period or extended period thereof, all road furniture and facilities in useable and in working order shall be handed over to NHAI.

4.6.9. Maintenance of Highway Landscape

4.6.9.1. Maintenance of Highway Landscape shall include attending to repairs to elements of the landscape connected services as and when necessary, and replacement of irreparable items of work.

4.6.9.2. Trees shall be maintained as per the guidelines in IRC : SP : 21-1979 and no indiscriminate felling of trees shall be resorted to while upgrading, widening and improving the highway. The felling of trees shall be undertaken in consultation with the Independent Consultant and after obtaining due permission of the Forest Department, as applicable.

4.6.9.3. While borrowing earth from roadside land for routine maintenance it shall be ensured that no earth is removed around root of trees. All borrowing operation shall be as per IRC : 10-1961.

4.6.9.4. Maintenance operations include numbering and maintaining a register of all road side trees within the Right of Way.

4.6.9.5. The routine maintenance such as trimming and shaping shall also cover those hedges and trees within the RoW, which affect the performance of the Project Highway.

4.6.9.6. Cutting or clearance to safeguard visibility at intersections, road bends, accesses and signs shall be carried out in such a way as to avoid permanent damage to hedges and trees. Hedges and trees overhanging carriageways shall be trimmed to provide a minimum headroom of 5.5 metres at all times.

4.6.9.7. Turfing within the RoW shall be mown as to achieve a visual pattern in harmony with adjacent areas. Mowing shall be done when the height of cut reaches 150 mm.

4.6.9.8. The operation and maintenance manual shall include a maintenance and management plan for trees, shrubs, turfing and hedges to sustain their development in a manner pleasing in appearance.

4.7. Inspection Reports and Remedial Measures

4.7.1. Periodicity of inspections for maintenance activities by the Concessionaire shall be regulated as per the Concession Agreement and governed by the exigencies of the situation. The said inspections shall be followed by reports to the Independent Consultant and the NHAI. Based on reports, detailed investigations shall be undertaken by the Concessionaire itself and/or on advice of the Independent Consultant and the NHAI as the case may be.

4.7.2. The Concessionaire shall carry out any maintenance, repair or rehabilitation works found necessary by these investigations in accordance with the Maintenance Manual and the Concession Agreement

4.8. Maintenance of Facilities for Road Users

4.8.1. The Concessionaire shall ensure that all the facilities provided for road users of all categories are kept in a neat, hygienic and tidy condition.

4.9. Limit of Maintenance

4.9.1. The Concessionaire shall maintain the Project Highway, Project area, Project Assets and Ancillary Facilities on the Project Highway in working and orderly condition at all times during the Concession Period or any extension thereof .

4.10. The specifications and standards for maintenance shall be governed and regulated as per Schedule 'D' of the Concession Agreement.

5. DEFECTS LIABILITY AND DIVESTMENT

5.1. The Concessionaire shall take action(s) in terms of Article XXXVII, Defects Liability , Chapter-VIII, Miscellaneous, of the Concession Agreement prior to proceeding with Transfer of the Project Highway, Facilities and Assets thereon to NHAI.

5.2. The Concessionaire shall obtain a Transfer Certificate, Schedule L_1 appended to this schedule, from the Independent Consultant, who shall issue it after satisfying itself that the Project Highway and Facilities and Assets thereon have been constructed, operated and maintained in terms of the Concession Agreement during the Concession Period and meet

the divestment requirements as per Concession Agreement for the issue of Vesting certificate (Schedule V) by NHAI.

5.3. The Concessionaire shall take action(s) under Article XXXIII, Material Breach and Suspension, of Chapter VII, Suspension and Termination of the Concession Agreement after obtaining the Transfer Certificate (Schedule L_1) from the Independent Consultant as spelt out in 5.2 above in order to obtain Vesting Certificate (Schedule V) from NHAI.

5.4. The issuance of the Vesting Certificate (Schedule V) by NHAI in-terms of Sub-clause 36.4 article XXXVI, Divestment of Rights and Interests, Chapter VII, Suspension and Termination of the Concession Agreement to the Concessionaire shall result in the completion of the transfer of the Project Highway in terms of the Concession Agreement.

Schedule L_1

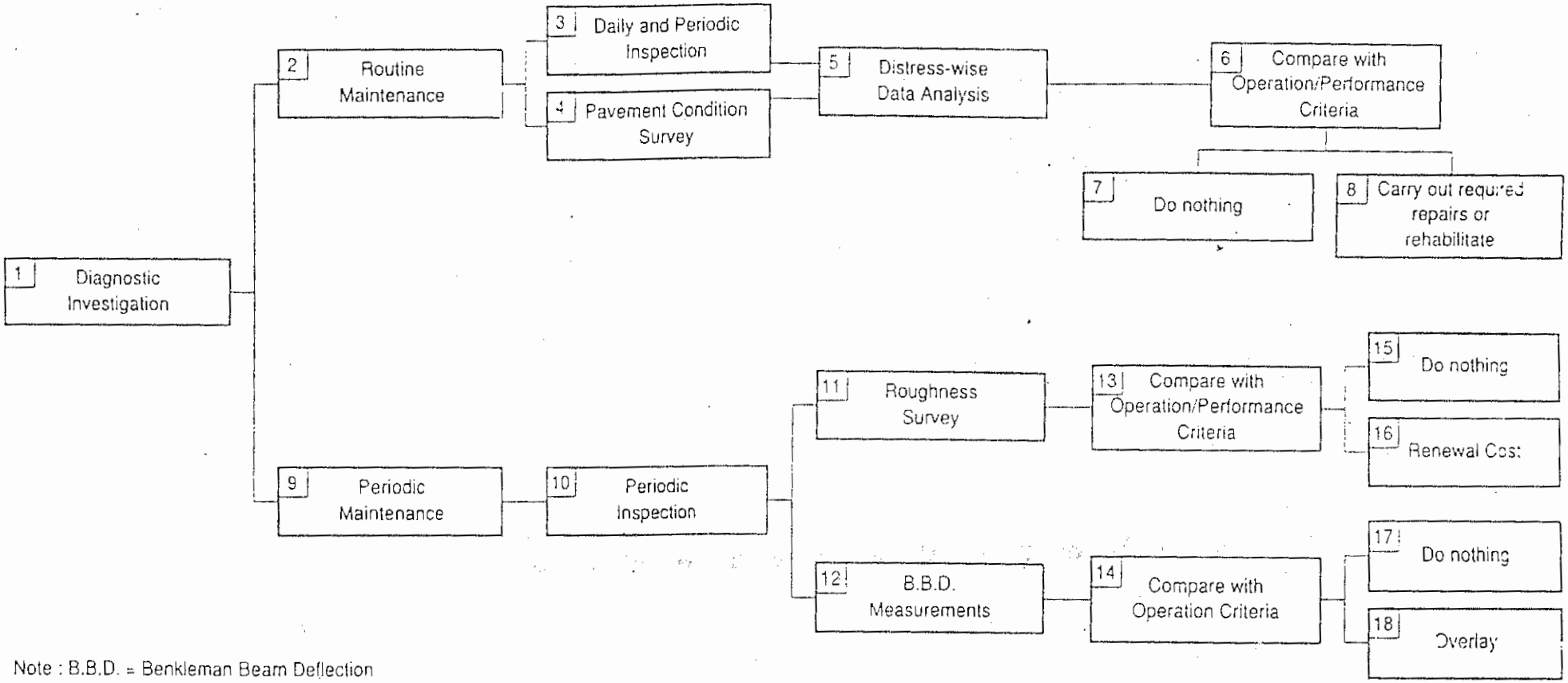
TRANSFER CERTIFICATE

I/We,_____(name of the Independent Consultant) issue this certificate, designated Transfer Certificate for widening the existing 2-lanes to 4-lanes divided carriageway facility including rehabilitation of existing 2-lanes of (a) NH-5 from km. 52.8 to km. 163.6 on the Tada-Nellore Section in Andhra Pradesh, India; (b) NH-9 from km. 217 to km. 252 on the Nandigama-Ibrahimpatnam Section in Andhra Pradesh, India, on Build, Operate and Transfer ("BOT") basis and (c) operation, maintenance and collection of fees of NH-9 from km. 253 to km. 265 on Ibrahimpatnam-Vijayawada Section in Andhra Pradesh, India, by the Concessionaire_____ (name of the Concessionaire) as per the Concession Agreement between the National Highway Authority of India (NHAI) and the said Concessionaire, being satisfied that the Project Highway has been constructed, operated and maintained during the Concession Period is in sound, durable and operational condition on completion of the said concession period, and it is in a fit condition for transfer by the said Concessionaire to the NHAI or its nominee. The transfer of the said Project Highway together with facilities thereon shall be affected on the strength of this certificate.

Place of Issue _____

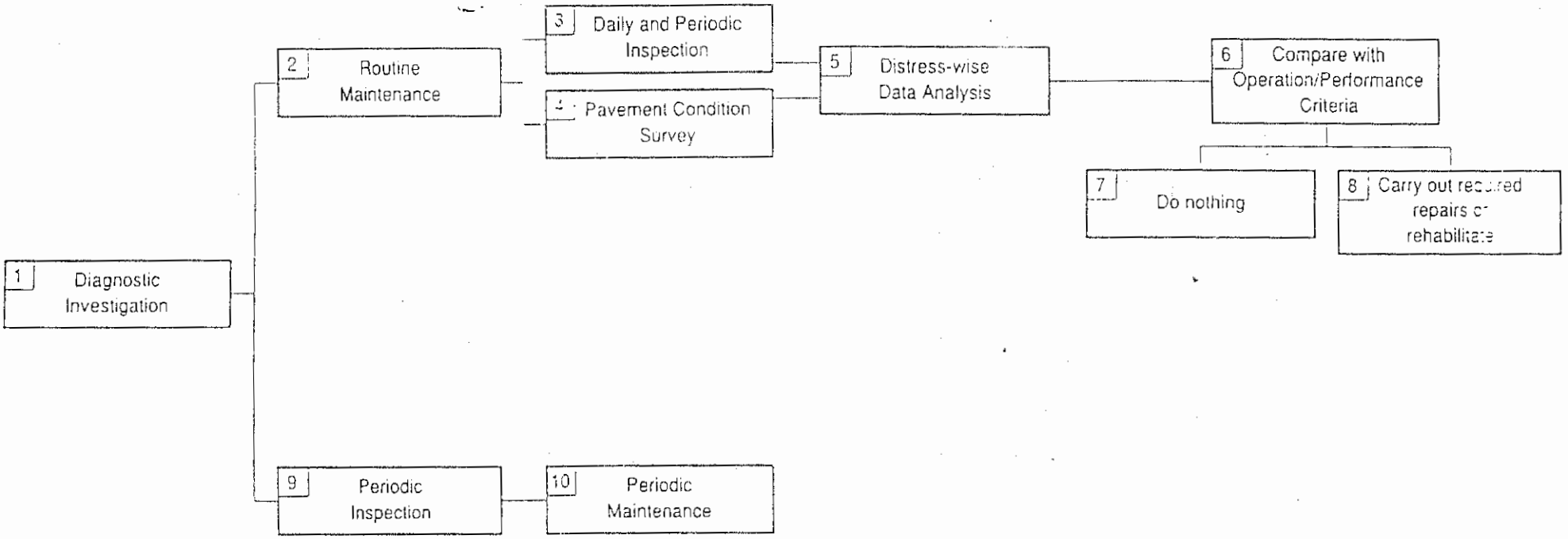
Date of Issue _____

(Independent Consultant)

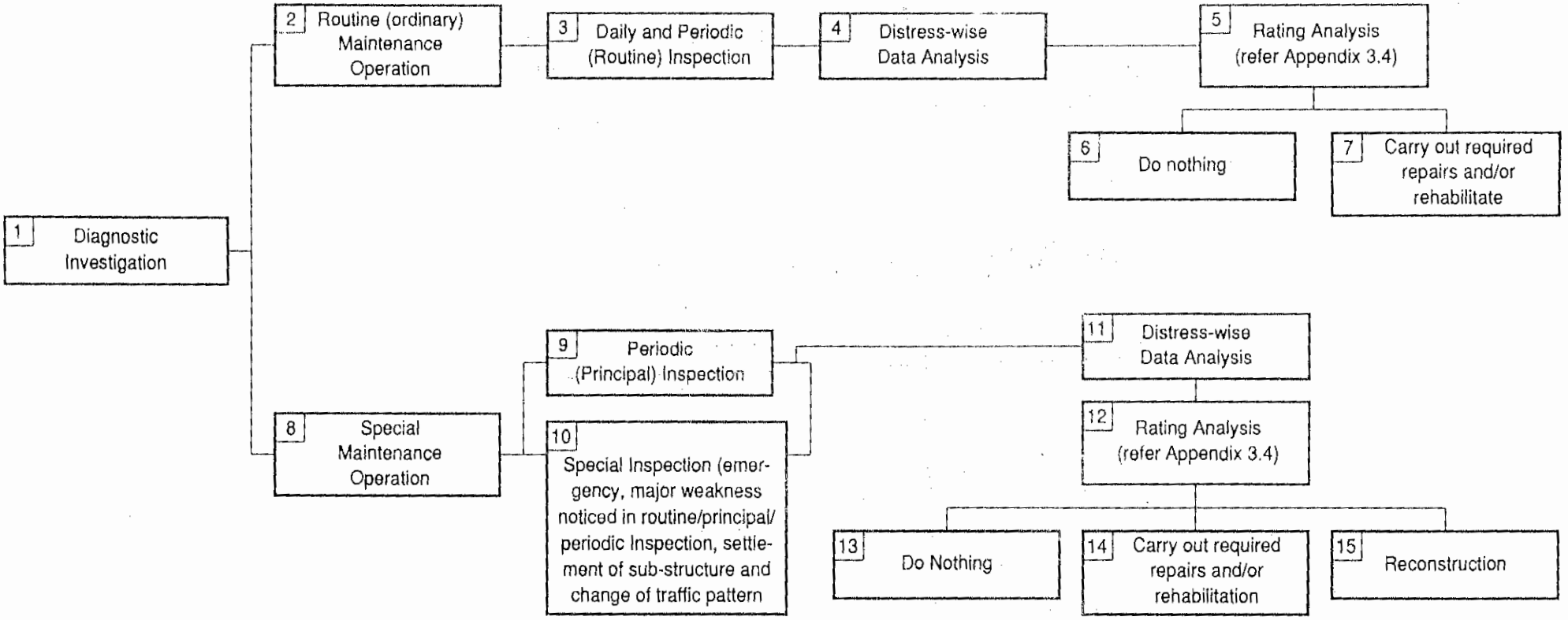


Note : B.B.D. = Benkleman Beam Deflection

FLOW CHART FOR FLEXIBLE PAVEMENT MAINTENANCE



FLOW CHART FOR RIGID PAVEMENT (CC) MAINTENANCE



FLOW CHART FOR BRIDGES AND CULVERTS MAINTENANCE

Equivalent Rating Conditions

Category	Status	Rating
Very Good condition	on completion as per specification and standards	9
Good Condition	no repairs needed	8
Generally good condition	potential exists for minor maintenance	7
Fair condition	potential exists for major maintenance	6
Generally fair condition	potential exists for minor rehabilitation	5
Marginal condition	potential exists for major rehabilitation	4
Poor Condition	repair or rehabilitation required immediately	3
Critical condition	need for repair or rehabilitation is urgent. Facility should be closed until the indicated repair is complete	2
Very Critical condition	facility is closed. Study should determine the feasibility for repair	1
Unserviceable	facility is closed and is beyond repair	0

Sufficiency Rating System

1. Load Performance
2. Safety Performance
3. Remaining Life

Schedule M

MONTHLY FEE COLLECTION STATEMENT

1 Name of Work :

2. Date of commencement of fee collection : ..... (D/M/Y)

3. Report for month ending.

4. Fee rates (in Rs.)

Vehicle Type	Fee rates on commencement	Rates during year before last year w.e.f ..... (Date)	Rates during previous year applied w.e.f. ..... (Date)	Present rates applied w.e.f. ..... (Date)
Bus				
Truck				
Car				
L.M.V.				
Heavy Vehicles as per schedule of user fee				

5. Collection during month under report (Amount in Rs. Lacs)

Vehicle Type	Previous Month		Corresponding Month during Previous Year		Current Month	
	Nos.	Amount	Nos.	Amount	Nos.	Amount
Bus						
2 Axle Truck						
Car						
L.M.V.						
Heavy Vehicles as per schedule of user fee						
Gross Total						

CRITERIA FOR SELECTION OF INDEPENDENT CONSULTANTS

Selection of the independent Consultant shall consist of the following steps

1. Shorflisting of Consultants by the NHAI
2. Issue of Letter of invitation (Lol) along with Terms of Reference (Schedule 0) to short listed Consultants.
3. Evaluation of Technical Proposal and selection of five (5) Consultants.
4. Forwarding list of five (5) Consultants to Concessionaire to select three (3) Consultants.
5. Evaluation of Financial Proposal of the 3 selected Consultants by the Concessionaire.
6. Negotiation and selection of Independent Consultant.

SELECTION COMMITTEE

The selection shall be done by a selection committee. The members of this committee shall be nominated by the NHAI.

1. Shortlisting of consultants by NHAI

For short listing, NHAI shall review their existing databank and consider only those firms who scored more than 80 per cent marks in the technical proposal received by the NHAI for the ongoing National Highway (NH-2, NH-4, NH-8 and NH-45) improvement projects.

2. Request for Proposal

The request for proposal shall be sent to the short listed firms. This shall include a Lol and the ToR besides information (Data Sheet) to the firms and the proposed form of contract. It shall contain the guidelines for the preparation of technical and financial proposals by the firms and submission.

The Lol shall state the intention of the NHAI to enter into a contract for the provision of consulting services and the date, time and address for submission of technical and financial proposals. ToR shall include the following details

1. Project background
2. Objectives

3. Scope of services

4. Interaction with NHAI

5. Reporting requirement

6. Performance clause

7. Consultant's Proposal

8. Period of Services

3. Evaluation Of Technical Proposal

The technical proposals received from short listed firms shall be evaluated for selection of five firms based on the following :

Evaluation Criteria for Technical Proposal

S.No.	Description	Marks
1	Specific experience	15
2	Adequacy of the proposed work plan and methodology in response to the ToR	15
3	Qualifications and competence of the key staff for the assignment	70
	Total	**100**

Sub criteria for qualification of key staff

General qualifications	30
Adequacy for the project	70
Total	**100**

4. Evaluation of Financial Proposal

Financial proposals of the three firms selected by the Concessionaire shall be opened and evaluated as under :

The financial score of the lowest bidder shall be 100 marks. The financial score for the remaining bidders shall be calculated in proportionate to the lowest bidder by the following formula :

Financial Score of 'X' = {100 X Bid price of lowest bidder} / {Bid price of 'X'}

The weightage given to the technical proposal : 90%

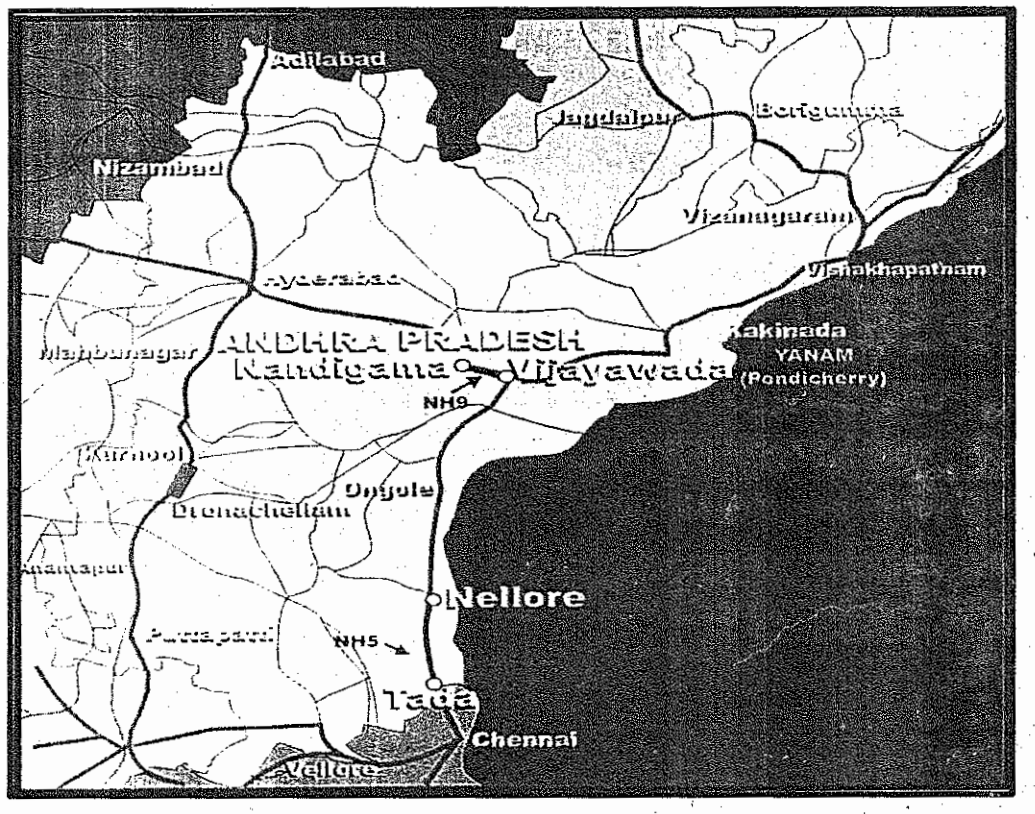
The weightage given to financial proposal : 10%

Combined score of bidder 'X' = 0.10 {Financial score of bidder 'X'} + 0.90 {Technical score of bidder 'X'}

5. **Negotiation and Selection of Independent Consultant**

The combined score of technical and financial proposals shall be calculated and the firm scoring maximum marks shall be called for negotiations. After satisfactory agreement of all matters by both the parties, NHAI will appoint the firm as Independent Consultant for the initial term. In case of failure of negotiations, the firm with second highest score shall be called for negotiations. In case of failure of negotiations with the second highest scoring firm, the firm with the least score shall be called for negotiations.

NATIONAL HIGHWAYS AUTHORITY OF INDIA (N.H.A.I.)
AND
CIDB INVENTURES SDN. BHD. (MALAYSIA)



CONCESSION AGREEMENT
FOR
WIDENING AND STRENGTHENING OF SECTIONS: -
A) TADA TO NELLORE (NH-5)
B) NANDIGAMA TO IBRAHIMPATNAM TO VIJAYAWADA (NH-9)
IN THE STATE OF ANDHRA PRADESH, INDIA AND ITS OPERATION AND MAINTENANCE ON BUILD, OPERATE AND TRANSFER (B.O.T.) BASIS

VOLUME I : THE AGREEMENT

O Box

CIDB INVENTURES

CIDB INVENTURES SDN. BHD. (462295-A)

(27TH MARCH 2001)

Schedule O

INDEPENDENT CONSULTANTS SERVICES

LETTER OF INVITATION

Re:

.....

.....

1 INTRODUCTION

1.1 You are hereby invited to submit a technical and financial proposal for consulting services required for the assignment named in the attached data sheet (referred to in sequential sub clause numbering herein under). Your proposal could form the basis for future negotiations and ultimately a contract between your firm and the NHAI.

1.2 A brief description of the assignment and its objectives are given in the data sheet.

1.3 The assignment shall be implemented in various stages such as Design, Construction Supervision, and Operation and Maintenance. Continuation of services for the next stage shall be subject to satisfactory performance of the previous stage, as determined by the NHAI.

1.4 To obtain first hand information on the assignment and on the local conditions, you are encouraged to pay a visit to the NHAI before submitting a proposal and attend a pre proposal conference as specified in the data sheet. You must inform yourself of local conditions and take them into account in preparing your proposal.

1.5 Please note that (i) the costs of preparing the proposal and negotiating for the contract, including a visit to site, are not reimbursable as a direct cost of assignment and (ii) NHAI is not bound to accept any of the proposals received by it.

3.3 During preparation of the technical proposal, you may give particular attention to the following:

i. The estimated manmonths for the assignment is stated in the data sheet for your information.

ii. The majority of the key professional staff proposed must be permanent staff of the firm, unless otherwise indicated in the data sheet.

iii. No alternative to key professional staff may be proposed and only one Curriculum Vitae (CV) may be submitted for each position and

iv. A good working knowledge of the language specified in the data sheet is essential for key professional staff on this assignment. Reports must be in the language (s) specified in the data sheet.

3.4 Your technical proposal must provide the following information, using but not limited to the formats attached in the Appendix I.

i. A brief description of the firm's organisation and an outline of recent experience on assignments of a similar nature. The information which you shall provide on each assignment should indicate, *inter-alia*, the profiles of the staff provided, duration, contract amount and firm's involvement.

ii. Any comments or suggestions on the ToR and a description of the methodology (work plan) which the firm proposes to execute the services, illustrated with bar charts of activities.

iii. The composition of the proposed staff team, the tasks which shall be assigned to each and their timing;

iv. CVs recently signed by the proposed key professional staff or an authorised manager in the home office. Key information should include years with the firm and degree of responsibility held in various assignments during the last ten years;

v. Estimates of the total time effort (person x months) to be provided for the services, supported by bar chart diagrams showing the time proposed (person x months) for each professional staff and

vi. Comments, if any, on the services and facilities to be provided by the client and indicated in the ToR.

3.5 The technical proposal must not include any financial information.

Financial Proposal

3.6 The financial proposal should list the cost associated with the assignment. These normally cover; remuneration for staff (in the field and at headquarters), accommodation (per diem or housing), transportation (for mobilisation and demobilisation) and equipment (vehicles, office equipment, furniture and supplies), printing of documents, etc. Your financial proposal should be prepared using, but not limited to, the formats attached in Appendix II.

3.7 The financial proposal must take into account the tax liability including service tax and cost of insurance specified in the data sheet.

4 SUBMISSION OF PROPOSAL

4.1 You must submit one original proposal and the number of copies indicated in the data sheet. Each proposal Technical and Financial shall be separately sealed and put in an outer envelop which shall bear the address and information indicated in the data sheet. The envelope must be clearly marked.

DO NOT OPEN, EXCEPT IN PRESENCE OF THE EVALUATION COMMITTEE

4.2 This outer envelope shall include two separate envelopes, one clearly marked "Technical Proposal" and one clearly marked "Financial Proposal" (both envelopes indicating original or copy as appropriate).

4.3 In the event of any discrepancy between the copies of the proposals, the original shall govern. The original and each copy of the technical and financial proposal must be prepared in and signed by the authorised representative of the firm indelible ink. The letter of authorisation must be confirmed by a written power of attorney accompanying the proposals.

4.4 The proposals must contain no interlineations or over writing. However where necessary to correct errors made by the firm themselves, such corrections must be written fresh and initialled by the person or persons signing the proposal.

4.5 Your completed technical and financial proposal must be delivered on or before the time and date stated in the data sheet.

4.6 Your proposal shall be valid for the number of days stated in the data sheet from the date of its submission prescribed in the data sheet during which you must maintain available the professional staff proposed within this period for the assignment. NHAI will make its best effort to complete negotiations at the location stated in the data sheet.

5 PROPOSAL EVALUATION

5.1 A two-stage procedure shall be adopted in evaluating the proposals: (i) a technical evaluation, which shall be carried out prior to opening any financial proposal; (ii) a financial evaluation. Firms shall be ranked using a combined technical and financial score, as indicated below.

Technical Proposal

5.2 The Evaluation Committee appointed by the NHAI shall carry out its evaluation applying the evaluation criteria and point system specified in the data sheet. Each responsive proposal shall be attributed a technical score (St.)

Financial Proposal

5.3 The Evaluation Committee shall determine if the financial proposal is complete and without computational errors. The lowest financial proposal (Fm) shall be given a financial score (Sf) of 100 points. The financial score of the proposals shall be computed as follows: Sf = 100 x Fm//F (F-amount of financial proposal).

5.4 Proposals shall finally be ranked according to their combined technical (St) and financial (Sf) scores using the weights indicated in the data sheet.

5.5 Any effort by the firm to influence the NHAI in its evaluation of proposal or award of contract may result in the rejection of the firm's proposal.

6 NEGOTIATIONS

6.1 Prior to the expiration period of validity of proposal, the NHAI shall notify the successful firm who submitted the highest scoring proposal in writing by registered letter, cable telex or facsimile and invite it to negotiate the contract.

6.2 Negotiations normally take two to five days. The aim is to reach agreement on all points, and initial a draft contract by the conclusion of negotiations.

6.3 Negotiations shall commence with a discussion of your technical proposal, the proposed methodology (work plan), staffing and any suggestions you may have made to improve the ToR. Agreement must then be reached on the final ToR, the staffing and bar charts, which shall indicate activities, staff, periods in the field and in the home office, staff months, logistics and reporting. Special attention shall be paid to optimise the required outputs from the firm within the available budget and to define clearly the inputs required from the NHAI to ensure satisfactory implementation of the assignment.

6.4 Changes agreed upon shall then be reflected in the financial proposal, using proposed unit rates (no negotiation of the unit rates, including the man months rates).

6.5 Having selected a firm, among other things, on the basis of an evaluation of proposed key professional staff, the NHAI expects to negotiate, a contract on the basis of the staff named in the proposal and, prior to contract negotiations, will require assurance that this staff shall be actually available. NHAI shall not consider substitutions during contract negotiations except in cases of unexpected delays in the starting date or incapacity of key professional staff for reasons of health.

6.6 The negotiations shall be concluded with a review of the draft form of Contract. The NHAI and the firm will finalise the contract to conclude negotiations. If negotiations fail, the NHAI will invite the firm having obtained the second highest score to contract negotiations. In case of failure of negotiations with the second highest scoring firm, the firm with the least score amongst the three selected firms for consideration shall be called for negotiations.

7 AWARD OF CONTRACT

7.1 The contract shall be awarded after successful negotiations with the successful firm. Upon successful completion, the NHAI shall promptly inform the other firms that their proposals have not been retained.

7.2 The successful firm with whom the contract is signed is expected to commence the assignment on the date and at the location specified in the data sheet.

8 CONFIRMATION OF RECEIPT

8.1 We shall appreciate your informing us by telex/facsimile:

- Receipt of the LoI and
- Whether or not you will submit a proposal.

[Name]*
[Designation]*
[Department]*

DATA SHEET

(As Mentioned in LoI)

Sub clause No. in LoI

1.1 **The name of the Assignment is:** Design and Construction Supervision of Widening and Strengthening of existing 2 lanes from (a) km 52.8 to km 163.6 on the Tada-Nellore Section of NH5 in Andhra Pradesh, India and (b) km 217 to km 252 on the Nandigama-Ibrahimpatnam Section of NH9 in Andhra Pradesh, India, on BOT Basis and (c) operation, maintenance and collection of fees from km. 253 to km. 265 on Ibrahimpatnam-Vijayawada Section of NH9 in Andhra Pradesh, India, through a Concessionaire.

1.2 **The description and the objectives of the Assignment are:** The Government of India in the Ministry of Surface Transport has authorised the NHAI to implement the Widening and Strengthening of existing 2 lanes from (a) km 52.8 to km 163.6 on the Tada-Nellore Section of NH5 in Andhra Pradesh, India and (b) km 217 to km 252 on the Nandigama-Ibrahimpatnam Section of NH9 in Andhra Pradesh, India on BOT basis and (c) operation, maintenance and collection of fees from km. 253 to km. 265 on Ibrahimpatnam-Vijayawada Section of NH9 in Andhra Pradesh, India. NHAI after due consultation with the Concessionaire intends to appoint an Independent Consultant (IC) to oversee the activities of the Concessionaire during Design, Construction, Operation and Maintenance of the Project Highway.

The objectives of the consultancy service are to:

i) Act principally on behalf of the NHAI and lenders to review all activities associated with Design, Construction and O&M to ensure compliance of requirements of Concession Agreement with the Concessionaire in order to have a sound project.

ii) Report on the financial and technical aspects of the project, after visiting the site at least once a month.

iii) Assist the parties to the Concession Agreement in arriving at an amicable settlement in case of a dispute

1.4 **Pre-Proposal Conference shall be held at** _____ **hr on** _____ **2001 at** _____.

1.6 **The invited firms are:** *

i)

ii)

iii)

n)

2.1 **The Documents are**: (ToR, Contract, Appendices etc.)

i) ToR
ii) Form of Contract Agreement along with Appendices
iii) Appendix I - Formats for Technical Proposal
iv) Appendix II - Formats for Financial Proposal

2.2 **The address is:**
National Highways Authority of India
1, Eastern Avenue, Maharani Bagh
New Delhi - 110 065
Tel : 91-11-692 4380
Fax : 91-11-692 4383

3.1 **The Language** of documents and correspondence will be English

3.3 Limitations to joint ventures or sub-contracts are: Joint Venture between firms on the short list is not permitted.

(i) It is estimated that about 105 months of services of key personnel will be required. However, you should feel free to submit your proposal on the basis of the man-months, which you consider to be necessary to undertake the assignment.

(ii) Majority of proposed key staff should be permanent employees of the firm:

(iv) All the personnel shall have working knowledge of English and all the reports etc shall be written in English.

3.7 Tax Liability, insurance:
As per clause _____ and _____ of Special Conditions of Contract.

4.1 **The number of copies of the proposals required**: 4 Nos.
The outer envelop covering the Proposals shall be addressed to

Member
National Highways Authority of India
1, Eastern Avenue, Maharani Bagh
New Delhi - 110 065
Tel : 91-11-692 4380
Fax : 91-11-692 4383

4.5 **The date and time of proposal submission are: ***

** to be filled up by the NHAI*

4.6 **Validity period:** 90 days

Negotiations shall be held at New Delhi

5.2 **The points assigned to evaluation criteria are:**

		POINTS
(i)	Relevant experience for the assignment	15
(ii)	The quality of methodology and work plan proposed	15
(iii)	The qualifications of the key staff proposed	70
	TOTAL:	**100**

The points assigned to the evaluation sub-criteria for qualifications and competence of key staff are:

		POINTS
(i)	General Qualifications	30
(ii)	Adequacy for the Project	70
	TOTAL:	**100**

The technical proposal should score at least 75 points out of 100 to be considered responsive for financial evaluation.

5.4 The weight (T%) given to the Technical Proposal is 90 percent

The weight (F%) given to the Financial Proposal is 10 percent

7.1 Commencement of Assignment: The firm shall begin carrying out the services within one month of the date of effectiveness of the contract at locations as required for the project highway stated in ToR

7.2 The selected firm is expected to commence the assignment on ..... at .....

Sincerely,

[Name]*

[Designation]*

[NHAI]*

Attachments:

i) ToR
ii) Form of Contract Agreement along with Appendices
iii) Appendix I - Formats for Technical Proposal
iv) Appendix II - Formats for Financial Proposal

INDEPENDENT CONSULTANTS' SERVICES
TERMS OF REFERENCE

1. PROJECT BACKGROUND

(1) National Highway No.5 is one of the major arteries of the road network system of the country connecting the port city of Chennai with Kolkatta. It traverses through four states namely, Tamil Nadu, Andhra Pradesh, Orissa and West Bengal. It connects number of major urban centre like Nellore, Ongole, Vijayawada, Visakhapatnam, Berhampur, Bhubaneswar and Kharagpur on its way from Chennai to Kolkatta.

National Highway No. 9 takes off from NH4 at Pune in the State of Maharashtra and after passing through Hyderabad, the capital city of Andhra Pradesh, joins NH5 at Vijayawada. It passess through the districts of Sangareddy, Hyderabad, Nalgonda and Krishna. Thus, it is an important National Highway, which connects two major National Highways, Nos 4 & 5, and also connects Hyderabad with Vijayawada, the two largest towns of Andhra Pradesh, one the State Capital and the other a big commercial and business centre. The two-laning from km 217 to km 252 in the Nandigama-Ibrahimpatnam Section, has been strengthened under the loan assistance of ADB through National Highways Authority of India (NHAI).

In order to provide better level of service to the vehicular traffic it has been decided to augment the capacity of Tada-Nellore section of NH-5 from km 52.800 to km 163.600 and Nandigama-Ibrahimpatnam section of NH-9 from km 217 to km 252, both in Andhra Pradesh by widening the existing 2-lane to 4-lanes divided carriageway, including strengthening of the existing 2-lanes on Build Operate and Transfer (BOT) basis.

(2) The site shall be made available to the Concessionaire by the NHAI free from all encumbrances and occupations and without the Concessionaire being required to make any payment to NHAI on account of any costs and charges for the use of such site for the duration of the Concession agreement.

(3) The Concessionaire shall operate and maintain the Project Highway by itself, or through O&M Contractors including tolling contractor after carrying out improvements

to comply with standards and specifications spelled out by the NHAI in the Concession Agreement.

(4) NHAI after due consultation with the Concessionaire intends to appoint an Independent Consultant (IC) to oversee the activities of the Concessionaire during Design, Construction, Operation and Maintenance of the Project Highway.

2. OBJECTIVES

The objectives of consultancy service are to :

i) Act independently and on behalf of both NHAI and lenders to review all activities associated with Design, Construction and O&M to ensure compliance of requirements of Concession Agreement in order to have a sound project.

ii) Report to NHAI on the financial and technical aspects of the project, after visiting the site at least once a month.

iii) Assist the parties to the Concession Agreement in arriving at an amicable settlement of dispute.

iv) Act, if required, on behalf of the lenders and fulfil various reporting requirements of the lenders

3.0 SCOPE OF SERVICES

The Project Highway provides for Widening and Strengthening of existing two lanes from (a) km 52.8 to km 163.6 on the Tada - Nellore Section of NH5 in Andhra Pradesh, and (b) km 217 to km 252 on the Nandigama-Ibrahimpatnam Section of NH9 in Andhra Pradesh, India on BOT basis and (c) Operation and Maintenance from km 253 to km 265 on Ibrahimpatnam-Vijayawada Section of NH9 in Andhra Pradesh, India. The work also includes the widening of existing bridges and culverts and construction of new bridges and culverts for new carriageway. The Project Highway shall include but not be limited to the following:

- Road works
- Fee Collection system including buildings and related structures, hardware and software
- Communication systems
- Administration and Maintenance Depots
- Rest Area and Fuel and Service facilities
- Rest areas

- Lighting system
- Interchanges
- Bridges
- Service Roads
- Lay byes, Bus bays
- Traffic safety, Landscaping, arboriculture and other Project facilities.

The Concession Agreement envisages the appointment of an Independent Consultant (IC) by the National Highways Authority of India (NHAI). The IC shall be, in principle, responsible for review of Designs, Drawings, Construction, Progress Monitoring, affirmation of all certifications done by the Concessionaire, etc. The IC shall not be involved in day-to-day implementation of the project. The Concession Agreement also envisages the appointment of a Consultant by the Concessionaire to undertake all the design work and the day-to-day Supervision of Construction, monitoring of progress, certification of works of the Contractor(s) to be appointed by the Concessionaire for the Project Highway.

The independent Consultant shall supervise that all the requirements of the Concession Agreement and various schedules are met by the Concessionaire and in case of any discrepancy/ deviations, he shall inform NHAI and the Concessionaire. The responsibility of the IC during various stages of Design, Construction and Operation and Maintenance shall be as follows but not limited to: -

3.1 Design Stage

i) Review the adequacy of the geotechnical and sub-soil investigations for road, bridge and other structures and building works, hydrological investigation and the topographical survey.

ii) Review the Design and working drawings prepared for the construction of various components of the highway, bridges / structures, analysis of rates, estimates, reports and other deliverables.

iii) Review the impact of widening proposal on the Archaeological structures, if any.

iv) Review the project report prepared by the Concessionaire, with respect to the traffic, toll management, traffic management, etc.

v) Review the implementation schedule of Engineering, Design, Procurement and Construction of the project submitted by the Concessionaire.

vi) Review the Planning and Design of wayside amenities, toll plazas, toll collection system, communication facilities, emergency relief arrangements, traffic operation and safety arrangements.

vii) Review all project contracts including Detailed Engineering and Design Consultancy Contract, Construction Supervision Consultancy contract, any other EPC contract, O & M Contract and Tolling contract, made by the Concessionaire.

viii) Review the environmental management plan for the Project Highway during Construction and Operation and Maintenance phases.

ix) Review quality assurance and quality control provisions during the design, construction and maintenance stages.

x) Audit the safety of the Project Highway both during Construction and Operation and Maintenance stages.

xi) To mediate and assist in resolving disputes between NHAI and Concessionaire.

xii) Provide Management Information System to NHAI.

3.2 Construction Stage

3.2.1 The duties of the IC are to supervise the works on sample basis and to approve the materials and workmanship of the works. As stated in the Concession Agreement, he/she shall have no authority to relieve the Concessionaire of any of their duties or to impose additional obligations. The IC shall administer the works contracts and ensure that the Contractual Clauses, whether related to quality or quantities of works, are respected.

3.2.2 Review and approve works programme.

3.2.3 Review the material testing results and Mix Designs and to order special tests of materials and/or completed works, and/or order removal and substitution of substandard materials and/or works as required.

3.2.4 Review quality assurance and quality control during Construction period.

3.2.5 Ensure that the Construction work is accomplished in accordance with the technical specifications.

3.2.6 Identify Construction delays and recommend to the NHAI the remedial measures to expedite the progress.

3.2.7 Review and certify the 'As Built' drawings for each component of the works prepared by the Concessionaire.

3.2.8 Review the safety measures provided for the traffic and Project workers.

3.2.9 Determine any extension of the Project Completion Schedule and the Concession period, to which the Concessionaire is entitled and shall notify the NHAI accordingly.

3.2.10 To mediate and assist in resolving disputes between NHAI and Concessionaire during Construction stage.

3.2.11 Assist the NHAI in arriving at any cost variation and its impact on Concession Agreement.

3.2.12 Evolve MIS and provide it to the NHAI

3.2.13 Issue Completion Certificate after checking the results of prescribed tests.

3.2.14 Issue Provisional Certificate duly appended with a list of outstanding items (Punch List) established after joint inspection with the Concessionaire, if the Concessionaire request for it.

3.3 Operation and Maintenance Stage

Maintenance shall include cleaning, replacement of equipment/consumables, roadside facilities, horticultural maintenance and repairs to equipment, pavements, bridges, structures and other civil works. Maintenance shall not include the extension of any existing pavements, bridges, structures and other civil works unless part of the Project Highway.

3.3.1 Review work plan and schedules of various operation and maintenance activities.

3.3.2 Review Operation and Maintenance manual prepared by the Concessionaire.

3.3.3 Review the performance of Operation and Maintenance (O & M) activities including equipment, service, traffic operation and safety, toll plazas and fees collection system, landscaping, environmental issues and way side amenities.

3.3.4 To mediate and assist in resolving disputes between NHAI and Concessionaire during O&M stage.

3.3.5 Initiate necessary action to undertake maintenance obligations of the Concessionaire at risk and cost of the Concessionaire in the event of his failure to carry out O&M.

3.3.6 Undertake audit of the traffic using the Project Highway at least once a month.

3.3.7 Review and inspect the Project Highway at least once a month during the O&M period and issue an Inspection Report of such inspections.

3.3.8 Review the accident record on the Project Highway and suggest remedial measures.

3.4 **Transfer/Termination**

3.4.1 Satisfy itself that the entire divestment requirement have been met by the Concessionaire.

3.4.2 Issue Transfer Certificate to the Concessionaire

3.5 All other activities as per provisions of the Concessionaire Agreement

4. INTERACTION WITH NHAI

The Independent Consultants shall interact with the NHAI on a regular basis. NHAI shall generally hold meetings every month to review the progress etc. during the phase of Design and Construction, and every second month during the Operation and maintenance stage. Within 30 days of the receipt of the Drawings, the Independent Consultant shall review the same and convey its comments/observations to the Concessionaire with particular reference to the conformity or otherwise with the specifications and standards set forth in the Agreement.

5. REPORTING REQUIREMENT

The Independent Consultants shall prepare and submit to the NHAI three copies and Concessionaire two copies each of the following reports.

(a) Design Phase

- Monthly Progress Report.

(b) Construction Phase

- Monthly and Quarterly Inspection Report covering all aspects such as Progress Monitoring, Quality Assurance (QA)/Quality Control (QC) etc.

(c) Operation and Maintenance Phase

- Monthly and Quarterly report on existing condition of facility including advise on all aspects of Operation And Maintenance, Toll Booths, Bridges or other Structures, Traffic Management & Safety, Telephone, Ambulance, etc.
- Monthly report on audit of the traffic using the Project Highway at least once a month.

(d) Various other reports as provided in the Concession Agreement such as Completion Report.

6. PERFORMANCE CLAUSE

Independent Consultants shall be expected to fully comply with all the provisions of the 'Terms of Reference', and shall be fully responsible for finalisation of Designs, quality Construction and proper maintenance and operation of the facility. Any non-compliance of these instructions, non-adherence to the provision of ToR and non-adherence to the time schedule prescribed under ToR shall amount to non-performance.

7. CONSULTANT'S PROPOSAL

7.1 List of key personnel to be fielded by the Consultants shall be as below: -

i) Team Leader-cum-Senior Highway Engineer

ii) Senior Bridge/Structural Engineer

iii) Traffic & Transportation Expert

iv) Senior Pavement Specialist

v) Senior Quality/Material Expert

vi) Financial Expert

vii) Legal Expert

7.2 Broad job-description and minimum qualification for key personnel mentioned above is enclosed as Appendix A. However, higher marks shall be accorded to the Candidate with higher relevant qualification and experience. It is estimated that about 71 man-months of services of key personnel and 222 man-months of support staff are required as detailed in Appendix B. However, the Consultant should feel free to submit their proposal on the basis of the man-months, which they consider to be necessary to undertake the assignment. All the key personnel mentioned in Para 7.1 above shall be evaluated at the time of evaluation of technical proposal. Consultants are advised in their own interest to frame the technical proposal in an objective manner as far as possible so that these could be properly assessed in respect of points to be given as part of evaluation criteria. The bio-data of the key personnel should be signed on every sheet by the personnel concerned and the last sheet of each bio-data should also be signed by the authorised signatory for the Consultant. The key personnel shall also certify at the end of their bio-data proforma that they have not accepted any other offer at the time of signing of the bio-data and as such shall be available to work with the Independent Consultant, if the project is awarded.

8. PERIOD OF SERVICES

8.1 The services of an Independent Consultant will be in phases as per sub-clause 22.2 of article XXII Independent Consultant, of Concession Agreement.

8.2 The appointment of the Independent Consultant shall initially be for a period of 48 months. Estimated Design and Construction schedule for completion of the project for commercial operation is 3.6 months. The proposed manpower deployment for this period shall be matching the activities to be performed during the said period. The time frame for services during the deployment of key personnel during this period shall be as shown in Annexure B.

8.3 Thereafter, the services of the Independent Consultant shall be for a period of 3 years each time till completion of the Concession period and transfer of the Project Highway. The deployment of key personnel during the said period(s) shall be decided by NHAI in consultation with the Concessionaire.

Appendix A

MINIMUM QUALIFICATION OF KEY PERSONNEL

TEAM LEADER CUM SENIOR HIGHWAY ENGINEER

This is the senior most position and the expert engaged as the team leader shall be responsible for reviewing the entire project preparation and implementation activities of the Concessionaire. He shall check all the Designs being prepared by the Concessionaire, ensure execution of works on site as per specification and standards, and continuously interact with the NHAI and the Concessionaire. He shall undertake project site visits and shall guide, supervise, coordinate and monitor the work of other experts in his team as well as those of the Concessionaire. The candidate should have a proven record of supervising, organising and managing of project preparation and construction of highway projects of large magnitudes, as defined below, financed by international lending agencies and others. Knowledge of project management shall be an added advantage.

This position requires a Senior Highway Engineer who shall be a graduate in Civil Engineering with higher qualifications and specialisation in highway engineering. He should have a minimum 20 years of experience of highway engineering including 10 years of experience in developing countries. He should have handled as Team Leader or similar capacity at least one Project Preparation and Construction supervision work of major highway project of four laning/expressway costing more than Rs. 1500 million (1997 cost) or of at least 50 km length. Alternatively, he should have handled as Deputy Team Leader or similar capacity Project Preparation and Construction supervision of at least two projects of four laning/expressway costing more than Rs. 900 million (1997 cost) each or of at least 30 km length.

SENIOR BRIDGE /STRUCTURAL ENGINEER

The Senior Bridge Engineer shall be responsible for checking the designs of bridges, interchanges and any other structure to be constructed as part of the Project Highway. He shall also inspect the construction of structure and monitor bridge rehabilitation and repair works to be undertaken by the Concessionaire.

The position requires a graduate in Civil Engineering, with a Masters degree or equivalent in Structural/Bridge Engineering with minimum 15 years experience out of which at least 10 years on Design and Construction of bridges/interchanges/any other structures including

rehabilitation. He should have handled in the last 5 years one detailed engineering work for rehabilitation and/or upgrading of major highway or expressway. The candidate should have a thorough understanding and experience with international 'best practices', and of modern bridge construction technology. He should have designed independently, at least two major bridges (150 m or more in length).

TRAFFIC AND TRANSPORTATION EXPERT

Shall review and check the traffic analysis, projection, and assignment exercises to be carried out by the Concessionaire. He shall also review type and locations of traffic control (e.g. signal) and safety measures, design of intersections and interchanges, toll plaza layout, toll collection method and use facilities, scheme for traffic management during construction period. He shall also study and comment on safety audit report prepared by the Concessionaire.

The position requires a graduate in Civil Engineering with higher qualification in traffic engineering. The minimum period of professional experience is 15 years including at least 5 years on projects of similar nature, of which at least one should involve works of four laning/expressway or similar project. The candidate should have enough knowledge on road safety aspects.

SENIOR PAVEMENT SPECIALIST

The expert shall be continuously interacting with the Concessionaire, to ensure life cycle cost effective and viable design of pavement inciuding appropriate rehabilitation / strengthening of the existing two lane pavement which is significantly distressed. He shall also be responsible for ensuring complete adherence to maintenance standards during Construction and Operation period. Thus, the position requires a pavement specialist with thorough knowledge and understanding of international 'best practices' in the field of Design, Construction and maintenance of flexible/rigid type of pavements including latest code stipulations and specifications.

The candidate should be a graduate in Civil Engineering with higher qualification and specialisation in Pavement Design. He should have a minimum of 15 years of professional experience of pavement Design, Construction and its maintenance. The minimum experience of 15 years should include assignments of at least 3 years in developed countries or at least 3 years on major highway projects funded by international funding agencies in developing countries in Senior Expert capacity.

SENIOR QUALITY/MATERIAL EXPERT

The Quality/Material Expert shall review the test results of quarry and borrow area material to find out their strength characteristics and suitability for using them in pavement construction. He shall inspect the Concessionaire's field laboratories to ensure that they are adequately equipped and capable of performing all the specified testing requirements of the contract. He shall look into the quality assurance aspect of the construction works and supervise the setting-up of the various Concessionaire's rock crushers and bituminous mixing plants to ensure that the specified requirements for such equipments are fully met.

The position requires a graduate in Civil Engineering with a minimum of 15 years of professional engineering experience including 6 years in quality assurance programs in highway projects using modern technology.

FINANCIAL EXPERT

Over 8 to 10 years as a Financial Advisor particularly in the field of project financing. Advisory experience in transportation project would be desirable.

LEGAL EXPERT

Graduate in Law/Engineering with over 12 years experience in handling large contracts, procurement, project management, arbitration and legal aspects of construction contracts.

Appendix B

MANMONTH INPUT FOR KEY PERSONNEL OF INDEPENDENT CONSULTANTS

Sl. No.	Key Personnel	Suggested Manmonths		
		Construction stage	O&M Stage	
1	Team Leader cum Senior highway Engineer	36	12	
2	Senior Bridge Engineer	12	1	
3	Traffic & Transportation Expert	6	3	
4	Senior Pavement Specialist	12	2	
5	Senior Quality/Material Expert	12	1	
6	Financial Expert	2	2	
7	Legal Expert	2	2	TOTAL
	Total	**82**	**23**	**105**

APPENDIX I: FORMATS FOR TECHNICAL PROPOSAL

(as mentioned at Para 2.1 of the data sheet)

Appendix I-1	Firm's references
Appendix I-2	Firm's comments and suggestions on the Terms of Reference and on data, services, and facilities to be provided by the NHAI.
Appendix I-3	Approach paper on methodology and work plan for performing the assignment.
Appendix I-4	Composition of the team and task(s) of each team member
Appendix I-5	Curriculum vitae of proposed professional staff.
Appendix I-6	Time schedule for deployment of professional personnel
Appendix I-7	Activity (works) schedule.

APPENDIX I-1: FIRM'S REFERENCES

Relevant Services Carried Out in the Last Five Years
That Best Illustrate Qualifications

Using the format below, provide information on each reference assignment for which your firm/entity, either individually as a corporate entity or as one of the major companies within an association, was legally contracted.

<table>
<tr><td colspan="2">Assignment Name:</td><td>Country:</td></tr>
<tr><td colspan="2">Location within Country:</td><td>Professional Staff Provided by Your Firm:</td></tr>
<tr><td colspan="2">Name of Client:</td><td>No. of Staff :</td></tr>
<tr><td rowspan="2">Start Date (Month/Year)</td><td rowspan="2">Completion Date (Month/Year)</td><td>No. of Staff-Months :</td></tr>
<tr><td>Approx. Value of Services (in Current INR)</td></tr>
<tr><td colspan="2">Name of Associated Consultants, if any:</td><td>No. of Months of Professional Staff. Provided by Associated Consultants:</td></tr>
<tr><td colspan="3">Name of Senior Staff involved:</td></tr>
<tr><td colspan="3">Narrative Description of Project:</td></tr>
<tr><td colspan="3">Description of Actual Services Provided by Your Staff:</td></tr>
</table>

Firm's Name: _____

APPENDIX I-2: COMMENTS AND SUGGESTIONS OF CONSULTANTS ON THE TERMS OF REFERENCE AND ON SERVICES AND FACILITIES TO BE PROVIDED BY THE NHAI

On the Terms of Reference:

1.

2.

3.

4.

....

On the services and facilities to be provided by the NHAI

1.

2.

3.

4.

....

APPENDIX I-3: APPROACH PAPER ON METHODOLOGY AND WORK PLAN FOR PERFORMING THE ASSIGNMENT

APPENDIX I-4: COMPOSITION OF THE TEAM PERSONNEL, AND TASK(S) OF EACH TEAM MEMBER

1. Technical/Managerial Staff

Sl. No.	Name	Position	Task
1			
2			
3			
4			
..			
..			

2. Support Staff

Sl. No.	Name	Position	Task
1			
2			
3			
4			
..			
..			

APPENDIX I-5: FORMAT OF CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF

Proposed Position: .....

Name of Firm:.....

Name of Staff: .....

Profession: .....

Date of Birth: .....

Years with Firm/Entity: ..... Nationality: .....

Membership of Professional Societies: ....

Detailed Task Assigned: ....

Key Qualifications:

[Give an outline of staff member's experience and training most pertinent to tasks on assignment. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations. Use about half a page.]

Education:

[Summarise college/university and other specialised education of staff member, giving their names, dates attended, and degrees obtained. Use about one quarter of a page.]

Employment Record:

[Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, name of employing organisations, titles of positions held, and locations of assignments. For experience in last ten years, also give types of activities performed and client references, where appropriate. Use about three-quarters of a page.]

Languages:

[For English language indicate proficiency: excellent, good, fair, or poor; in speaking, reading, and writing]

Certification

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe qualifications and experience.

.....Date: .....

[Signature of staff member or authorised representative of the Firm] Day/Month/Year.

APPENDIX I-6: TIME SCHEDULE FOR PROFESSIONAL PERSONNEL

A. **Activity Schedule**

Sl. No.	Name	Position	Monthwise Program (in form of Bar Chart) *[1st, 2nd, etc. are months from the start of assignment]*												
			1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th and subsequent years	Number of Months
1															Subtotal (1)
2															Subtotal (2)
3															Subtotal (3)
4															Subtotal (4)
-															-
-															-

APPENDIX I-7: ACTIVITY (WORKS) SCHEDULE

A. Activity Schedule

		Monthwise Program (in form of Bar Chart) *[1st, 2nd, etc. are months from the start of assignment]*											
Sl. No.	Item of Activity (Works)	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
1	.....												
2	.....												
3	.....												
4	.....												
-	.....												
-	.....												

B. Completion and Submission of Reports

S.No	Reports:	Programme: (Date)
1	Monthly reports (Design and Construction)	
2	Quarterly Reports	
3	Various others reports as provided in the Concession Agreement such as Completion Report	

APPENDIX II: FORMATS FOR FINANCIAL PROPOSAL

(as mentioned in Para 2.1 of Data Sheet)

Appendix II-1 Financial proposal submission form

Appendix II-2 Summary of costs

Appendix II-3 Breakdown of costs

APPENDIX II-1: FINANCIAL PROPOSAL SUBMISSION FORM

FROM: (Name of Firm)

TO:
National Highways Authority of India
1, Eastern Avenue, Maharani Bagh
New Delhi (India)

Subject:

We, the undersigned, offer to provide the consulting services for the above in accordance with your Request for Proposal dated [Date], and our proposal (technical and financial proposals). Our attached financial proposal is for the sum of [Amount in words and figures]. This amount is exclusive of the local taxes which we have estimated at (Amount in Words and Figures).

Our financial proposal shall be binding upon us subject to the modifications resulting from contract negotiations, up to the expiration of the validity period of the proposal, i.e., [Date].

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

Commission and gratuities, if any, paid or to be paid by us to agents relating to this proposal and contract execution, if we are awarded the contract, are listed below:

Name and Address of Agents	Amount and Currency	Purpose of Commission or Gratuity
.....	.....	.....
.....	.....	.....

We understand you are not bound to accept any proposal you receive.

We remain,

Yours sincerely,

Authorised Signature:
Name and title of Signatory:

APPENDIX II-2: SUMMARY OF COSTS

No.	Description	Amount
I	Remuneration for Professional Staff	
II	Supporting Staff	
III	Transportation	
IV	Duty Travel to Site	
V	Office Rent	
VI	Office Supplies, Utilities and Communication	
VII	Office Furniture and Equipment	
VIII	Reports and Document Printing	
	Subtotal:	
	Total Cost Net of Tax	
Taxes and Duties		
	TOTAL COSTS (Including Tax)	

APPENDIX II-3: BREAKDOWN OF COSTS

REMUNERATION FOR STAFF

No.	Position	Name	Year 1			Year 2			Year 3			Year 4		
			Rate	SM	Amount	Rate	SM	Amount	Rate	SM	Amount	Rate	SM	Amount
	Professional Staff													
1.														
2.														
3.														
1.														
5.														
6.														
7.														
8.														
9.														
10.														
	Sub - Total													
	Technical Support Staff													
1.		TBN												
2.		TBN												
3.		TBN												
4.		TBN												
5.		TBN												
6.		TBN												
		TBN												
8.		TBN												
9.		TBN												
10.		TBN												
	Sub-Total													
	TOTAL													

SM = Staff Month

TBN = To be Named

II. Support Staff

No.	Position	Name	Staff Months	Billing Rate ( )	Amount ( )
1					
2					
3					
4					
5					
6					
7					
8					
				Total:	

III Transportation (Reimbursable)

I. The vehicles provided by the firm shall include the cost for rental drivers, operation, maintenance, repairs, insurance, etc.

Purchases _____

Operation, maintenance, repairs _____

Total _____

IV Duty Travel to Site (Reimbursable)

Professional Staff

___ x _____ trips x _____ days @ _____

Transport __ x _____ trips @ _____

Total _____

V Office Rent (Reimbursable)

The rent cost include maintenance, clearing, repairs, etc.

____ months x 200 sqm.x _____

Total _____

VI **Office Supplies, Utilities and Communication (Reimbursable)**

No.	Item	Months	Monthly Rate	Amount in
1.	Office Supplies			
2.	Drafting Supplies			
3.	Computer Running Costs			
4.	Communication			

Total _____

VII. Office Furniture and Equipment (Reimbursable)

No.	Description (*)	Unit	Quantity	Rate ( )	Amount ( )
	Office Furniture (Purchase)				
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
	Office Equipment (Purchase)				
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
				Total	

VII. Reports and Document Printing

No.	Description*	No. of Volumes	No. of Copies per Volume	Rate per Copy ( )	Amount
1	Monthly reports (Design and Construction)				
2	Quarterly Reports				
3	Various others reports as provided in the Concession Agreement such as Completion Report				
				Total	

TRAFFIC SAMPLING

NHAI through independent Consultant shall have the right to undertake the traffic sampling for the purpose of determination and/ or verification of the actual traffic on the project highway. This shall be done through Automatic Traffic Count -cum-classifier.

For the purpose of traffic sampling, the Concessionaire shall procure portable type automatic traffic count-cum-classifier and provide it to the Independent Consultant. The traffic count - cum-classifier shall be light-weight and portable with weather resistant casing. The system shall be capable for detecting and recording all types of vehicles plying on the Project Highway and of classifying any other vehicle category as per user needs. The vehicle classification shall be user selectable based on length of vehicle and number of axles. It would have following main components: -

Sensor - combination of piezo-electric sensor and inductive loops. The sensor shall be portable as well as permanent so that either of these could be used as per the needs.

Electronic - the logic unit shall be micro processor based and programmable through a key board. It shall have legible electronic display with requisite number of entry ports and exit to communication system. The vehicle counting/classification interval shall be programmable from one minute to 1440 min. (24 hours). The system shall count and classify vehicle by each lane.

Data Collection - The system shall be capable of recording for later analysis on an individual vehicle basis, time, date, speed, direction, lane, number of axles, axles spacing and site identification. The system should be able to record and store vehicle data for a period of at least two weeks.

Data Retrieval - The system shall have the capability of data retrieval through removable floppy diskette, data cartridge, direct data transfer through a serial link to a portable computer and telematory transmission via telephone link by modem.

Software - The system shall have software and manuals to analyse the data from output of vehicle count, classification speed and headway. It should have capability of graphic/tabular representation of analysis data.

Before the use of portable automatic traffic counter cum classifier, it shall be validated and calibrated through sample counts to establish the reliability and acceptability of automatic Traffic Counter-cum-Classificater both by Concessionaire and the Independent Consultant.

The sampling shall be done at the interval of 15 days by continuous 24 hrs counting for three days. If no abnormal trend were observed in three days counting at the frequency of 15 days, the frequency would be increased to 1 month after a period of one year. The sensor/loops shall be permanently installed to capture the traffic on all the approaching lanes, in accordance with the instructions of the supplier. They shall be located about 5 kms away from the toll plaza transitions taking care that no diversion of traffic is possible in between. The portable logic unit shall be plugged to these sensors whenever counting is to be done. Portable sensor can be utilised for traffic counting at any other location as per the need.

Apart from these periodical counts, the Independent Consultant shall have the right for traffic counting at a request from the NHAI. The traffic count as obtained from the samples shall be taken as an actual traffic on the project highway at the locations of the counting.

Schedule Q

DRAFT

ESCROW ACCOUNT AGREEMENT

among

---------- LIMITED (THE COMPANY)

and

.....

as Lenders Representative

and

.....

as Escrow Agent

and

National Highways Authority of India

(Subject to terms of the facility Agreement(s) between the Concessionaire and Senior Lenders. However, NHAI's position in the cashflows shall not be changed)

THIS AGREEMENT (the "Agreement") is made on the ..... day of ..... 200... by and among:

[---------- LIMITED], a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at ---------- (hereinafter referred to as the "Concessionaire" or "Company" which expression shall unless repugnant to the context or meaning thereof include its successors and assigns),

and

..... and having its registered office at ....., as Senior Lenders Representative (the "Lenders Representative");

and

....., and having its registered office at ..... (the "Escrow Agent").

And

The National Highways Authority of India, a statutory body constituted under the provisions of the National Highways Authority of India Act 1988 and having its principal offices at 1, Eastern Avenue, Maharani Bagh, New Delhi 110 065, as Employer and Sub-ordinate Lender (the "NHAI").

WHEREAS:

- The Company is undertaking a project for widening existing 2-lanes to 4-lanes divided carriageway facility including rehabilitation of existing 2-lanes of (a) NH-5 from km. 52.8 to km. 163.6 on the Tada-Nellore Section in Andhra Pradesh (b) NH-9 from km. 217 to km. 252 on the Nandigama – Ibrahimpatnam Section in Andhra Pradesh, India on Build, Operate and Transfer (BOT) basis and (c) operation, maintenance and collection of fees of NH-9 from km 253 to 265 on Ibrahimpatnam-Vijayawada Section in Andhra Pradesh, India.

- The Company has entered into a Concession Agreement dated as of ..... 2001... with NHAI (the "Concession Agreement") wherein NHAI has granted Concession to Company for the work referred to above, on BOT basis.

- The Company has entered into Financing Documents with Senior Lenders wherein Senior Lenders (the "Lenders") have agreed to lend and advance to the Company Rupee amounts aggregating ..... Lacs and foreign currency amounts aggregating US Dollars ..... in terms thereof;

- One of the terms of the Concession Agreement and the Financing Documents is that the Company is required to establish an Escrow Account, inter alia, on terms and conditions satisfactory to Senior Lenders.

NOW IN CONSIDERATION FOR THE PREMISES IT IS AGREED BY THE PARTIES AS FOLLOWS: -

1. Definitions and Construction

1.1 Definitions: Each capitalised term used herein and not otherwise defined shall have the definition assigned to such term in the Concession Agreement or the Substitution Agreement as the case may be

- "Account" means the Escrow Account to be opened by the Company in accordance with this Agreement;

- "Authorised Investment" means any authorised investments which Lenders Representative may, from time to time permit the Company to make in accordance with this Agreement;

- "Business Day" means any day on which banks are open for business in ..... or in relation to any notice or communication to be made under this Agreement, a day on which banks are open for business in the place of receipt of such notice or communication;

- "Company Account" shall mean any bank account of the Company, other than the Escrow Account.

- "Enforcement Notice" means any enforcement procedure commenced by the Lenders Representative under any of the Security Documents;

- "Escrow Account" means an Escrow Account established in terms of and under this Agreement;

- "Event of Default" means an event of default as defined and detailed in the Financing Documents;

- "INR" means the lawful currency of India;

- "Payment Date" means in relation to any Permitted Payment, the date(s) specified for such payment;

- "Permitted Payment" means the Payments Agreed to in this Agreement excluding payment to the Company Accounts as more particularly given in clause 3.3.1;

- "Required Balance" means on any Date in relation to the Sub-Account of the Escrow Account, an amount in INR/Dollars which if proportionately built over the months, would be sufficient to meet Permitted Payment on the Payment Date(s).

- "Security Documents" means all or any of the Documents executed, delivered or furnished to secure the Financial Assistance under the Financing Documents including but not limited to the Deed of Hypothecation, Mortgage Deed, Equitable Mortgage, Deed of Guarantee, Pledge Agreement, Undertakings, Negative Lien and other incidental or supplemental documents related thereto.

- "Sub-Accounts" means the Sub-Accounts of the Escrow Account, into which the monies due in relation to Permitted Payment would be credited every month and paid out if due and if not due in a month then appropriated proportionately in such month and retained in the Sub Account and paid out therefrom on the Payment date.

- "Year" means each twelve-month period ending on March 31.

1.2 Construction

In this Agreement:

- Unless the context otherwise requires, the singular includes the plural and vice versa;

- Headings and the use of bold typeface shall be ignored in its construction;

- A reference to a Clause, or Schedule is, unless indicated to the contrary, a reference to a clause or schedule to this Agreement;

- References to this Agreement shall be construed as references also to any separate or independent stipulation or agreement contained in it;

- The words "other", "or otherwise" and "whatsoever" shall not be construed to be as any limitation upon the generality of any preceding words or matters specifically referred to;

- References to the word "includes" or "including" are to be construed without limitation;

- References to a person shall include such person's successors and permitted assignees or transferees;

- All references to agreements, documents or other instruments include (subject to all relevant approvals) a reference to that agreement, document or instrument as amended, supplemented, substituted, novated or assigned from time to time.

- The words "herein", "hereto" and "hereunder" refer to this Agreement as a whole and not to the particular Clause in which such word may be used;

- Words importing a particular gender include all genders;

- "person" includes any individual, partnership, firm, trust, body corporate, government, governmental body, authority, agency, unincorporated body of persons or association;

- any reference to a public organisation shall be deemed to include a reference to any successor to such public organisation or any organisation or entity which has taken over the functions or responsibilities of such public organisation;

- references to "Party" means a party to this Agreement and references to "Parties" shall be construed accordingly; and

- references to any law shall include references to such law as it may, after the date of this Agreement, from time to time be amended, supplemented or re-enacted.

2. THE ACCOUNTS

2.1 Acceptance of Appointment of Escrow Agent

(a) The Escrow Agent hereby agrees to act as such and to accept all payments and other amounts to be delivered to or held by the Escrow Agent pursuant to the terms of this Escrow Agreement. Escrow Agent shall hold and safeguard the Escrow Account during the term of this Escrow Agreement and shall treat the amount in the Escrow Account as monies deposited by Company / NHAI with the Escrow Agent, as agent for the benefit of the Lenders Representative, or its nominee, successors or assigns, in trust in accordance with the provisions of this Escrow Agreement. In performing its functions and duties under this Escrow Agreement, the Escrow Agent shall act as agent for the Lenders Representative.

The Company also hereby declares that all right, title and interest in and to the Escrow Account, the Authorised Investments and Permitted Payments made from the Escrow Accounts shall be vested in the Escrow Agent and held in trust for the Senior Lenders acting through Lender's Representative, NHAI and the Company in accordance with the terms of this Agreement and as their respective interests are provided for herein. Amounts deposited in the Escrow Account from time to time shall be held by the Escrow Agent in trust and received and applied as provided in and in accordance with the Agreement. No person other than the Lenders Representative, NHAI and the Company shall have any rights hereunder as the beneficiaries of or as third party beneficiaries under this Agreement.

(b) The rights of Company/NHAI in the monies held in Escrow Account are set forth in their entirety in this Escrow Agreement and Company/NHAI shall have no other rights against or to the monies in the Escrow Account.

2.2 Establishment of Escrow Account

At least thirty (30) days prior to seeking any disbursement (including issue of guarantees or all forms of Financial Assistance), the Company shall establish the Escrow Account with the Escrow Agent.

2.3 Maintenance of the Account

The Escrow Agent shall maintain the Escrow Account in accordance with the terms of this Agreement and its usual practices and applicable regulations and pay the maximum rate of interest payable to its customers on the balance in the said account from time to time.

2.4 Operating Procedures

The Escrow Agent and the Company shall agree (after consultation with the Lenders Representative) on the detailed mandates, terms and conditions and operating procedures for the Escrow Account but in the event of any inconsistency between this Agreement and such mandates, terms and conditions or procedures, this Agreement shall prevail.

3. Currency

3.1 The Escrow Account shall be established with the ..... Branch of the Escrow Agent. The Escrow Account shall be denominated in INR.

3.2 Deposits

3.2.1 The Company

(A) agrees, confirms and undertakes that it shall deposit and/or credit the Escrow Account with:

(i) all its receivables;

(ii) all proceeds received pursuant to any insurance claims; and

(iii) all monies received from any other sources in relation to and in respect of the Project.

(B) may make other deposits of the Company's other funds into the Escrow Accounts at any time. Provided however that the terms of this Agreement shall apply to such other funds deposited in the Escrow Account by the Company.

The NHAI agrees, confirms and undertakes that it shall deposit and/or credit the Escrow Account with:

(i) all Fees collected by NHAI in exercise of its rights under Concession Agreement;

(ii) Revenue Shortfall Loan;

(iii) Grant, termination payments and other monies paid or disbursed in accordance with the provisions of the Concession Agreement and/or the Substitution Agreement.

3.2.2 The Escrow Agent shall ensure that all interest, if any, on the balances of the Escrow Accounts and interest on Authorised Investments made from the Escrow Accounts shall be credited to or deposited in the Escrow Account.

3.3 Withdrawals

3.3.1 The Escrow Agent shall withdraw amounts from the Escrow Accounts and appropriate in the following order every month as more particularly given in the Bank Proforma in Schedule 1 and deposit in the relevant Sub-Account for payments and if not due in a month then appropriate proportionately in such month and retain in the Sub-Account and pay out therefrom on the Payment Date(s):

(a) All taxes due and payable by the Concessionaire;

(b) All expenses in connection with and relevant to the Construction of Project Highway by way of payment to the EPC Contractor and such other persons as may be specified in the Financing Documents.

(c) O&M Expenses including Fees collection expenses incurred by the Concessionaire directly or through O&M Contractor and/or Tolling Contractor, if any, subject to the items and ceiling in respect thereof as setforth in the Financing Documents but not exceeding one twelfth (1/12) of the annual liability on this account;

(d) The whole or part of the expense on repair work or O&M Expenses including Fees collection expenses incurred by NHAI on account of exercise of any of its rights under this Agreement provided NHAI certifies to the Escrow Agent that NHAI had incurred such expenses in accordance with the provisions of this Agreement;

(e) All Concession Fees due to NHAI from the Concessionaire under this Agreement.

(f) Monthly proportionate provision of Debt Service Payments due in an Accounting Year and payment of Debt Service Payments in the month when due;

(g) Any payments and Damages due and payable by the Concessionaire to NHAI pursuant to this Agreement including repayment of Revenue Shortfall Loans; and

(h) Balance in accordance with the instructions of the Concessionaire.

The amounts specified in Clause 3.3.1 (a) to (h) constitute the Permitted Payments.

For each year, Bank Proforma would be separately provided by the Company to the Escrow Agent, with the permission of Lenders Representative, not later than 60 days prior to the first day of each year.

3.3.2 Notwithstanding anything to the contrary contained in this Agreement upon the earlier of (i) issue of Termination Notice (ii) termination of Concession Agreement, or (iii) the expiry of Concession Period, all amounts standing to the credit of the Escrow Account shall be appropriated and dealt with in the following order:-

(a) all taxes due and payable by the Concessionaire;

(b) all Concession Fees due and payable to NHAI under this Agreement;

(c) all accrued Debt Service Payments;

(d) any payments and Damages due and payable by the Concessionaire to NHAI pursuant to this Agreement, including Termination claims and repayment of Revenue Shortfall Loans;

(e) all accrued O&M Expenses;

(f) any other payments required to be made under this Agreement; and

(g) balance, if any, on the instructions of the Concessionaire.

3.4 Application of Insufficient Funds

As provided in Clause 3.3, the application of funds in the Escrow Account shall be in the serial order of priority set forth therein. If the funds available for payment to the Sub-Accounts are sufficient to pay a portion, but not all, of the amount required to be paid to any Sub-Account, the Escrow Agent shall apply such funds in the serial order of priority set forth in Clause 3.3, until exhaustion thereof.

4. Authorised Investments

4.1 Power to Invest

The Escrow Agent shall invest the amounts standing to the credit of any of the Sub-Accounts in Authorised Investments on the instructions of the Company as approved by the Lenders Representative, from time to time, in accordance with the provisions of the Agreement. The Escrow Agent shall not be bound to and shall not make investments under the Indian Trusts Act, 1882 without prior approval of the Lenders Representative.

4.2 Procedure for Investments

4.2.1 All Authorised Investments shall be made and/or realised by the Escrow Agent on the instructions of the Company as approved by the Lenders Representative from time to time, in accordance with the provisions of this Agreement.

4.2.2 All documents of title or other documentary evidence of ownership with respect to Authorised Investments made out of any Escrow Account will be held in the custody of the Escrow Agent.

4.3 Realisations

Upon the realisation of any investment made under this Clause, the proceeds of realisation shall immediately be credited to the relevant Sub-Account by the Escrow Agent or immediately invested in another Authorised Investment in accordance with the Company's instructions as approved by the Lenders Representative.

4.4 Mandatory Realisations

In the event that the Company becomes aware that any Authorised Investment

has ceased to be an Authorised Investment, the Company shall immediately instruct the Escrow Agent on a best efforts basis to realise such Authorised Investment on its maturity date or earlier if possible under intimation to the Lenders Representative or NHAI.

4.5 Accounts include Investments

Any reference in this Agreement to the balance standing to the credit of the Escrow Account shall be deemed to include a reference to the amount of the Authorised Investments in which all, or part of, such balance is for the time being invested.

4.6 Interest on Investments

Any interest or other income received on account of Authorised Investments shall be to the credit of the Escrow Account.

4.7 Enforcement Notice

On receipt of an Enforcement Notice from the Lenders Representative, the Escrow Agent shall realise the Authorised Investments, whether such investments have matured or not on a best effort basis, and apply the proceeds as directed by the Lenders Representative.

5. Withdrawals following Event of Default

5.1 If the Lenders Representative notifies the Escrow Agent that an Event of Default is likely to occur or has occurred, and is continuing, then, until such time as the Lenders Representative has notified the Escrow Agent that the Event of Default has been cured or waived under the Financing Documents, the Escrow Agent shall only make withdrawals from the Escrow Accounts which constitute Permitted Payment and shall not make any payments from the Escrow Account to the Company Accounts.

6. Escrow Agent Provisions

6.1 The Escrow Agent and the Lenders

The Company hereby appoints the Escrow Agent to act as trustee for the Lenders Representative in connection herewith and authorises the Escrow Agent to exercise such rights, powers, authorities and discretion as are specifically delegated to the Escrow Agent by the terms hereof together with all such rights, powers, authorities and discretion as are reasonably incidental hereto, and the Escrow Agent accepts such appointment pursuant to the terms hereof.

6.2 Particular Duties of the Escrow Agent

The Escrow Agent:

(A) may, in the absence of bad faith or gross negligence on its part, rely as to any matters of fact which might reasonably be expected to be within the knowledge of the Company upon a certificate signed by or on behalf of the Company;

(B) may, in the absence of bad faith or gross negligence on its part, rely upon the authenticity of any communication or documents believed by it to be authentic;

(C) shall, within five (5) Business Days after receipt, deliver a copy to the Lenders Representative of any notice or document received by the Escrow Agent in its capacity as the Escrow Agent from the Company or any other person hereunder or in connection herewith; and

(D) shall, within five (5) Business Days after receipt, deliver a copy to the Company of any notice or document received by the Escrow Agent from the Lenders Representative in connection herewith.

6.3 Segregation of Funds

Monies and other property received by the Escrow Agent under this Agreement shall, until used or applied in accordance with this Agreement, be held by the Escrow Agent in trust for the purposes for which they were received, and shall be segregated from other funds and property of the Escrow Agent.

6.4 Termination

6.4.1 This Agreement shall remain in full force and effect so long as amounts remain outstanding from the Company in respect of the Financial Assistance received by it from the Senior Lenders or its obligations to NHAI, unless terminated earlier by the mutual consent of the parties or otherwise in accordance with the provisions of this Clause.

6.4.2 The Company may, by not less than 45 days prior notice to the Escrow Agent, NHAI and the Lenders Representative, terminate this Agreement and appoint a new Escrow Agent, provided that the new Escrow Agent is acceptable to the Lenders Representative and arrangements are made satisfactory to the Lenders Representative for transfer of amounts deposited in the Escrow Account to a new Escrow Account established with the successor Escrow Agent.

6.5 Fees

The Company shall pay the Escrow Agent fees in an amount and at such times as may be agreed between the Escrow Agent and the Company.

7. Escrow Agreement Defaults

7.1 If the Company is in breach of any of its obligations under this Agreement and, following a notice of default from the Lenders Representative, fails to remedy the same:

(A) in the case of a failure to deposit funds received by the Company in the Escrow Account, by depositing the same in the Escrow Account within five Business Days of receipt of such notice;

(B) in the case of a breach consisting of causing the Escrow Agent to transfer funds to any Company Account in breach of the terms of this Agreement, by depositing the relevant funds in the Escrow Account or any Sub-Account in which such transfer should have been made within five Business Days of receipt of such notice.

(C) in the case of a breach of the Company's obligations under Clause 4, by instructing the Escrow Agent to realise any investment made in breach of Clause 4 within five (5) Business Days of receipt of such notice; or

(D) in the case of any other breach, by remedying the same within five (5) Business Days to the satisfaction of the Lenders Representative.

7.2 The Company and the Escrow Agent agree and confirm that any default by either the Company or the Escrow Agent in the performance of their respective obligations under this Agreement resulting, in the opinion of the Lenders Representative, in a breach of this Agreement, shall qualify as an Event of Default under the Financing Documents/Security Documents.

8. Miscellaneous

8.1 Closure of Accounts

The Escrow Agent shall, at the request of the Company made on or after the payment by the Company of all outstanding amounts under the Financing Documents / Concession Agreement and upon furnishing documents in support thereof, close the Escrow Accounts and pay any amount standing to the credit thereof to the Company.

Notwithstanding anything to the contrary contained in this Agreement, if NHAI shall certify to the Escrow Agent that Concession Agreement and/or the Concession has been terminated on account of default of the Concessionaire under this Agreement, all the amounts standing to the credit of the Escrow Account shall be dealt with in accordance with provisions of Clause 3.3.2.

8.2 Successors and Assignors

This Agreement shall be binding on and shall enure to the benefit of the Parties and their respective successors and permitted assigns.

8.3 No Set Off

The Escrow Agent agrees not to claim or exercise any right of set off, banker's lien or other right or remedy with respect to amounts standing to the credit of the Escrow Accounts. For the avoidance of doubt, it is declared by the Escrow Agent that the monies and properties held by the Escrow Agent shall not be considered as part of the assets of the Escrow Agent and being trust property, shall in the case of bankruptcy or liquidation of the Escrow Agent be wholly excluded from the assets of the Escrow Agent in such bankruptcy or liquidation.

8.4 Notices

8.4.1 All notices or other communications to be given or made under this Agreement shall be in writing, shall either be delivered personally or sent by courier, registered or certified mail or facsimile. The address for service of each Party and its facsimile number is set out under its name on the signing pages hereto. All notices shall be effective upon actual receipt save that where a notice is received after 5.30 p.m. on a Business Day or on a day that is not a Business Day, such notice shall be deemed to be received on the first Business Day following the date of actual receipt. Without prejudice to the foregoing a Party giving or making a notice or communication by facsimile shall promptly deliver a

copy of such notice or communication personally, by courier or mail to the addressee of such notice or communication.

8.4.2 Any party may by notice change the addresses and/or addresses to which such notices and communications to it are to be delivered or mailed. Such change shall be effective when all the Parties have notice of it.

8.5 Waiver

Failure by any Party at any time to enforce any provision of this Agreement or to require performance by other Parties of any provision of this Agreement shall not be construed as a waiver of such provision and shall not affect the validity of this Agreement or any part of it or the right of the relevant Party to enforce any provision in accordance with its terms.

8.6 Severability

If any condition, Clause or provision of this Agreement not being of a fundamental nature, is held to be illegal or unenforceable, the validity or enforceability of the remainder of this Agreement shall not be affected thereby.

8.7 Amendments

No amendment to this Agreement shall be binding unless in writing and signed by the duly authorised representatives of the Parties.

8.8 Governing Law

This Agreement shall be governed by and construed in accordance with Indian law.

8.9 Regulatory Approvals

The Escrow Agent shall use its best efforts to procure and shall thereafter

maintain and comply with all regulatory approvals required for it to establish and operate the Escrow Accounts. The Escrow Agent represents and warrants that it is not aware of any reason why such regulatory approvals will not be ordinarily granted to the Escrow Agent.

8.10 Notification of Balances

Seven Business Days prior to each Payment Date (and for this purpose the Escrow Agent shall be entitled to rely on an affirmation by the Company and/or the Lenders Representative as to the relevant Payment Dates), the Escrow Agent shall notify the Lenders Representative of the balance of the Escrow Account as at the close of business on the immediately preceding Business Day.

IN WITNESS whereof the Company has caused its Common Seal to be affixed hereto and to a triplicate hereof on the date first above written and the Escrow Agent, NHAI and the Lenders Representative have caused the said triplicate to be executed by the hand of an authorised official.

SIGNED AND DELIVERED BY)
..... within named Escrow Agent)
by the hand of)

an authorised official of the Account)
Trustee)

Address:

Fax Number:

Attention:.....

SIGNED AND DELIVERED by THE)
..... within named Lenders)
Representative by the hand of)
)
an authorised official of the Lenders)

Representative

Address:

Fax Number:

Attention: .....

SIGNED AND DELIVERED by)
NHAI within named by the hand of)
)
an authorised official of the NHAI)

Address:

Fax Number:
Attention:.....

THE COMMON SEAL OF .....)
has pursuant to the Resolution)
of its Board of Directors passed in)
that behalf on the ..... day of .....200)
hereunto been affixed in the presence of)
Shri ..... and Shri .....)
Directors who have signed these)
Presents in token thereof and)

Secretary/authorised)
Person who has countersigned the)
Same in token thereof.)

Address:

Fax Number:

Attention:.....

Schedule R

STATE SUPPORT AGREEMENT

THIS SUPPORT AGREEMENT is made on this _____day of _____ 2001 AMONG

1 THE GOVERNOR OF THE STATE OF ANDHRA PRADESH through the Principal Secretary, Department of Transport, Roads and Buildings, Government of Andhra Pradesh, (hereinafter referred to as "GoAP" which expression shall unless repugnant to the context or meaning thereof include its successors and assigns),

2 National Highways Authority of India, a statutory body constituted under the provisions of the National Highways Authority Act, 1988 and having its principal office at No. 1, Eastern Avenue, Maharani Bagh, New Delhi 110 065 (hereinafter referred to as "NHAI" which expression shall unless repugnant to the context or meaning thereof include its administrators, successors and assigns),

AND

[..... LIMITED], a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at ..... (hereinafter referred to as the "Concessionaire" or "Company" which expression shall unless repugnant to the context or meaning thereof include its administrators, successors and permitted substitutes) of the Other Part.

WHEREAS

A. Pursuant to a Memorandum of Understanding (MOU) between the Government of India (GoI) and the Government of Malaysia entered into in the year 1995, GoI had authorised NHAI to undertake widening and rehabilitation of (a) the existing 2-Lane Highway from km. 52.8 to km. 163.6 on the Tada-Nellore Section of the National Highway No.5 ("NH-5") in Andhra Pradesh; and(b) the existing 2-Lane Highway from km. 217 to km. 252 on the Nandigama – Ibrahimpatnam Section of the National Highway No.9 ("NH-9") in Andhra Pradesh India, and by its Notification No. 78 (E) dated 4th February 1999, issued pursuant to Section 11 of the National Highways Authority of India Act, 1988 GoI vested the said stretch of NH-5 and NH-9 in NHAI.

B. NHAI had accordingly invited a proposal from the CIDBI INVENTURES SDN BHD (462295-A). a company incorporated under the law of Malaysia and having its registered office at Suite 15-3 , 15th Floor, Wisma UOA II, No. 21, Jalan Pinang 50450 Kuala Lumpur, Malaysia (hereinafter referred to as "CIDBI") for inter-alia, design, engineering, financing, procurement, construction, completion, operation, maintenance and toll collection of the above section of NH-5 and NH-9 on BOT basis.

C. Pursuant to the aforesaid invitation by NHAI, CIDBI submitted a Detailed Project Proposal dated January 28, 2000 (the Proposal) for the ugradation and improvement of the aforesaid stretches of NH-5 and NH-9 and operation and maintenance of the said stretches as also that of the already four laned stretch of NH-9 from km 253 to km 265 (Ibrahimpatnam to Vijaywada) in Andhra Pradesh vested in NHAI, which Proposal was accepted by NHAI subject to certain modifications and amendments mutually agreed to and pending finalisation and execution of the Concession Agreement being this Agreement, NHAI and CIDBI entered into a Memorandum of Agreement dated December 19, 2000 (MOA) recording the principal terms of this Agreement.

D. Pursuant to MOA, CIDBI intends to promote and incorporate a Special Purpose Vehicle (the "SPV"), either solely or jcintly with other parties for the purpose of undertaking *inter-alia*, design, engineering, financing, procurement, construction, completion, operation, maintenance and toll collection of the aforesaid highways, on BOT basis and to be bound by the terms and conditions of this Agreement. In this respect, NHAI accepts the SPV as the entity which shall undertake, fulfill and perform the obligations and exercise the rights of CIDBI under the MOA and this Agreement.

E. NHAI has accordingly entered into the Concession Agreement dated 27th March 2001 with the Concessionaire for the design, engineering, financing, procurement, construction, operation and maintenance of the Project Highways on BOT basis subject to and on the terms and conditions set out therein including Schedules forming part thereof (the "Concession Agreement") and a copy of which is annexed hereto and marked as Annexure 'A'.

F. GoAP, NHAI and the Concessionaire agree that the implementation of the Concession including performance of its obligations by the Concessionaire under and in accordance with the Concession Agreement requires extensive continued support and grant of certain rights and authorities as hereinafter set forth by GoAP and is an essential pre-condition for mobilization of resources therefore by the Concessionaire.

NOW THEREFORE THE PARTIES HERETO HEREBY AGREE AND THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. DEFINITIONS AND INTERPRETATIONS

1.1 For the purposes of this Agreement the following terms shall have the meaning hereinafter respectively assigned to them.

1.1.1 "Agreement" means this Support Agreement and all annexures hereto and amendments if any thereto made in accordance with the provisions contained herein in this behalf.

1.1.2 "Concession Agreement" means the Concession Agreement dated 27th March 2001 entered into between NHAI and the Concessionaire, and shall include all of its annexures and appendices and any amendments made thereto in accordance with the provisions contained in this behalf therein.

1.1.3. "Substitution Agreement" means the Substitution Agreement dated _____ entered into between the Senior Lenders, NHAI and the Concessionaire providing for substitution of the Concessionaire by the Selectee selected by the Senior Lenders in the manner and subject to and on the terms and conditions set forth therein. A copy of the said Substitution Agreement is annexed hereto and marked as "Annexure 'B'."

1.1.4. "GoAP Support" means the obligations assumed and the facilities agreed to be provided by GoAP to the Concessionaire hereunder or pursuant hereto.

1.2. The words and expressions beginning with or in capital letters used in this Agreement and not defined herein but defined in the Concession Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Concession Agreement. Words and expressions used in this Agreement and neither defined herein nor in the Concession Agreement but defined in the Substitution Agreement shall have the meaning respectively assigned to them in the Substitution Agreement.

1.3. In this Agreement unless the context otherwise requires-

(a) any reference to a statutory provision shall include such provision as is from time to time modified and re-enacted or consolidated so far as such modification or re-enactment or consolidation

applies or is capable of applying to any transactions entered into hereunder;

(b) the words importing singular shall include plural and vice versa, and words denoting natural persons shall include partnerships, firms, companies, corporations, joint ventures, trusts, associations, organizations or other entities (whether or not having a separate legal entity);

(c) the headings are for convenience of reference only and shall not be used in and shall not affect the construction or interpretation of this Agreement;

(d) terms beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein;

(e) the words "include" and "including" are to be construed without limitation.

(f) any reference to a "day" shall mean reference to a calendar day;

(g) any reference to "month" shall mean reference to a calendar month;

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

(i) any reference at any time to any agreement, deed, instrument, license or document of any description shall be construed as reference to that agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference provided that this clause shall not operate so as to increase liabilities or obligations of GoAP hereunder or pursuant hereto in any manner whatsoever.

(j) References to Recitals, Clauses, Sub-clauses, Paragraphs, Annexures or Appendices in this Agreement shall, except where the context otherwise requires, be deemed to be references to Recitals, Clauses, Sub-clauses, Paragraphs, Annexures and Appendices of this Agreement.

(k) Any agreement, consent, approval, authorization, proposal, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or Senior Lender(s) shall be valid and effectual only if it is in writing under the hands of duly authorized representative of such Party or the

Senior Lender(s), as the case may be, in this behalf and not otherwise; and

(l) Any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include either days or dates.

(m) "Concessionaire" shall include Selectee under the Substitution Agreement.

2. TERM

2.1. This Agreement shall come into force the date hereof and shall continue to be in full force and effect for the period the Concession Agreement is in force and effect including any extension thereof.

3. SUPPORT OF GoAP

3.1. Upon and with effect from the date hereof, GoAP agrees:

(i) so long as the Concessionaire is not in breach of its obligations under this Agreement, GoAP agrees to enable access to the Site to the Concessionaire for peaceful use of and operations at the Site by the Concessionaire under and in accordance with the provisions of the Concession Agreement without any let or hindrance from GoAP or persons claiming through or under it;

(ii) subject to the Concessionaire complying with Applicable Laws, provide to the Concessionaire Applicable Permits to the extent GoAP or any Governmental Agency of GoAP is entitled to issue;

(iii) upon written request from the Concessionaire, assist the Concessionaire in obtaining access to all necessary infrastructure facilities and utilities, including water, electricity and telecommunication facilities at rates and on terms no less favorable to the Concessionaire than those generally available to commercial customers receiving substantially equivalent services;

(iv) ensure that no barriers are erected or placed by GoAP or any Governmental Agency of GoAP that interrupts free flow of traffic on the Project Highway except on account of

any law and order situation or upon national security considerations;

(v) provide the Concessionaire with assistance through a dedicated team against payment of prescribed fee and charges, if any, for regulation of traffic on the Project Highway;

(vi) provide the Concessionaire with police assistance in the form of dedicated highway patrol parties against payment of prescribed costs and charges, if any, for patrolling and provision of security on the Project Highway;

(vi) observe and comply with its obligations set forth in this Agreement;

(vii) support, cooperate with and facilitate NHAI and the Concessionaire in the implementation of the Project;

(viii) subject to and in accordance with the Applicable Laws, assist the Concessionaire in the procurement of all Applicable Permits required from any municipal and other local authorities and bodies including Panchayats in the State of Andhra Pradesh for the implementation of the Project;

(ix) ensure, subject to and in accordance with the Applicable Laws, that all relevant municipal and other local authorities and bodies including Panchayats in the State of Andhra Pradesh do not put any barriers or other obstructions that interrupt free flow of traffic on the Project Highway; and

(x) not do or omit to do any act, deed or thing which may in any manner be violative of or cause the Concessionaire to violate any of the provisions of the Concession Agreement.

3.2. Notwithstanding anything to the contrary contained in the Agreement, and subject to the other conditions laid down in the Concession Agreement, GoAP may construct and operate either itself or have the same, inter alia, built and operated on BOT basis or otherwise any Expressway or other toll road, between inter alia, Tada and Nellore and Nandigama and Ibrahimpatnam (the "Competing Road Facility "), provided that such Competing Road Facility shall not be opened to traffic before the traffic level reaches 80,000 PCUs or expiry of 15 (fifteen) years from the Appointed Date, whichever is earlier.

3.3. GoAP agrees and undertakes that it shall not levy any additional toll, fee, charge or tax on the use of whole or any part of the Project Highway. GoAP acknowledges the rights of Senior Lenders and NHAI under the Substitution Agreement and hereby covenants that upon substitution of the Concessionaire by the Selectee pursuant to the Substitution Agreement, it shall be deemed for the purposes of this Agreement that as if Selectee is a Party hereto and the Selectee shall accordingly be deemed to have succeeded to the rights and obligations of the Concessionaire under this Agreement on and with effect from the date of substitution of the Concessionaire by the Selectee.

4. CONCESSIONAIRE'S OBLIGATIONS

4.1. Concessionaire agrees and undertakes to perform, observe and comply with the following :

(i) All Applicable Laws and Applicable Permits;

(ii) The provisions of the Concession Agreement, the Substitution Agreement, and the Project Agreements; and

(iii) Observe, comply and perform its obligations under this Agreement.

5. REPRESENTATIONS AND WARRANTIES

5.1. The Concessionaire represents and warrants to GoAP that :

(i) It is duly organized, validly existing and in good standing under the laws of India.

(ii) It has power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;

(iii) It has taken all necessary corporate and other action under Applicable Laws and its constitutional documents to authorize the execution, delivery and performance of this Agreement;

(iv) This Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof;

(v) It is subject to civil and commercial laws of India with respect to this Agreement and it hereby expressly and irrevocably waives any immunity in any jurisdiction in respect thereof;

(vi) All the information furnished to the GoAP pertaining to the Concessionaire including its constitution and existing and proposed shareholding structure is now and shall be true and correct as on the Appointed Date and COD and the Balance Sheet and Profit and Loss Account of the Concessionaire for each of its Accounting Year after the Appointed Date furnished to GoAP shall give true and fair view of the affairs of the Concessionaire.

(vii) The Concessionaire shall furnish a copy of its audited Balance Sheet within 120 (one hundred twenty) days of the close of its each Accounting Year after the Appointed Date and any material change subsequent to the date of such Balance Sheet shall be notified to GoAP by the Concessionaire within 30 (thirty) days of its occurrence and warrants that the Balance Sheet and the information furnished as aforesaid shall be true and correct;

(viii) The execution, delivery and performance of this Agreement will not conflict with, result in the breach of, constitute a default under or accelerate performance required by any of the terms of the Concessionaire's Memorandum and Articles of Association or any member of the Consortium or any Applicable Laws or Applicable Permits or any covenant, agreement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;

(ix) There are no actions, suits, proceedings or investigations pending or, to the Concessionaire's knowledge, threatened against it at law or in equity before any court or before any judicial, quasi judicial or other authority, the outcome of which may result in the breach of or constitute a default of the Concessionaire under this Agreement or which individually or in the aggregate may result in any material adverse effect on its business, properties or assets or its condition, financial or otherwise, or in any impairment of its ability to perform its obligations and duties under this Agreement;

(x) The Concessionaire has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any Governmental Agency which may result in any material adverse effect or impairment of the Concessionaire's ability to perform its obligations and duties under this Agreement;

(xi) The Concessionaire has complied with all Applicable Laws and Applicable Permits, and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have material adverse effect on its financial condition or its ability to perform its obligations and duties under this Agreement;

(xii) Each Consortium Member was and is duly organized and existing under the laws of the jurisdiction of its incorporation and has full power and authority to consent to and has validly consented to the Concessionaire entering into this Agreement with the GoAP;

(xiii) No representation or warranty by the Concessionaire contained herein or in any other document furnished by it to GoAP, or to any Governmental Agency in relation to Applicable Permits contains or will contain any untrue statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading;

(xiv) The Concessionaire warrants that no sums have been paid or will be paid, by or on behalf of the Concessionaire, to any Person by way of fees, commission or otherwise for entering into this Agreement or for influencing or attempting to influence any officer or employee of NHAI, GOI or GoAP in connection therewith; and

(xv) The Concessionaire is subject to civil and commercial laws of India with respect to this Agreement.

5.2. GoAP represents and warrants to the Concessionaire that :

(i) It has full power and authority to execute, deliver and perform this Agreement.

(ii) It has taken all necessary governmental action to authorize the execution, delivery and performance of this Agreement; and

(iii) This Agreement constitutes the legal, valid and binding obligation of GoAP enforceable against it in accordance with its terms.

6. SOVEREIGN IMMUNITY

6.1. GoAP hereto unconditionally and irrevocably:

(i) Agrees that the execution, delivery and performance by it of this Agreement do not constitute sovereign acts;

(ii) Agrees that should any proceedings be brought against it or its assets in relation to this Agreement or any transaction contemplated by this Agreement, no sovereign immunity from such proceedings, execution, attachment or other legal process shall be claimed by or on behalf of itself or with respect to any of its assets, to the extent permitted by law; and

(iii) to the extent permitted by law, waives any right of sovereign immunity, which it or its assets now has or may acquire in the future.

6.2. Notwithstanding anything to the contrary herein contained such waiver of right of immunity shall not apply to

a) Property and assets of any consular or diplomatic mission or consulate or

b) Property belonging to the Defence services and such assets of the Union of India.

7. Breach and Compensation

7.1. In case GoAP is in breach of any of its obligations under this Agreement, which breach is not cured within 30 days of receipt of a notice in writing from the Concessionaire to GoAP and NHAI and which has not occurred as a result of Concessionaire's breach of its obligations under this Agreement or the Concession Agreement, GoAP shall pay to the Concessionaire, all direct additional costs suffered or incurred by the Concessionaire, determined by NHAI as arising out of such material default by GoAP.

7.2. In case of any dispute by GoAP on admissibility of the claim or extent of compensation determined by NHAI, the claim shall be settled as per provisions of the Dispute Settlement mechanism provided in Article IX of this Agreement.

7.3. Any such compensation payable shall be paid to the Concessionaire, in one lumpsum within 90 (ninety) days of receiving NHAI's determination of compensation. Failing such payment, NHAI shall within the next 30 days pay the sum due to the Concessionaire and seek reimbursement of such amount from GoAP.

8. INDEMNITY

8.1. The Concessionaire will indemnify, defend and hold GoAP harmless against any and all proceedings, actions and claims for any loss, damage, cost and expense of whatever kind and nature arising out of design, engineering, construction, operation and maintenance of the Project Highway or arising out of any breach by the Concessionaire of any of its obligations under this Agreement or on account of failure of the Concessionaire to comply with, and observe Applicable Laws and Applicable Permits;

8.2. GoAP will, indemnify, defend and hold harmless the Concessionaire against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of GoAP to fulfill any of its obligations under this Agreement adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement other than any loss, damage, cost and expense, arising out of acts done in discharge of their lawful functions by GoAP, its officers, servants and agents;

8.3. Without limiting the generality of Clause 8.2, the GoAP shall indemnify the Concessionaire and shall save it harmless from and against any payments required to be made by the Concessionaire with respect to levy of any Local Taxes provided nothing contained herein shall be construed or interpreted as restricting in any way or manner the right of GoAP or any municipal, panchayat or other local authorities to levy any taxes which they or any of them are lawfully entitled to levy, impose or collect (the "Expected Taxes"). The Concessionaire shall not be entitled to and GoAP shall be under no obligation to reimburse Expected Taxes to the Concessionaire or any person claiming through or under the Concessionaire;

8.4. In the event that either party hereto receives a claim from a third party in respect of which it is entitled to the benefit of an indemnity under Clause 8 or in respect of which it is entitled to reimbursement, it (the "Indemnified Party") shall notify the other Party ("Indemnifying Party") within 14 (fourteen) days of receipt of the claim or payment, as the case may be, and shall not settle or pay the claim without the prior approval of the Indemnifying Party. In the event that the Indemnifying Party wishes to contest or dispute the claim, it may conduct the proceedings in the name of the Indemnified Party and shall bear all costs involved in contesting the same. The Indemnified Party shall provide all cooperation and assistance in contesting any claim and shall sign all such writings. and documents as the Indemnified Party may reasonably require.

9. GOVERNING LAW AND DISPUTE SETTLEMENT

9.1. This Agreement shall be governed by and construed and interpreted in accordance with the laws of India. The provisions contained in Clause 8 shall survive the termination of this Agreement.

9.2. Any dispute, difference or claim arising out of or in connection with or in relation to this Agreement which is not resolved amicably shall be decided finally by reference to arbitration to a Board or Arbitrators comprising of one nominee of each party to the dispute. Such arbitration shall be held in accordance with the Rules of Arbitration of the Indian Counsel of Arbitration and shall be subject to the provisions of the Arbitration and Conciliation Act, 1996. The Arbitrators shall issue a reasoned award. The venue of such arbitration shall be New Delhi, India. The Award shall be final and binding on the Parties.

10. MISCELLANEOUS

10.1. Alteration of Terms

All additions, amendments, modifications and variations to this agreement shall be effectual and binding only if in writing and signed by the duly authorized representatives of GoAP and the Concessionaire.

10.2. Time or Indulgence Allowed

An indulgence by one Party to the other in respect of any obligation or matter hereunder including time for performance to the other party hereunder or to remedy any breach hereof shall not be construed as a waiver of any of its rights hereunder Party may be on such terms and subject to such conditions as the Party giving it may specify and shall be without prejudice to that Party's then accrued rights under this Agreement except to the extent expressly varied in writing when giving such time or other indulgence.

10.3. Severance of Terms

If any provisions of this Agreement are declared to be invalid, unenforceable or illegal by any competent arbitration tribunal or court, such invalidity, unenforceability or illegality shall not prejudice or affect the remaining provisions of this Agreement, which shall continue in full force and effect.

10.4. Language

All notices, certificates, correspondence or other communications under or in connection with the Agreement shall be in English

10.5. Notices

Any notice or communication hereunder shall be in writing and shall either be delivered personally or sent by registered post, with copy by facsimile transmission or other means of telecommunication in permanent written form. A copy of all the notices and communications will also be forwarded to the Lenders Representative. The service of notice shall unless otherwise notified by a notice hereunder to the parties at their following address:

* IF to GoAP :
Attn :
Fax no :
Tel no.

IF to the NHAI
Attn:
Fax no.
Tel no.

IF to the Concessionaire :
Attn :
Fax no.
Tel no.

The notice pursuant hereto will be deemed to have been received on the date when such notice is in fact received by the addressee.

10.6. Authorised Representatives

Each of the Parties shall by notice in writing designate their respective authorised representatives through whom only all communications shall be made. A Party hereto shall be entitled to remove and/or substitute or make fresh appointment of its such authorised representative by similar notice.

10.7. Original Document

This Agreement is made in two counterparts, each of which shall be deemed to be an original.

IN WITNESS WHEREOF THE PARTIES HERETO HAVE PUT THEIR HANDS HEREUNTO ON THE DAY, MONTH AND YEAR FIRST ABOVE WRITTEN.

FOR CONCESSIONAIRE
BY :_____

Name :_____

Title:_____

FOR GOVT. OF ANDHRA PRADESH

BY :_____

Name :_____

Title:_____

FOR NHAI

BY :_____

Name :_____

Title:_____

In the presence of :

1. 2.

SAFETY REQUIREMENTS

1. OBJECTIVE

1.1 Safety of Road Users and Project Workers are vital requirements on the Project Highway from the day of commencement of the Project till the day of its transfer to National Highways Authority of India which the Concessionaire has to attend during the concession period or extension thereof, if any, under the Concession Agreement.

2. SAFETY STANDARDS

2.1 Objective

2.1.1 The objective of safety standards is to provide a safe travel to the drivers of vehicles plying on the Project Highway all the time of the day throughout the year and provide protection to the Project Workers when they are on the work. Obviously, it involves different situations on the highway including construction zones, lane closure, traffic diversions, etc. This schedule incorporates requirements for such situations.

2.1.2 The guiding principles for safety measures shall include

(i) Warning to the drivers unambiguously and sufficiently in advance of the situation on the highway;

(ii) Providing clear demarcation for movement of vehicles;

(iii) Providing devices to guide the drivers and their movements through construction zones/lane closures/traffic diversions etc.

(iv) Protection to Project Workers on work site.

2.2 Construction Zone

In order to plan and provide appropriate traffic management and safety measures, it is necessary to appreciate the concept of a construction zone. A construction zone can be defined as an area of the highway which involves the conflict of the right of use between the road users and authority responsible for the maintenance /improvement of the highway. From traffic safety point of view, a construction zone comprises four sub-zones (shown in Figure-1) as described hereinunder:

2.2.1 Advance Warning Sub-Zone

The advance warning sub-zone is meant to prepare the driver for an alert behaviour and is an essential part of any traffic control system. The warning system shall prepare the driver well in advance by providing information regarding distance, extent and type of hazard ahead so that

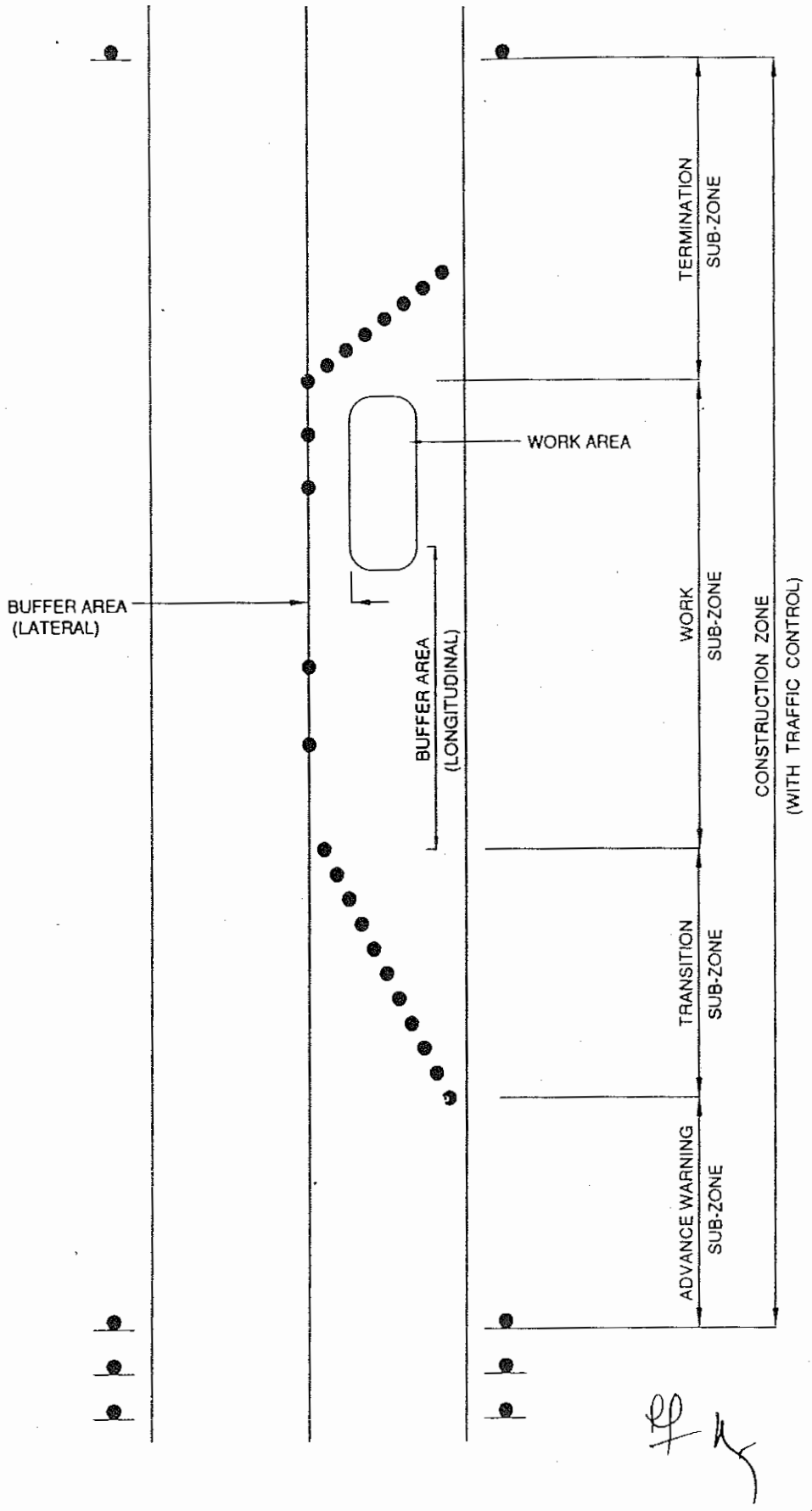


Fig. 1 Components of Construction Zone
(One Direction Traffic Lane)

he can gradually reduce the speed of his vehicle. The information in this sub-zone is conveyed mostly through a series of traffic signs along its length.

2.2.2 Transition Sub-Zone

The transition sub-zone is the area in which the traffic is steered and guided into and out of the diverted path around the work sub-zone. This is the most crucial sub-zone from safety point of view since most of the movements are turning movements. The traffic in this sub-zone is mostly taken across with the help of barricades and channelizers.

2.2.3 Work Sub-Zone

This is the actual area where construction or maintenance activity is taking place and the main concern, therefore, is the safety of the workers at the site from the plying traffic. The path of the traffic must, therefore, be very clearly delineated to avoid intrusion of vehicles moving into the work area. The work sub-zones shall not be close to each other and the distance between the two work sub-zones shall be such that the flow of traffic can return to normal stream by permitting fast moving traffic to overtake slow moving vehicles. These distances shall preferably be 2 km on urban sections and 5 to 10 km on rural sections of the highway. The length of work sub-zone will vary. The length of warning and transition sub-zones shall be basically governed by the speed of approaching vehicles and shall be regulated as shown in table S-1 below:

Table S-1: Recommended Length of Construction Zones

Average Speed (kph)	Length of Advance Warning Sub-Zone (m)	Length of Transition Sub-Zone (m)	Length of Work Sub-zone (m)
50	100	50	
51-80	100-300	50-100	Varies
81-100	300-500	100-200	
Over 100	1000	200-300	

The traffic across these sub-zones is guided and taken with the help of various traffic control devices erected at the site.

2.2.4 Termination Sub-Zone

An information sign board shall be erected to inform road user of the end of Construction Zone.

2.3 Traffic Control Devices

Traffic control devices in the construction zones perform the crucial task of warning, informing and alerting the driver apart from guiding the vehicle movements so that the driver of the vehicle as well as the workers on site are protected and safe passage to the traffic is possible.

The primary traffic control devices used in work sub-zones are signs, delineators, barricades, cones, pylons, pavement markings, flashing lights etc. They shall be such that they are easily understood without any confusion, are clearly visible during day and night, conform to the prevailing speeds in immediate vicinity, stable against sudden adverse weather conditions and are easy in installation, removal and maintenance.

2.3.1 Signs

The construction and maintenance signs fall into the same three major categories viz. regulatory signs, Warning signs and Guide signs as other traffic signs do. The IRC: 67-1977 (Code of Practice for Road Signs) gives a comprehensive list of traffic signs to which the size, colour and placement of signs shall conform. These signs shall be placed on the left hand side of the road. Fig 2 shows typical positioning of signs. Some of the common type of signs which shall be provided in construction zones are discussed in the following para and shown in Fig 3.

2.3.1.1 Regulatory Signs

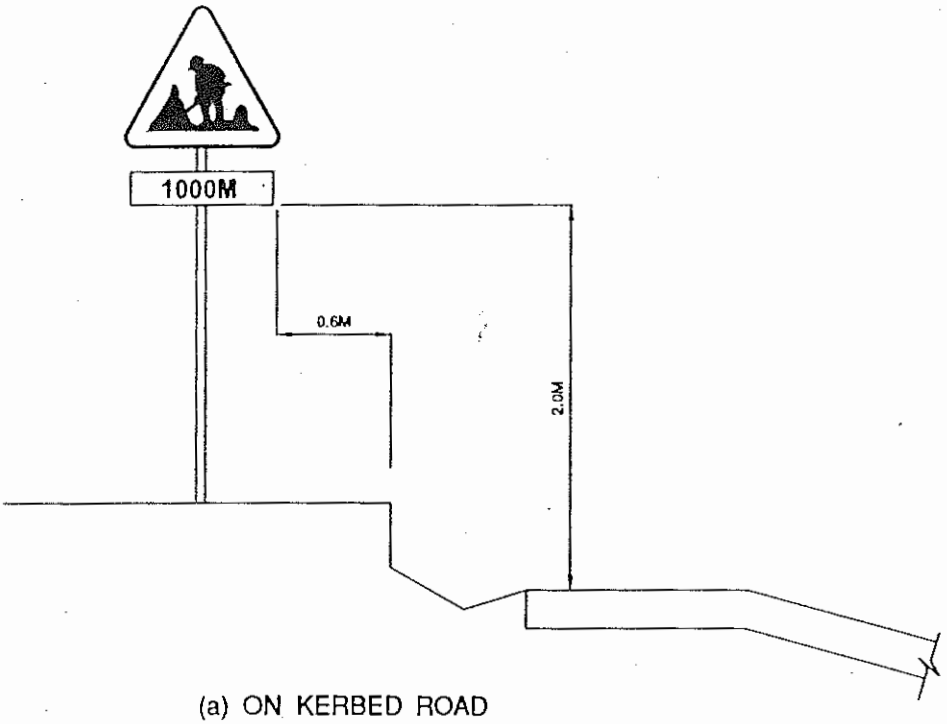
Regulatory signs mean legal restrictions on the traffic. They shall be used only in consultation with the local police and /or authorities. The most common types for the use in construction zones are "Do not Enter", "Road Closed", Give Way to Pedestrian", Speed limit etc.

2.3.1.2 Warning Signs

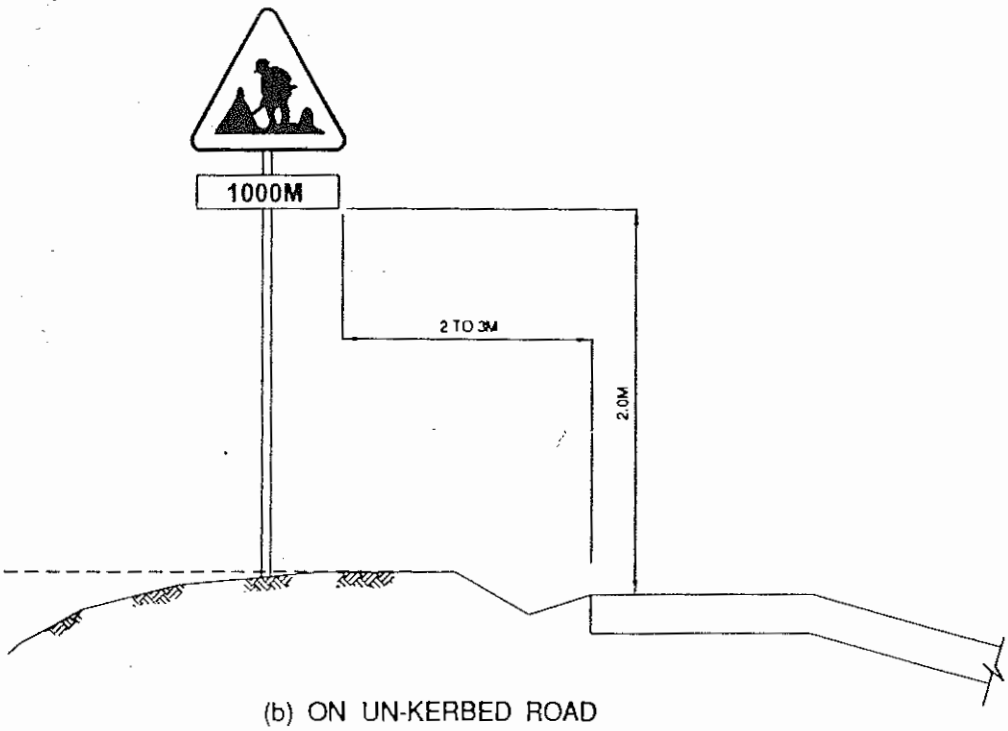
The most common type of warning signs to alert the drivers of the possible dangers ahead in construction zones are "Lane Closed", "Diversion to other Carriageway", "Divided Carriageway Starts", "Divided Carriageway Ends" and "Two Way Traffic" etc. Sometimes it might be advisable to explain these signs with the help of a rectangular definition plate of size appropriate to the size of warning triangle and placed 0.15 m below, from the bottom of the triangle.

2.3.1.3 Guide Signs

Guide signs in construction zones shall have different background colour than the normal informatory signs of IRC: 67-1977. These signs shall have black messages and arrows on yellow (Traffic Yellow of IS : 5-1978) background. The commonly used guide signs are : "Diversion", "Road Ahead Closed" and "Sharp Deviation of Route" etc.



(a) ON KERBED ROAD

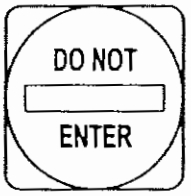


(b) ON UN-KERBED ROAD

Fig. 2 Typical Placement of Sign



Road closed

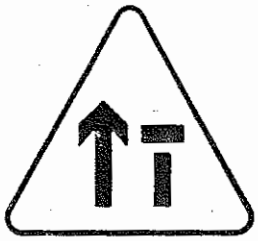


Do not enter

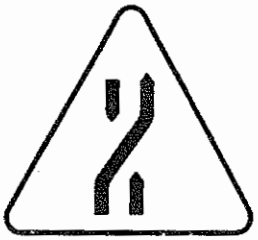


Give way to pedestrian

(a) Regulatory signs



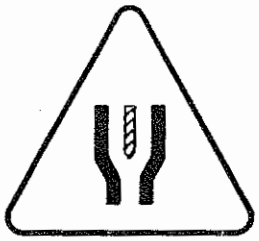
Lane closed
(two lane road)



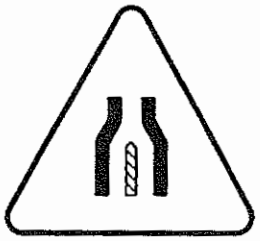
Diversion to the other
carriageway



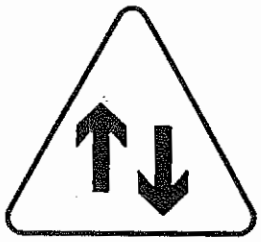
Closed for Traffic



Dual carriageway
starts

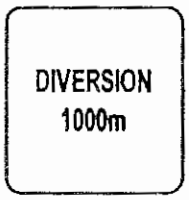


Dual carriageway
ends



Two way traffic

(b) Warning signs



Distance to
diversion



Indication of
diversion road



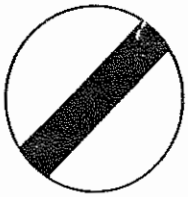
Route for
pedestrians



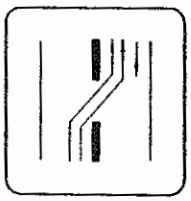
Road ahead
closed



Sharp deviation
of route



Restriction ends



Crossover in
dual carriageway

(c) Guide signs

Fig. 3 Regulatory , Warning and Guide Signs for a Construction Zone

2.3.2 Delineators

These channelising devices such as cones, traffic cylinders, tapes, drums are placed in or adjacent to the roadway to guide the drivers along a safe path and to control the flow of traffic. These shall normally be retro-reflectorised for night visibility. IRC: 79-1981 (Recommended Practice for Road Delineators) gives details of some of the delineators. The other delineators are discussed in following paras.

2.3.2.1 Traffic Cones and Cylinders

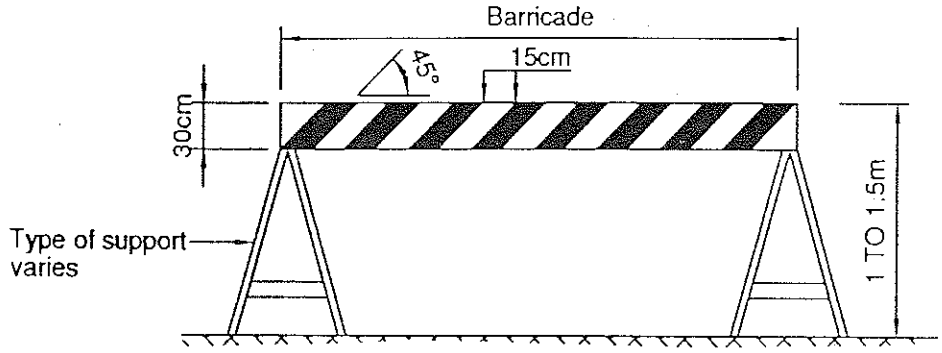
Traffic cones shall normally be 0.5m to 0.75m high and 0.3m to 0.4m in diameter or in square shape at the base. These are mostly made of plastic or rubber with retro reflectorised red and white band and have suitable anchoring so that they are not easily blown over or displaced, it might be preferable to use double cones, one over the other. The cones shall be placed close enough together to give an impression of the continuity. The spacing shall be 3m (close) to 9m (normal). Larger size cones can be used for high speeds or where more conspicuous guidance is required.

2.3.2.2 Drums

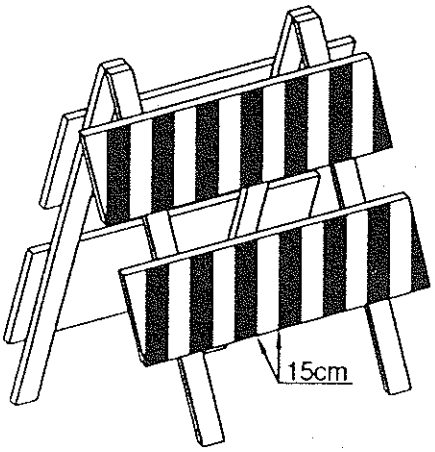
Empty bitumen drums (made of metal) cut to the required height can be used as channelising devices since they are highly visible , give the appearance of being formidable objects, thereby commanding the respect of the drivers. These drums can also be of plastic which are lighter, easy to transport and store. As delineators, these drums shall be about 0.80 to 1m high and 0.30m in diameter. They shall be painted in circumferential strips 0.10 m to 0.15 m wide, alternatively in black and white colours.

2.3.3 Barricades

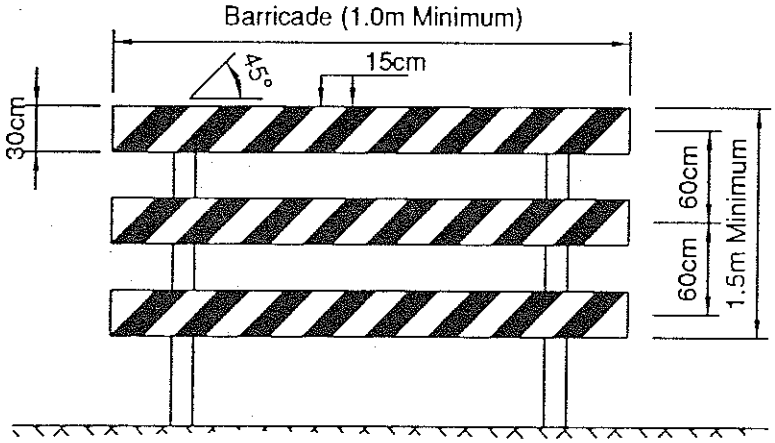
Whenever the traffic has to be restricted from entering the work areas, such as excavations or material storage sites so that protection to workers is provided or there is a need for separating the two way traffic, barricades can be used. The barricades can be portable or permanent type and can be made of wooden planks, metal or other suitable material. The horizontal component facing the traffic is made of 0.30 m wide wooden planks joined together and painted in alternate yellow and white strips of 0.15 m width and sloping down at an angle of 45 degree in the direction of the traffic. Fig. 4 shows three types of barricades. Types I and II are portable type useful for small works and Type III is permanent type, suitable for major work areas. Suitable support or ballasting shall be provided so that they do not over turn or blown away in strong winds. In case of a permanent type barricade, a gate or movable section shall be separately provided to allow the movement of construction/supervision vehicles.



Portable Barricade (Type I)



Portable Barricade (Type II)



Permanent Barricade (Type III)

Fig. 4 Portable And Permanent Barricade

2.3.4 Flagmen

In large construction sites, flagmen with flags and sign paddles shall be effectively used to guide the safe movements. The flags for signalling shall be 0.60 m x 0.60 m size, made of a good red cloth and securely fastened to a staff of approximately 1m in length. The sign paddles shall conform to IRC: 67-1977 and provided with a rigid handle.

2.4 Safety & Management Practices

Measures for providing safe movement of traffic in some of the most commonly occurring work zones on highways shall be as follows:

2.4.1 Detour on Temporary Diversion

In the cases of major repairs or reconstruction of cross drainage structures on a highway section, damaged due to flood etc., the traffic may have to pass on a diversion, moving parallel to the highway.

2.4.1.1 A temporary diversion road shall basically satisfy the following requirements :

i) it shall have smooth horizontal and vertical profile with smooth vertical and horizontal curves;

ii) it shall not get overtopped by flood or drainage discharge under any conditions;

iii) it shall have adequate capacity to cater for the diverted traffic;

iv) it shall be dust free and shall ensure clear visibility at all times of day and night;

v) It shall be provided with the required safety standards ; and

vi) It shall be provided with suitable barricades to prevent intrusion affecting the movement of the traffic.

2.4.1.2 The warning for the construction ahead shall be provided by the sign "Men at Work" about 1 km earlier to the work zone. In addition, a supplementary plate indicating "Diversion 1 km Ahead" and a sign "Road Closed Ahead" shall be placed. It shall be followed by "Compulsory Turn Right/Left Sign". The "Detour" and "Sharp Deviation" sign shall be used to guide the traffic onto the diversion. Hazard markers shall be placed just where the railings for the cross drainage structures on the diversion starts. Figure 5 illustrates a typical arrangement according to the above plan.

2.4.2 Partial Closure of Existing Two Lane Carriageway

2.4.2.1 Such an eventuality will arise only in a special situation where the existing two lanes in use for the main traffic need emergency repairs and the new lanes under construction are not available for diversion of the traffic. It will become necessary to carry out special repairs through partial closure of the existing two lane facility.

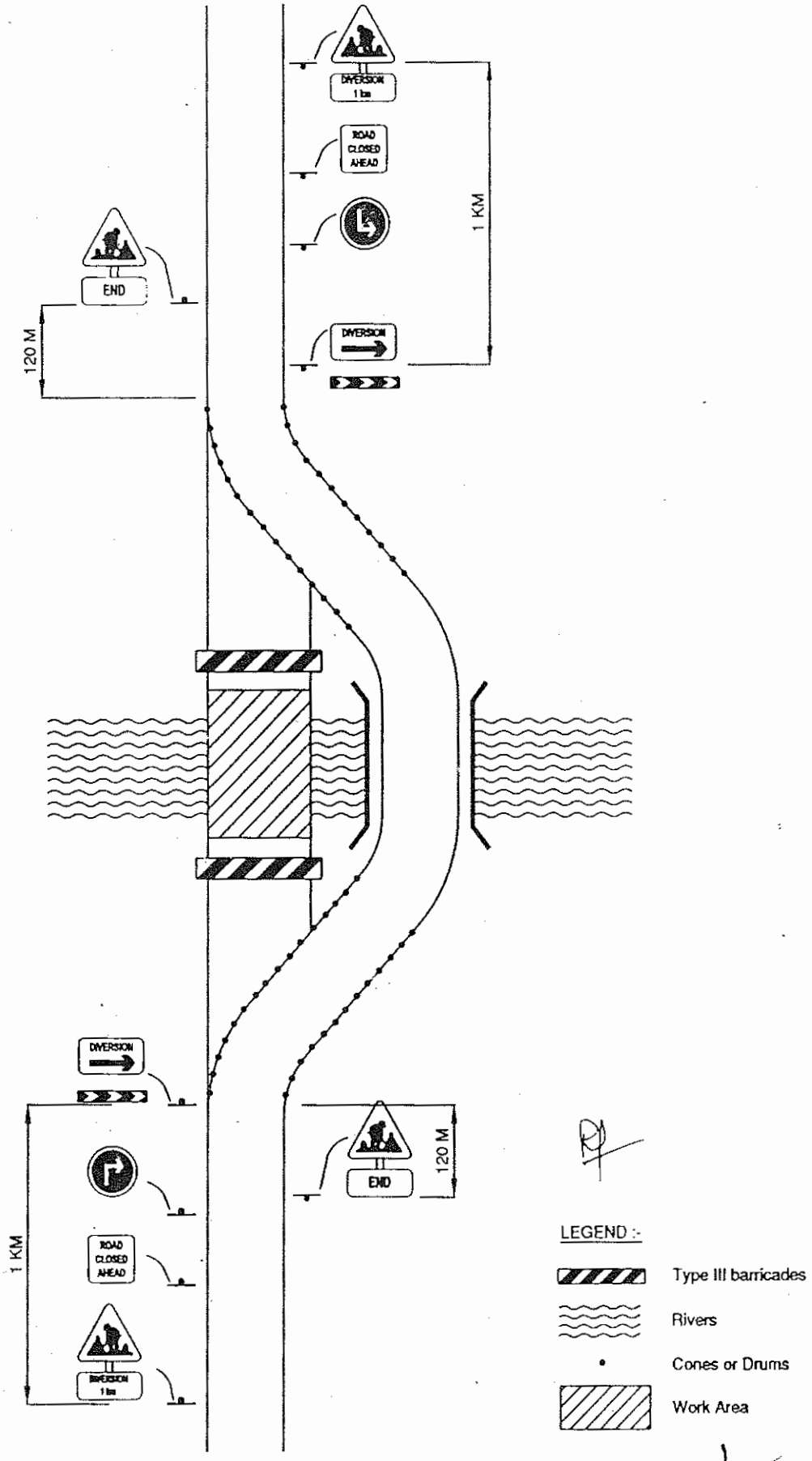


Fig. 5 Layout of Signs for Road Closed with a Diversion

2.4.2.2 In the said situation care shall be taken that the traffic is guided from the closed lane onto the operating lane without its conflict with the traffic from opposite direction.

2.4.2.3 The warning sign for "Men at Work" shall be the first sign to be seen by the drivers of the approaching vehicles. This sign shall have supplementary plate also showing the distance of work zone. The next warning sign shall be for the "Road Narrowing" (depending upon the lane closure). Compulsory "Keep Right" or "Keep Left" sign depending upon the situation shall be provided at the beginning of the transition zone and taper. The point from where the traffic is to deviate from its normal path, the channel for traffic shall be clearly marked with the aid of painted drums or traffic cones. The spacing of these cones and/or drums shall be about 9 m or closer as per site requirement. The "Traffic Lane or Carriageway Closed" sign shall also be provided at barricades along with "Keep Right/Left" sign. A typical layout of signs for a two lane carriageway having one lane closure is shown in Figure 6.

2.4.3 Closure for Work on One Side Carriageway of a 4 Lane Divided Carriageway

The first sign shall be for the "Men at Work" along with distance plate for construction zone. Thereafter the sign for "Road Narrowing" shall be provided, followed by the signs for lane closure one after another. This shall be followed by sign for compulsory "Keep Right/Left (depending upon site situation).The sign for the "Closure of Carriageway" along with that for "Keep Left/Right" shall be provided at the point from where the vehicle is expected to change the lane for the diversion. The sign for the "Diversion To The Other Carriageway" shall be provided between the "Carriageway Closure" sign and the median gap. The sign for "Sharp. Diversion of Route" along with compulsory "Turn Right/Left" shall be provided at the location where the gap in median opening starts and traffic is expected to get diverted to the other carriageway. The warning signs for "Two Way Traffic" along with the plate indicating the distance up to which the two-way traffic is allowed, shall be placed at the median which shall be to the left of the moving traffic. Cones or painted drums shall be placed for delineation, starting from the sign location for "Carriageway Closed". A Typical arrangement is shown in Figure 7.

2.4.4 Carriageway Repairs

When the work is of small magnitude, to be done in the middle of a lane, such as minor repairs of potholes, cracks and patches, then the traffic control measures shall mainly consist of providing cautionary signs of "Men at Work", about 500m before the work zone for the approaching vehicle and other cautionary sign of "Road Narrows", shall be placed at 100m ahead of work area. Regulatory sign of "Keep Left/Right" shall be placed at the commencement point of the work zone and next to the barriers for the approaching vehicles. Movable type of barriers shall also be placed on both sides of the work area. Cones or drums shall be placed at suitable interval to demarcate the work area. The "Work Zone Ends" sign shall be installed 120m beyond the work area. If the operation is to continue during night time,

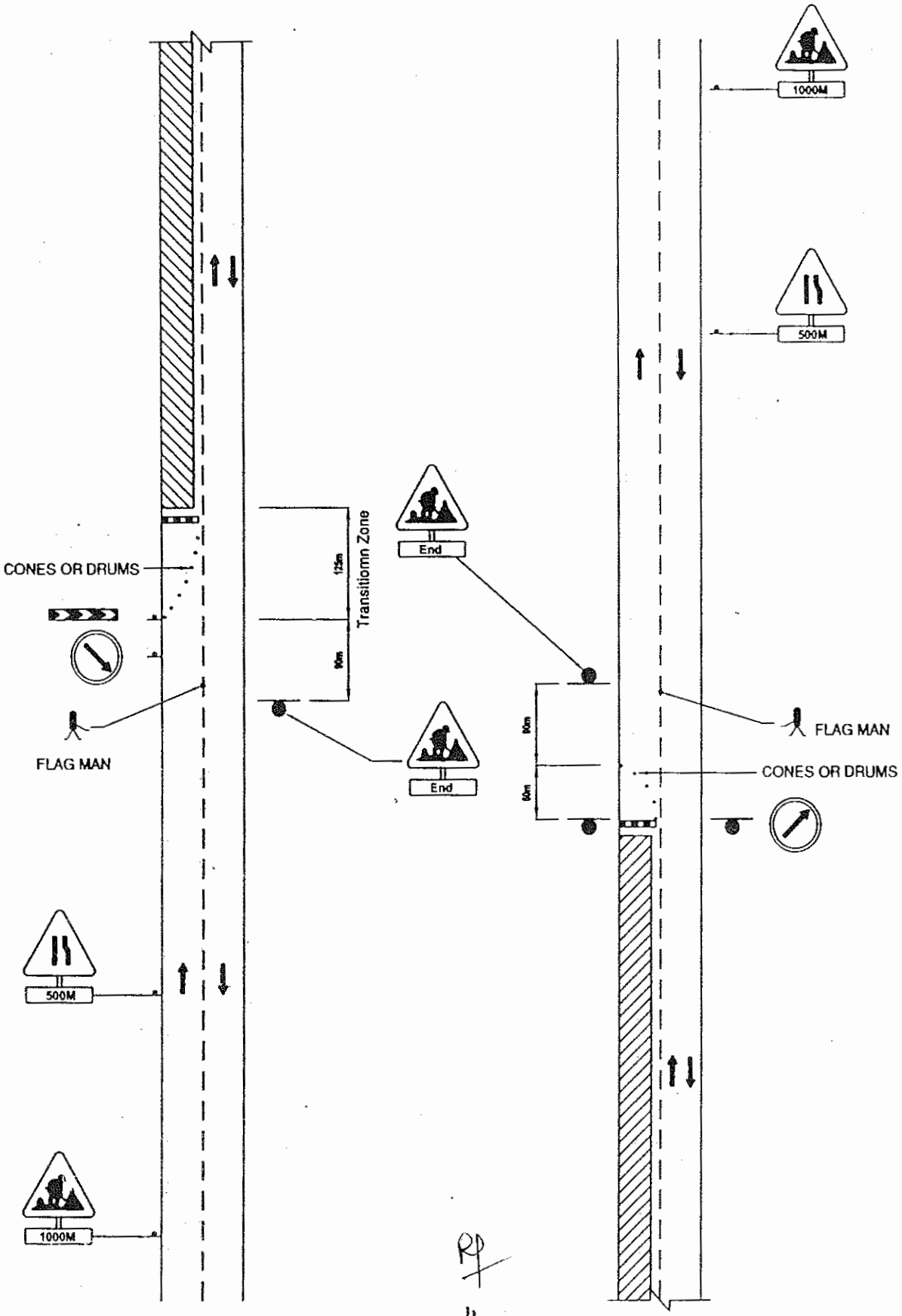


Fig. 6: Typical Layout for a Construction Zone on the existing two Lane Carriageway

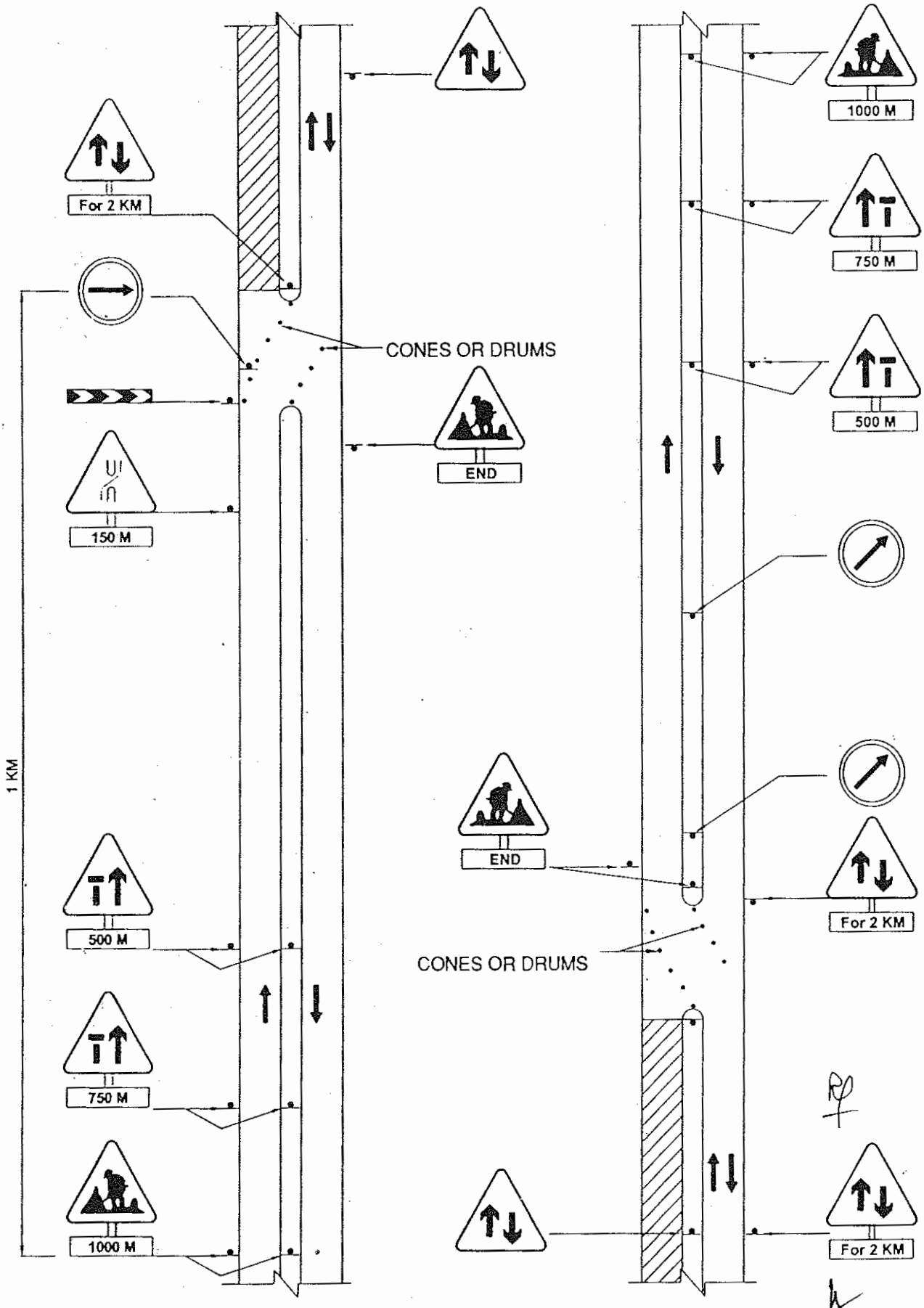


Fig. 7 Layout of Signs for Works on 4 Lane Divided Carriageway - One Side Carriageway Closed

necessary lighting arrangements with flashing lights shall be provided. A Typical arrangement is shown in Figure 8.

2.4.5 Construction of New Carriageway

2.4.5.1 Urban Section of the Project Highway

a) The service roads on either side together with side drains shall be constructed initially. During this period the main traffic shall use the existing two-lane carriageway. The construction traffic in the work zone shall be safely brought out from the mainstream traffic by erecting appropriate signs at the beginning of the work site. Also on return it will be amalgamated with the mainstream traffic by erecting appropriate signs at the end of the work site. It shall be ensured that there shall be identified entry and exit points duly designed so that haphazard entry or exit of construction traffic is avoided. Conflicting turning movements shall be avoided. Figure 9 illustrates the safety measures taken during construction stage-I in urban sections.

b) On completion of the Stage-I, the main traffic shall be diverted on their respective directions on to the newly constructed service roads and the additional two lanes shall be constructed (1 lane on each side) of the existing carriageway duly including the 1.5m wide central median. During this stage, position of different signs/ delineators/barricades to ensure safety of workers and road users shall be as illustrated in Figure 10.

c) On completion of the divided 4-lane carriageway of the Project Highway, the main traffic from the service roads shall be restored on them and informatory signs shall be installed as illustrated in Figure 11.

2.4.5.2 Rural Section of the Project Highway

In rural section the new two-lane carriageway and the central median shall be constructed concentric or eccentric to the center line of the existing carriageway. During this construction phase, the existing two-lane carriageway shall be used for the main traffic. The construction traffic using the existing highway shall be guided on to the work zone and allowed to return to the main traffic stream safely. For this purpose identified exit and entry points duly designed shall be provided. It shall ensure against haphazard entry or exit of the construction traffic to/from the existing highway. Conflicting turning movements of the construction traffic shall be avoided. During this phase, sign/barricading shall be as shown in Figure 9 on the construction side of the road.

On completion of the new two-lane carriageway and the median throughout, the traffic on the existing highway shall be diverted on it and the strengthening of the existing 2 lanes if required shall be taken up. Layout of signs and safety measures for this construction phase shall be as illustrated in Figure 7.

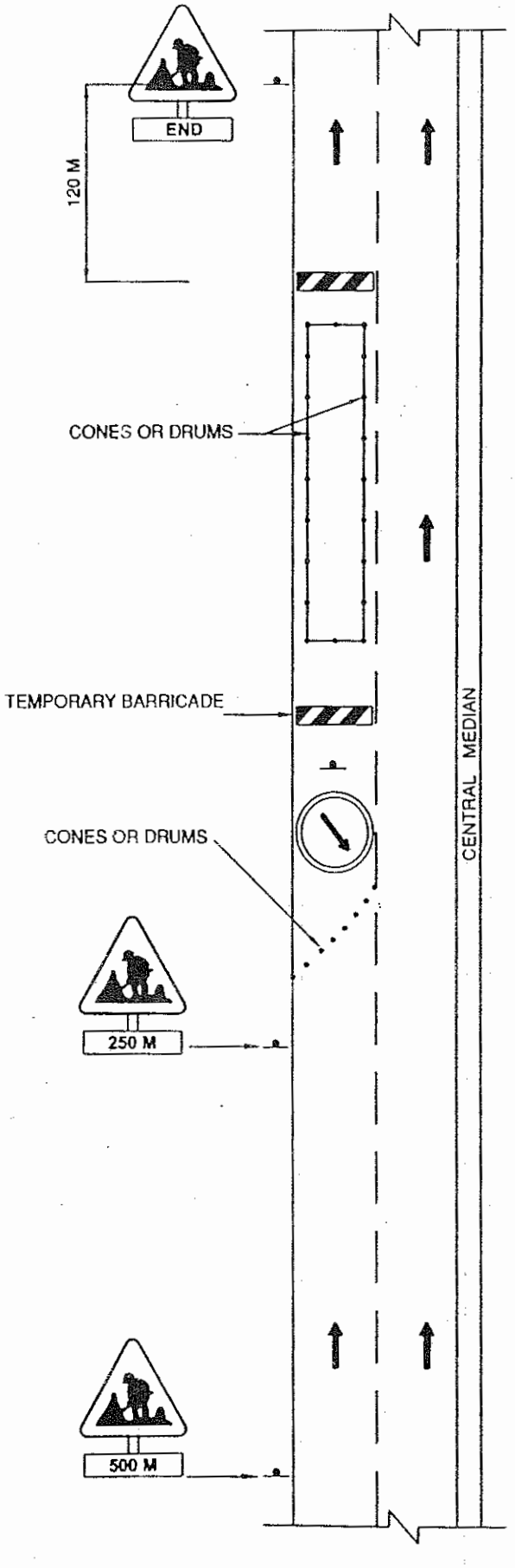


Fig. 8 Layout of Signs for Work Zone in Middle of Lane.

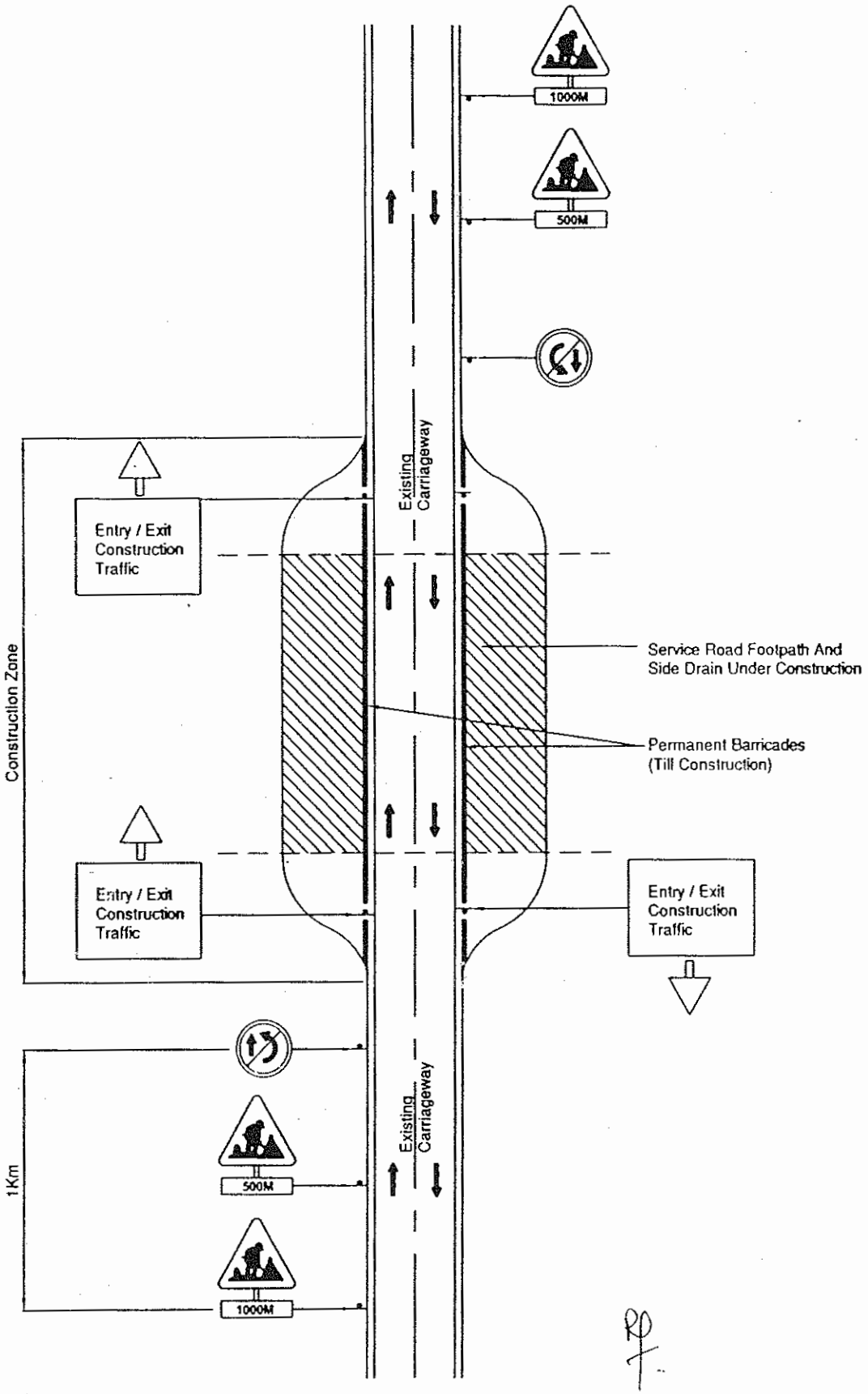


Fig. 9: Urban Section (Stage I)
Construction of Service Road, Footpath And Side Drain

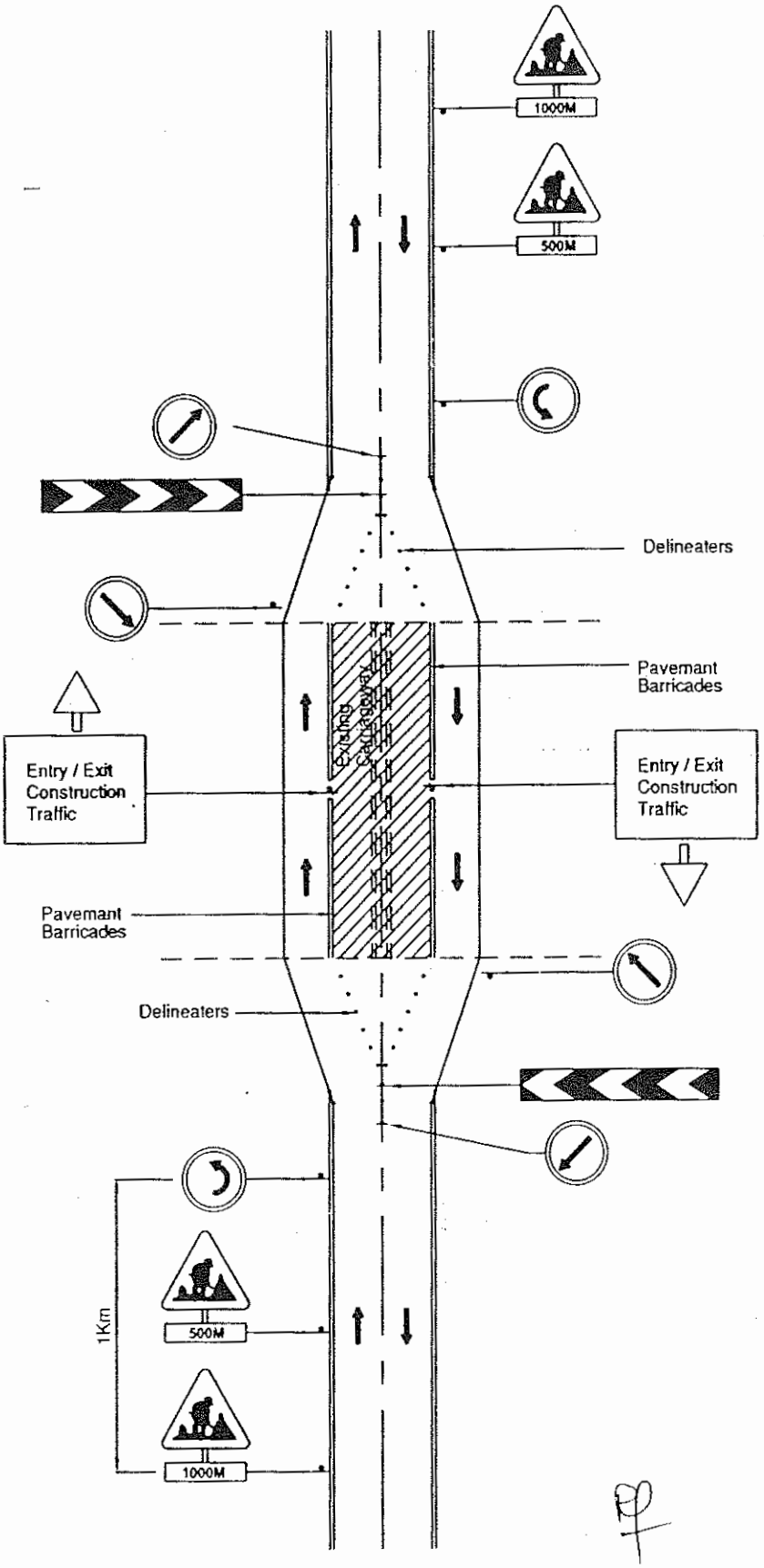


Fig. 10: Urban Section (Stage II)
Construction of 4 Lane Divided Carriageway

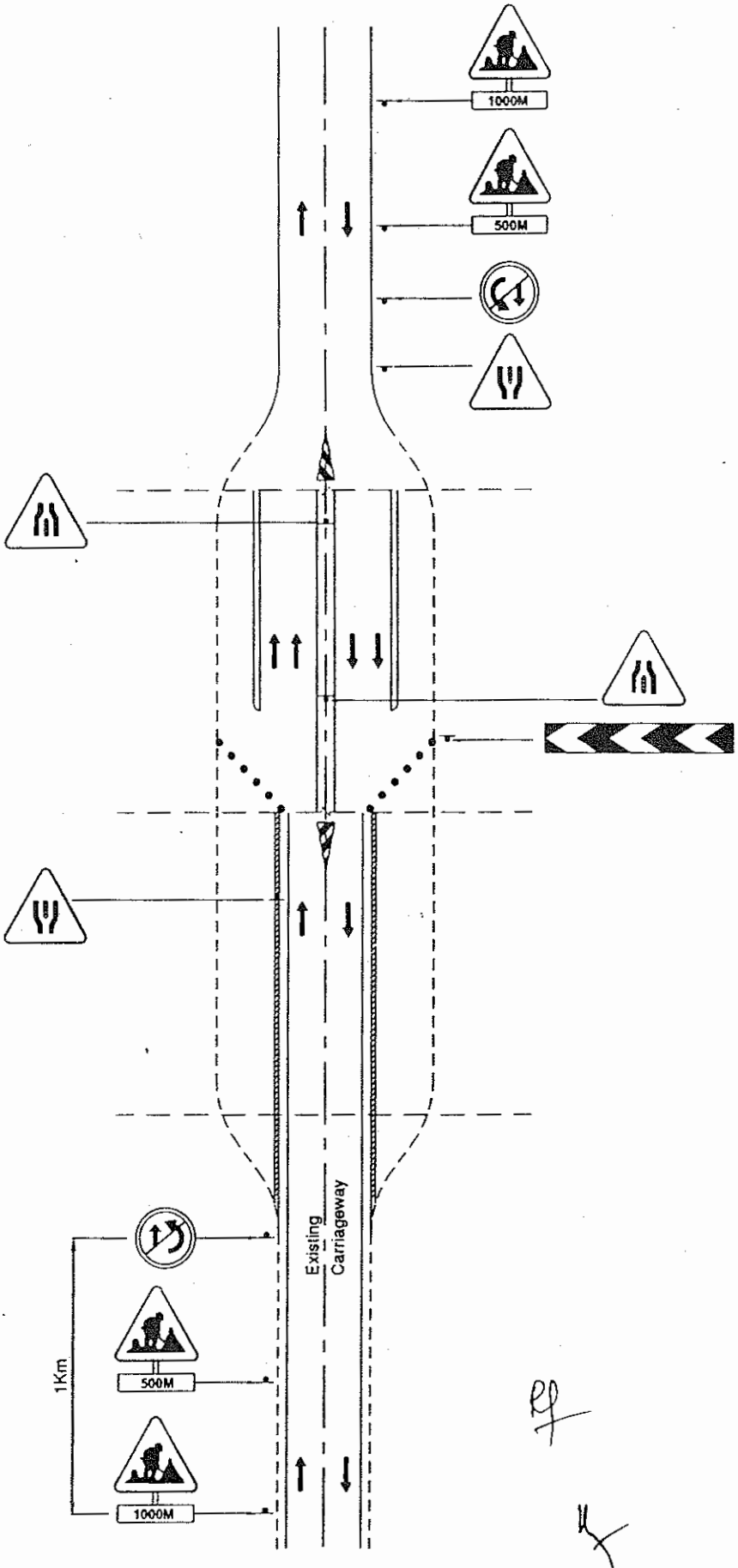


Fig. 11 : Urban Section
(Construction of Service Road Adjacent to A Completed Urban Section)

At the construction stages described above, situations may arise requiring diversion of traffic for cross over from the new two-lane carriageway to the existing two-lane carriageway when construction of new two-lanes is done in stretches, during which traffic safety measures as shown in Figure 12 shall be adopted.

2.5 Safety Measures During Normal Operation

2.5.1 Introduction

It is observed that the drivers park their vehicles on the carriageways leading to accidents. Many a times, the vehicles involved in accidents and/or debris on the carriageway are the cause of further accidents besides obstructing the smooth flow of the traffic. For smooth and normal flow of the traffic on the Project Highway, the actions stated herein under in 2.5.2 will be taken for the normal operation of the Project Highway.

2.5.2 Highway Patrol

Highway Patrolling shall be done to ensure safe, uninterrupted and smooth traffic flow so that :

(i) No parking of a vehicle on any of the divided carriageway takes place at anytime;

(ii) Immediate assistance is provided to accident victims and their rescue by Control Centre as per clause 19.8.2 of the Concession Agreement.

(iii) Minor debris and stalled vehicles are removed from carriageway within acceptable time;

(iv) In the incident of traffic congestion, adequate measures shall be taken to mitigate the same in acceptable time and the approaching traffic is duly cautioned about it.

2.5.3 Safety, Vehicle Breakdown and Accident

2.5.3.1 In case of unsafe condition, vehicle breakdowns and accidents, the Concessionaire shall follow the relevant operating procedures, which shall include the setting up of temporary traffic cones and lights as well as the removal of obstruction and debris expeditiously as per clause 19.8.1 of the Concession Agreement.

2.5.3.2 The Concessionaire shall ensure that any diversion or interruption of traffic is remedied without delay as per clause 19.8.2 of the Concession Agreement.

2.6 Safety Measures During Concession Period

2.6.1 During the Concession Period or extension thereof as per the Concession Agreement, many activities are involved at different stages and at various periods in respect of construction, operation and maintenance of the Project Highway. Safety of the road

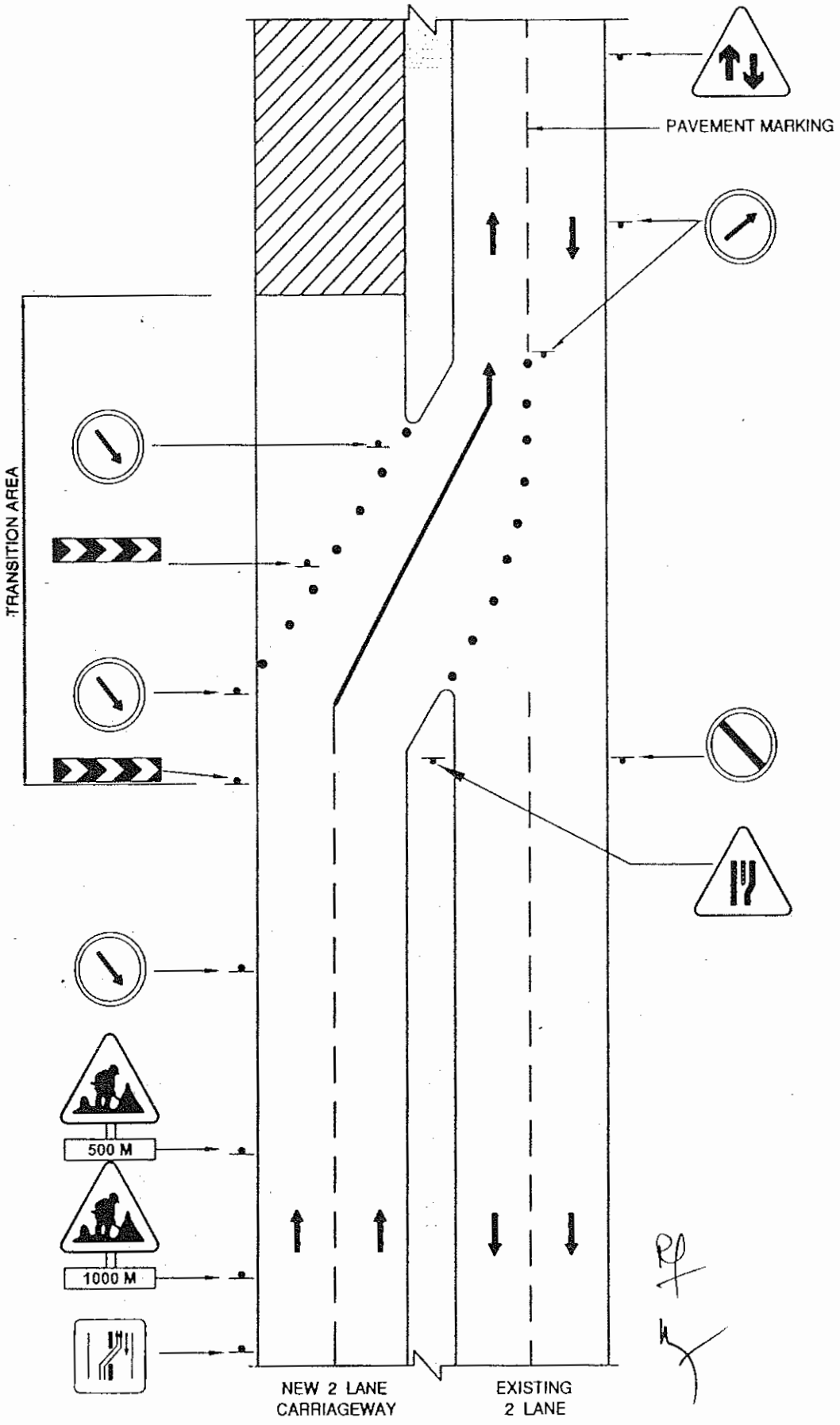


Fig. 12 Typical Construction and Crossover Detail in Rural Areas of Highway

2.6.2 users and the project workmen at site is of paramount importance and obligatory for the Concessionaire throughout the said period.

2.6.3 In emergency arising on account of Force Majeure due to nature or administrative reasons, special safety measures may be called for the traffic and/or the workmen at site to be taken by the Concessionaire.

2.6.4 The following principles shall be kept in view in emergency situations from safety considerations:

2.6.4.1 Where part width of the existing two-lane carriageway is envisaged to be used for passage of two-way traffic, paved shoulders shall be used on the side on which work is not proposed. A maximum of one lane (3.5 m wide) closure shall be allowed for a short duration depending on the extent on emergency.

2.6.4.2 At the points where traffic is to deviate from its normal path, the channel for traffic shall be clearly marked with the aid of pavement markings or other similar device as directed by the Independent Consultant. At night the passage shall be delineated with lamps or lanterns or any suitable light source.

2.6.4.3 On the approach of any type of closure suitable regulatory/warning signs as approved by the Independent Consultant shall be installed for guidance of road users. At least two signs shall be put up one close to the carriageway where transition of carriageway begins and the other 120 m ahead. The signs shall be of approved design and of reflectory type as directed by Independent Consultant.

2.6.5 The Concessionaire shall ensure that safety standards specified in this schedule are strictly complied with in the event of any lane closure or diversion of traffic as stipulated in clause 19.8.3 of the Concession Agreement.

2.7 Safety of Project Workmen at Site

2.7.1 Safety of the project workers at site during duty hours is the responsibility of the Concessionaire. It shall be ensured by him that safety measures appropriate for the job that a workman performs shall be provided.

2.7.2 Also, safety measures against accidents of the workmen by the traffic using the highway and/or diversions shall be taken. The Concessionaire shall provide helmets and protective chest vests to its workmen at site and make it compulsory for them to wear the same.

2.7.3 The Concessionaire shall insure all the project workers against accident.

2.7.4 Labour laws in force shall be followed.

2.8 Safety Requirements

2.8.1 Safety of road users and workers on the Project Highway during its construction, operation and maintenance is obligatory and the Concessionaire shall be fully responsible to discharge it in terms of the Concession Agreement including its Schedules.

2.8.2 In case of emergency situations the Concessionaire shall take action(s) for the safety of the road users and the workers as required by the site conditions immediately without waiting for consultation with the Independent Consultant and/or NHAI because any delay in it will not absolve the Concessionaire of its responsibilities under the Concession Agreement including its Schedules.

2.8.3 A breach by the Concessionaire of its obligations in respect of the safety standards shall be dealt with in terms of clause 19.8.3 of the Concession Agreement.

CRITERIA FOR LIST OF CHARTERED ACCOUNTANTS

Selection of the Chartered Accountants for a mutually agreed list shall consist of the following steps :

1. Short listing of Chartered Accountants by the NHAI
2. Issue of Letter of invitation (LoI) along with Terms of Reference to short-listed Chartered Accountants.
3. Evaluation of Technical Proposal and selection of maximum of 15 (fifteen) Chartered Accountants.
4. Forwarding list of 15 (fifteen) Chartered Accountants to Concessionaire to select a maximum of 10 (ten).

SELECTION COMMITTEE

The selection shall be done by a Selection Committee. The members of this committee shall be nominated by the NHAI.

1. **Short listing by NHAI**

   For short listing, NHAI shall advertise for Expression of Interest (EoI) to serve as Statutory Auditors/ Chartered Accountants for the ongoing National Highway (NH-5 and NH-9) improvement projects. The EoI will ask for summary information on

   - Number of Partners and Professional Staff
   - Experience of the firm on roads project
   - Presence in India and in the region
   - Experience of the firm on other similar work in other sectors

2. **Request for Technical Proposal**

   The request for technical proposals shall be sent to the short listed firms. This shall include a ToR besides information (Data Sheet) to the firms. It shall contain the guidelines for the preparation of technical proposals by the firms and submission.

   The ToR shall include the following details:

   1. Project background
   2. Objectives
   3. Scope of services

4. Interaction with NHAI

5. Reporting requirement

6. Performance clause

7. Consultant's Proposal

8. Period of Services

3. **Evaluation of Technical Proposal**

The technical proposals received from short listed firms shall be evaluated based on the following:

- Specific experience of the firm related to the assignment
- Adequacy of the proposed work plan and methodology in response to the ToR
- Qualifications and competence of the key staff for the assignment

SUBSTITUTION AGREEMENT

THIS SUBSTITUTION AGREEMENT is made at New Delhi on the _____ day of _____ 200--.

BETWEEN

1. THE NATIONAL HIGHWAY AUTHORITY OF INDIA, a statutory body constituted under the provisions of the National Highways Authority of India Act, 1988 and having its principal offices at 1, Eastern Avenue, New Delhi 110 065 (hereinafter referred to as "NHAI" which expression shall unless repugnant to the context or meaning thereof include its successors and assigns),

2. [---------- **LIMITED]**, a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at ---------- (hereinafter referred to as the "Concessionaire" or "Company" which expression shall unless repugnant to the context or meaning thereof include its successors and assigns),

AND

3. _____, _____ and having its registered office at _____acting for itself and for and on behalf of the Senior Lenders listed in Schedule 1 hereto (hereinafter referred to as the "Senior Lenders").

(NHAI, the Concessionaire and the Senior Lenders are hereinafter collectively referred to as the "Parties" and individually are hereinafter referred to as "Party").

WHEREAS

A. By the Concession Agreement dated ..... entered into between the NHAI and the Concessionaire, NHAI has granted to the Concessionaire the Concession for widening of the existing 2-lanes to 4-lanes divided carriageway facility including rehabilitation of existing 2-lanes of (a) NH-5 from km. 52.8 to km. 163.6 on the Tada-Nellore Section in Andhra Pradesh (b) NH-9 from km. 217 to km. 252 on the Nandigama – Ibrahimpatnam Section in Andhra Pradesh, India on Build, Operate and Transfer (BOT) basis and (c) operation, maintenance and collection of fees of NH-9 from km 253 to 265 on Ibrahimpatnam-Vijayawada Section in Andhra Pradesh, India subject to and on the terms, conditions and covenants set forth in the said Concession Agreement or forming part thereof.

B. With a view to help facilitate obtaining of financing for the said Project by the Concessionaire so as to enable the Concessionaire to build, operate and maintain the same pursuant to and

in accordance with the Concession Agreement, the Parties have agreed subject to the terms and conditions of the Concession Agreement and the Financing Documents, that the Senior Lenders shall have the right to substitute the Concessionaire by a Selectee for the residual period of the Concession on the terms, conditions and covenants mentioned hereinbelow.

C. As a condition to making any disbursement pursuant to the Financing Documents, the Senior Lenders have required and it is deemed necessary and expedient to record the terms, conditions and covenants of the above agreement between the Parties.

NOW THEREFORE THE PARTIES HERETO HEREBY AGREE AND THIS AGREEMENT WITNESSETH AS FOLLOWS:

ARTICLE 1

DEFINITIONS

1.1 For the purpose of this Agreement, the following terms shall have the meaning hereinafter respectively assigned to them:

1.1.1 "Concession" means the bundle of rights, obligations and covenants of the Concessionaire under and as setforth in the Concession Agreement.

1.1.2 "Concession Agreement" means the Concession Agreement dated ..... entered into between NHAI and the Concessionaire granting the Concession to the Concessionaire in respect of the Project Highways and includes without limitation any amendments thereto made in accordance with the provisions contained in this behalf therein.

1.1.3 "Event of Default" means occurrence of any of the following events:

(i) A Material Breach by the Concessionaire of the Concession Agreement, or the occurrence of a Concessionaire Event of Default as defined in the Concession Agreement.

(ii) A material default in payment by the Concessionaire to all or any of the Senior Lenders under the Financing Documents of any two instalments, either of principal or interest or both, due and payable by it on account of Lenders Dues.

(iii) Any event of default under or breach of any of the terms of any of the Financing Documents or Project Agreements concerning the Project which in the sole opinion of the Lenders Agent is material or major and which may seriously affect the ability of the Concessionaire to meet its payment obligations to the Senior Lenders under the Financing Documents or to design engineer, construct, complete, operate and maintain the Project Highway pursuant to and in accordance with the Concession Agreement.

of the original Concession by amendment of the Concession Agreement or by execution of a fresh Concession Agreement.

1.1.15 "Substitution Notice" means the notice given by the Lenders Agent pursuant to Clause 2.2 (c) of this Agreement.

1.2 The words and expressions beginning with or in capital letters used in this Agreement not defined in ... Agreement, shall have, unless repugnant to the context, the meaning respectively assigned to them in the Concession Agreement.

1.3 In this agreement unless the context otherwise requires:

a) any reference to a statutory provision shall include such provision as is from time to time modified or re-enacted or consolidated so far as such modification or re-enactment or consolidation applies or is capable of applying to any transactions entered into hereunder;

b) the words importing singular shall include plural and vice versa, and words denoting natural persons shall include partnerships, firms, companies, corporations, joint ventures, trusts, associations, organisations or other entities (whether or not having a separate legal entity);

c) the headings are for convenience of reference only and shall not be used in and shall not affect the construction or interpretation of this Agreement;

d) terms beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein;

e) the words "include" and "including" are to be construed without limitation;

f) any reference to a "day" shall mean reference to a calendar day;

g) any reference to "month" shall mean reference to a calendar month;

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

i) any reference at any time to any agreement, deed, instrument, license or document of any description shall be construed as reference to that agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference provided that this clause shall not operate so as to increase liabilities or obligations of NHAI hereunder or pursuant hereto in any manner whatsoever;

j) references to Recitals, clauses, sub-clauses, paragraphs, or schedules in this Agreement shall, except where the context otherwise requires, be deemed to be

references to Recitals, Articles, clauses, sub-clauses, paragraphs, Annexures, appendices of this Agreement.

k) any agreement, consent, approval, authorisation, proposal, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or Senior Lender(s) shall be valid and effectual only if it is in writing under the hands of duly authorised representative of such Party or the Senior Lender(s), as the case may be, in this behalf and not otherwise; and

l) any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include both days or dates.

ARTICLE 2

SUBSTITUTION OF THE CONCESSIONAIRE BY A SELECTEE

2.1 NHAI hereby irrevocably agrees to substitute the Concessionaire by a Selectee (selected by the Senior Lenders in accordance with the provisions of this Agreement and approved by NHAI) by amendment of the Concession Agreement or by execution of a fresh Concession Agreement in favour of the Selectee for the purpose of securing the payments of the Lenders Dues, provided that nothing contained herein shall entitle the Senior Lenders to operate the Concession themselves as a Concessionaire under and in accordance with Concessionaire Agreement either individually or collectively.

2.2 (a) The Lenders Agent shall notify by a notice in writing to the Concessionaire, with a copy thereof simultaneously to NHAI, about the occurrence of an Event of Default and requiring the Concessionaire to remedy and cure such default within 30 (thirty) days from the date of delivery of such notice of the Concessionaire (the "Notice of Default"). The Notice of Default shall be accompanied by the Lenders Certificate.

(b) A certificate under the hands of an authorised officer of the Lenders Agent annexed to the Notice of Default certifying –

(i) the occurrence of an Event of Default, and

(ii) the Lenders Dues.

(the "Lenders Certificate") shall be conclusive evidence of occurrence of such Event of Default and of such Lenders Dues. Such Lenders Certificate shall be final, conclusive and binding upon the Concessionaire for the purposes of this Agreement and the Financing Documents.

(c) NHAI and the Concessionaire hereby irrevocably agree that the Lenders Agent may within 30 (thirty) days of the date of delivery of the Notice of Default of the Concessionaire and without prejudice to any other right or remedy available to the Senior Lenders under the Financing Document, notify NHAI and the Concessionaire

on behalf of all the Senior Lenders about the Senior Lenders decision to invite, negotiate and procure offers, either through private negotiations or public auction or process of tendering for the residual period of the Concession and the rights and obligations of the Concessionaire under the Concession Agreement, by a Selectee, subject to the approval of such Selectee by NHAI (the "Substitution Notice").

(d) Upon assumption by the Selectee of the liability and obligations of the Concessionaire under the Financing Documents and the Concession Agreement including obligation to pay any sums then due and payable to NHAI under the Concession Agreement, NHAI shall grant the Concession to the Selectee on the same terms and conditions for the residual period of the original Concession, by amendment of Concession Agreement or, if required by the Lenders Agent by a separate agreement with the Selectee.

2. 3 The Lenders Agent shall apply in the selection of the following criteria:

(i) the Selectee shall be capable of properly discharging the duties, obligations and liabilities of the Concessionaire under the Concession Agreement;

(ii) the Selectee shall provide security to the satisfaction of Senior Lenders for repayment of the Lenders Dues;

(iii) the Selectee shall have the capability and shall unconditionally consent to assume the liability for the payment and discharge of dues of the Concessionaire to NHAI under and in accordance with the Concession Agreement and of Lender's Dues upon terms and conditions as agreed to with the Senior Lenders ;

(iv) the Selectee shall have the networth, experience and technical equity parameters as setforth in the Concession Agreement or prescribed by NHAI thereunder in respect of the Concessionaire or as relaxed subsequently by NHAI;

(v) the Selectee shall have not been in breach of any agreement between the Selectee and NHAI ; and

(vi) any other appropriate circumstance, whereby continuity in the performance of the Concessionaire's obligations under the Concession Agreement is maintained and the security in favour of Senior Lenders under the Financing Documents is preserved.

2.4 At any time prior to the acceptance of the Selectee by NHAI pursuant to this Agreement, the NHAI may require the Lenders Agent to satisfy NHAI as to the eligibility of the Selectee and the decision of the NHAI in this behalf (which shall be reasonable), shall be final, conclusive and binding on the Senior Lenders and the Selectee.

ARTICLE 3

MODALITY FOR SUBSTITUTION

3.1 The following modalities shall be applicable to any substitution of the Concessionaire by the Selectee pursuant to this Agreement;

(i) The Lenders Agent may invite, negotiate or procure offers either through private negotiations or public auction or process of tender or otherwise for the substitution of the Concessionaire by the Selectee;

(ii) The Lenders Agent shall on behalf of the Senior Lenders propose to NHAI pursuant to sub-clause (iii) below, the name of the Selectee for acceptance and shall apply as necessary to NHAI for:

a) grant to the Selectee (as substitute for the Concessionaire) the right to build, construct, complete, maintain, and operate the Project Highway under and in accordance with and subject to and on the terms and conditions setforth in the Concession Agreement,

b) amendment of the Concession Agreement so as to grant to the Selectee on the same terms and conditions, the residual period of the Concession under original Concession Agreement,

c) the execution of a new Substitution Agreement with the proposed Selectee for the residual period of Concession on the same terms and conditions, and

(iii) The Lenders Agent on behalf of the Senior Lenders shall be entitled, within a period of 120 (one hundred twenty) days from the date of delivery to NHAI of the Substitution Notice pursuant to Clause 2(c) above, to select and propose to NHAI for its approval a Selectee (the "Proposal"). The Proposal of the Lenders Agent pursuant to this sub-clause (iii) shall contain the particulars and information in respect of the Selectee, the Lenders Dues and other data and information, all as prescribed in Schedule IV hereto. Without prejudice to the foregoing the Lenders Agent agrees and undertakes to provide to NHAI such further and other information and such clarifications in respect of any data, particulars or information furnished pursuant hereto by the Lenders Agent as NHAI may reasonably require. NHAI shall convey its approval or otherwise of such Proposal, including of Selectee, in its sole discretion within 60 (sixty) days of (a) the date of receipt of the Proposal by NHAI, or (b) the date when last of further and other information and such clarifications in respect of any data, particulars or information comprised in the Proposal, as have been provided in the Lenders Agent to NHAI, whichever is later. It is expressly agreed that the Proposal shall be accompanied by an unconditional undertaking of the Selectee that it shall upon approval by NHAI of the Proposal including the Selectee, observe, comply, perform and fulfill the terms, conditions and covenants of the Concession

1.1.4 "Financial Assistance" means the loans, advances and other funding assistance including any syndicated/ participation facility provided by the Senior Lenders as setforth in Schedule II hereto for financing the whole or any part of the Project Cost,

1.1.5 "Financing Documents" means the documents executed/ to be executed by the Concessionaire or entered/to be entered into by the Concessionaire with the Senior Lenders and/or the Lenders Agent in respect of the Financial Assistance and include loan agreements, guarantees, notes, debenture, bonds and other security agreements and other documents relating to the Financial Assistance and brief particulars whereof are setforth in Schedule II hereto in relation to each Senior Lender.

1.1.6 "Lenders Agent" means the ....., established under the provisions of the .....Act, ... and having its principal office at ..... and any replacement thereof appointed by all the Senior Lenders, inter alia, on the condition that as security for the Financial Assistance they shall have the right to seek transfer and assignment of the Concession Agreement including the Concession in accordance with the provisions of this Agreement.

1.1.7 "Lenders Certificate" shall have the meaning ascribed thereto in Clause 2.2(b).

1.1.8 "Lenders Dues" means the aggregate of all monies owned by the Concessionaire to the Senior Lenders under the Financing Documents on account of principal thereunder for funding the Project Cost, and all accrued interest, additional interest, liquidated damages, commitment fees, commission, prepayment premium, costs, charges and other monies including financing charges and fees owned by the Concessionaire to the Senior Lenders under the Financing Documents for the Project.

1.1.9 "Notice of Default" shall have the meaning ascribed thereto in Clause 2.2(a).

1.1.10 "Proposal" shall have the meaning ascribed thereto in Clause 3.1(iii).

1.1.11 "Project Agreements" means this Agreement, the Concession Agreement and certain other agreements and contracts entered into by the Concessionaire with NHAI and others relating to the Project and brief particulars whereof are setforth in Schedule III hereto.

1.1.12 "Project Cost" means the total capital cost of the Project upto the COD as approved by the Senior Lenders.

1.1.13 "Senior Lenders" means the financial institutions, trusts, funds, banks and such other persons who have provided or agreed to provide the finance to the Concessionaire under any of the Financing Documents for meeting all or any part of the Total Project Cost and who hold pari passu charge on the Project Assets.

1.1.14 "Selectee" means a new Concessionaire proposed by the Senior Lenders pursuant to this Agreement and approved by NHAI for substituting the Concessionaire for the residual period

Agreement which according to its terms are required to be observed, complied with, performed and fulfilled by Concessionaire thereunder on the footing as if such Selectee were the concessionaire under the Concession Agreement and shall be liable for and shall assume, discharge and pay the Lenders Dues to the Senior Lenders under and in accordance with the Financing Documents. Upon approval of the Proposal including of the Selectee by NHAI, such Selectee shall become the Selectee hereunder.

(iv) NHAI shall, upon its satisfaction of the eligibility of the Selectee and in accordance with the provisions of this Agreement and subject to the provisions of Sub-clause (v) below proceed to substitute the Concessionaire or the Selectee by amendment of the Concession Agreement or by execution of fresh agreement or such other writing as NHAI may reasonably require on the same terms and conditions for the residual period of the Concession in favour of the Selectee.

(v) The substitution as aforesaid shall be subject to the Selectee, obtaining requisite Indian Government approvals, clearances and permission necessary for operating the Concession under and in accordance with the Concession Agreement.

(vi) The objection if any of NHAI to the substitution as aforesaid shall be reasoned and be made after hearing the Lenders Agent, provided however, that in the event of a refusal as stated above, the Lenders Agent may propose another Selectee. In the event that no objection is raised with respect to the Selectee by NHAI within the period setforth in sub-clause (iii) above, the Selectee shall be deemed to have been accepted by NHAI. NHAI shall, subject to the provisions of Sub-clause (v) above, grant the Concession for the residual period within 15 days of its acceptance/deemed acceptance of the Selectee.

(vii) The substitution as aforesaid, pursuant to the security interest hereby created in favour of the Senior Lenders, shall be deemed to be complete only upon the Selectee as Concessionaire accepting and complying with the terms and conditions stipulated in the Concession Agreement.

(viii) The decision of the Senior Lenders and NHAI in the selection of the Selectee shall be final and binding on the Concessionaire and shall be deemed to have been made with the concurrence of the Concessionaire and the Concessionaire hereby expressly waives all rights to objects to or challenge such selection of the Selectee on any ground whatsoever. No third party shall have the right to question the decision of the Senior Lenders/Lenders Agent and NHAI.

(ix) All actions of the Lenders Agent hereunder shall be deemed to be on behalf of the Senior Lenders, and be binding upon them. The Lenders Agent is authorised to receive payment of compensation, payment to cure default and any other payments,

consideration for transfer in accordance with the Substitution Notice and the Financing Documents and give valid discharge on behalf of all Senior Lenders.

3.2 The terms and conditions for substitution of the Concessionaire by the Selectee shall be proposed by the Senior Lenders through the Lenders Agent to the NHAI, on the occurrence of an Event of Default and continuance thereof for six months but atleast 2 months prior to the anticipated date of substitution as aforesaid for the residual period of the Concession.

3.3 The Concessionaire hereby irrevocably agrees and waives any right to challenge the Senior Lender's decision to apply to NHAI for substitution as aforesaid and neither the Concessionaire nor NHAI shall be entitled to prevent the Lenders Agent from proceeding to seek such a substitution of the Concessionaire by Selectee as hereinbefore provided. The Concessionaire agrees and confirms that the Concessionaire shall not have any right to seek re-valuation of the Concessionaire's assets and the Concession Agreement including the Concession, otherwise than as contracted in the Financing Documents while the NHAI permits substitution as hereinbefore provided, pursuant to the Lenders Agent's request. The Parties acknowledge that the rights of the Senior Lenders hereunder are irrevocable and shall not be contested in any proceedings before any court of authority and the Concessionaire shall have no right or remedy to prevent, obstruct, injunct or restrain NHAI and/or the Senior Lenders from effecting or causing the substitution as aforesaid.

3.4 Where no suitable Selectee can be found by the Lenders Agent, or NHAI shall decide to take over the concession then NHAI shall advise the Lenders Agent of all steps it proposes to take under the Concession Agreement for determination of Termination Payments thereof.

3.5 (i) If NHAI decides to substitute the Concessionaire by any other person (NHAI Nominee), it shall take into account the Senior Lender's Dues while considering offers from such persons and shall include a suitable condition as agreed to by the Lenders Agent on behalf of the Senior Lenders for payment or take over of such dues by such NHAI nominee to the extent agreed by the Lenders Agent while substituting the Concessionaire by the NHAI nominee. The NHAI nominee shall similarly be bound to execute a supplementary/fresh substitution agreement on the same terms and conditions as provided herein.

(ii) Notwithstanding anything contained in Clause 3.4 and this Clause 3.5, NHAI shall not be required to take over, upon Termination of the Concession Agreement including the Concession, the liabilities representing the Lender's Dues save and except to the extent of Termination Payments due and payable upon such Termination under the Concession Agreement. In such an event NHAI's obligation shall be limited to assumption of such liabilities and payments of dues, as NHAI has agreed to bear under the Concession Agreement.

3.6 Nothing contained in these presents shall mean or be interpreted as provision of any guarantee or surety by NHAI and it is expressly agreed that NHAI has not provided any surety, guarantee or counter guarantee whether directly or indirectly for the recovery of amount of Financial Assistance advanced by the Senior Lenders to the Concessionaire.

ARTICLE 4

INTERIM PROTECTION OF SERVICE AND PRESERVATION OF SECURITY

4.1 In the event of the Senior Lenders notify NHAI and the Concessionaire of the Event of Default (and the Concessionaire has not cured the default for a period of 30 days) or in special circumstances affecting the security of the Senior Lenders, the Senior Lenders shall be entitled to institute protective legal proceedings for a receivership (the "Receiver") to maintain, preserve and protect the assets (other than the Concession Agreement including the Concession) held as security by the Senior Lenders provided always that such receiver shall be NHAI if such assets are in the opinion of NHAI necessary and required for the operation and maintenance of the Project Highway and the Parties hereby consent and agree to the same. The Lenders Agent shall in such an event notify NHAI to assume receivership of the assets held as security and NHAI shall operate and maintain the same pending the substitution of the Concessionaire by the Selectee. In the event NHAI does not assume receivership and declines the request of the Lenders Agent, the Lenders Agent shall for itself and each of the Senior Lenders, be entitled to seek the appointment of a Court Receiver for the Concessionaire's assets held as security and NHAI shall operate and maintain the same pending substitution as aforesaid and/or the takeover of the Concession Agreement including the Concession and the Project Highway in accordance with the Concession Agreement or this Agreement by the NHAI. All the receivables shall be deposited by the Receiver in the Escrow Account and shall be dealt with in accordance with the Concession Agreement. The Receiver shall be responsible for protecting the assets in receivership and shall render a true and proper account of the receivership to the Senior Lenders in accordance with the terms of its appointment. The Receiver shall make best efforts to operate and maintain the Project Highway, in accordance with the obligations of the Concessionaire under the Concession Agreement. Any person other than NHAI may be appointed as Receiver only with the prior consent of NHAI. In a declaratory suit for appointment of a Receiver, notwithstanding that no recovery or mortgage suit or any suit or proceeding for enforcement of the Senior Lenders' security under the Financing Documents is instituted by the Lenders Agent for itself or the Senior Lenders, any action for appointment of NHAI as Receiver or appointment of an Independent Court Receiver shall be without prejudice for the other rights and remedies of NHAI, and of the Senior Lenders under the Financing Documents.

ARTICLE 5

TERMINATION OF THE CONCESSION BY THE NHAI

5.1 If under the Concession Agreement an event occurs which shall entitle NHAI to Terminate the Concession Agreement, NHAI shall intimate the Senior Lenders prior to exercising of its decision to Terminate the Concession and advise the Senior Lenders to ensure the cure of the event which otherwise can result in termination of the Concession and the Concession Agreement. Such a notice shall entitle the Senior Lenders to cure any financial or other default of the Concessionaire within a period of two months from the date of the notice received from the NHAI failing which NHAI without any further notice to either the Concessionaire or the Lenders Agent/Senior Lenders, shall be entitled to Terminate the Concession Agreement.

5.2 Upon receipt of the Notice as referred to in Clause 5.1, intimating occurrence of an event which can entail Termination of the Concession Agreement including the Concession, the Senior Lenders shall be entitled to consider such notice as an Event of Default and may initiate steps to invite, negotiate and procure offers for the substitution of the Concessionaire by a Selectee in accordance with the procedure set forth in this Agreement.

ARTICLE 6

SENIOR LENDERS RIGHT TO RECEIVE TERMINATION PAYMENTS

6.1 NHAI and Concessionaire hereby agree, and confirm that without prejudice to any other right or remedy, NHAI shall be entitled to deposit the Termination Payments into the Escrow Account and the Senior Lenders shall be entitled to receive the same without any further reference to or consent of the Concessionaire under and in accordance with the Concession Agreement towards the satisfaction of the Senior Lenders Dues out of and limited to the sum of Termination Payments worked out under and in accordance with the Concession Agreement. The Senior Lenders shall be entitled to appropriate any consideration received for the substitution as hereinabove provided from the Selectee towards the payment of their and NHAI's respective dues to the exclusion of the Concessionaire.

6.2 The Concessionaire hereby nominates, constitutes and appoints the Lenders Agent as its constituted attorney for doing all acts, deeds and things as may be required to be done for the substitution of the Concessionaire by the Selectee pursuant hereto and for receiving consideration for discharge of the Lenders' Dues pursuant to Clause 6.1.

6.3 The Concessionaire hereby expressly authorises payment of sums by NHAI on account of Termination Payments into Escrow Account and the Lenders Agent to draw the same therefrom for and on behalf of the account of the Senior Lenders notwithstanding the pendency of any dispute or objection or claim that the Concessionaire may have against the Senior Lenders and/or NHAI. The deposit by NHAI into the Escrow Account and payment to the Senior Lenders directly or through the Lenders Agent in accordance with this Agreement,

made or caused to be made by NHAI shall constitute a valid discharge of its obligation of the payment thereof to the Concessionaire. All such payments shall stand charged to the Senior Lenders under the Financing Documents and shall be receivable by the Lenders Agent from the Escrow Account on behalf of the Senior Lenders to the exclusion of any receiver or liquidator appointed.

ARTICLE 7

GENERAL

7.1 The Parties hereto expressly represent and warrant that they are duly empowered to sign and execute this Agreement and the Lenders Agent is duly and fully authorised by each of the Senior Lenders to enter into this Agreement on their behalf.

7.2 Notices under this Agreement shall be sent to the Addresses first hereinabove mentioned. Any change in the address of any Party shall be duly notified by a Registered post acknowledgement due and delivered to the other Parties.

7.3 The expressions "NHAI", the "Concessionaire", the "Senior Lenders" and the "Lenders Agent" herein used shall unless there be anything repugnant to the subject or context includes their respective successors, legal representatives, and administrators and permitted assign.

7.4 This Agreement shall not be affected by reorganisation of any Senior Lender, Lenders Agent or NHAI and the successor – in interest of such Senior Lender, Lenders Agent or NHAI shall have the benefit of this Agreement.

7.5 No amendment, variation or modification to this Agreement shall be valid and effectual unless made in writing and executed by the duly authorised representatives of all the Parties hereto.

7.6 All stamp duties or other imposts and charges as are applicable on this Agreement or on amendment of the Concession Agreement or execution of fresh Concession Agreement for the purpose of substitution as aforesaid shall be borne by and be to the account of the Concessionaire. In the event of the Senior Lenders making such payment for the time being, it shall be deemed to be a part of the Lenders Dues.

7.7 The Parties hereby expressly agree that for the purpose of giving full and proper effect to this Agreement, the Concession Agreement and this Agreement shall be read together and construed harmoniously. The terms of this Agreement shall prevail in the event of any inconsistency with the Concession Agreement.

7.8 The consultation, recommendation or approval of the Lenders Agent under this Agreement shall always be taken as consultation, recommendation or approval of every concerned Senior Lender and each such Senior Lender shall be bound by the same and hereby waives its right to question or dispute the same.

7.9 This Agreement shall be in addition to and shall not be in derogation of the terms of the Financing Documents.

7.10 It shall not be necessary for the Senior Lenders or the Lenders Agent to enforce or exhaust any other remedy available to them before invoking the provisions of this Agreement.

7.11 Any dispute, difference or claim arising out of or in connection with or in relation to this Agreement which is not resolved amicably shall be decided finally by reference to arbitration to a Board of Arbitrators comprising of one nominee of each party to the dispute. Such arbitration shall be held in accordance with the Rules of Arbitration of the Indian Council of Arbitration and shall be subject to the provisions of the Arbitration and Conciliation Act, 1996. The arbitrators shall issue a reasoned award. The venue of such arbitration shall be New Delhi, India. The Award shall be final and binding on the Parties. The Parties agree and undertake to carry out the award of the arbitrators (the "Award") without delay.

This Agreement and rights and obligations of the Parties shall remain in full force and effect pending the Award in any arbitration proceeding hereunder. The Courts in New Delhi alone shall have jurisdiction over all matters arising out of or relating to the arbitration agreement contained herein or proceedings arising out of or relating to the arbitration proceedings thereunder.

IN WITNESS WHEREOF THE PARTIES HERETO HAVE SET THEIR HANDS HEREUNTO ON THE DAY, MONTH AND YEAR HEREINABOVE MENTIONED.

SIGNED AND DELIVERED ON BEHALF OF

_____LIMITED

BY: _____

Name:

Title:

SIGNED AND DELIVERED ON BEHALF OF THE
NATIONAL HIGHWAY AUTHORITY OF INDIA

BY: _____

Name:

Title:

SIGNED AND DELIVERED ON BEHALF OF

SENIOR LENDERS

BY: _____

Name:

Title:

PASSENGER CAR UNIT FACTORS

The equivalency factor for the conversion of different types of vehicles into equivalent Passenger Car Units (PCUs) based on their relative interference value shall be as per the following table:

Sl. No.	Vehicle Type	Equivalency factor**
Fast Vehicles		
1.	Motor Cycle or Scooter	0.50
2.	Passenger Car, Pick-up Van or Auto-rickshaw	1.00
3.	Agricultural Tractor, Light Motor Vehicle	1.50
4.	Truck or Bus	3.00
5.	Truck-trailer, Agricultural Tractor-trailer	4.50
Slow Vehicles ***		
6.	Cycle	0.50
7.	Cycle-rickshaw	2.00
8.	Hand Cart	3.00
9.	Horse-drawn vehicle	4.00
10.	Bullock Cart*	8.00

* *For smaller bullock-carts, a value of 6 shall be appropriate.*

** *Recommended PCU factors for various types of vehicles in accordance with IRC:64- 1990 on "Guidelines for Capacity of Road in Rural Areas"*

*** *While computing the Design service volumes and the capacity of highway, slow vehicles (of the table) shall not be considered since they would not be expected to use the main carriageway of the project highway.*

SCHEDULE-X

REPORTING AND RECORD REQUIREMENTS

1.0 INTRODUCTION

The reporting and records requirements spelt out herein under have been provided in terms of the type of information required. The Concessionaire and the Independent Consultant shall determine the following:

- Format of such reports and record requirements
- Software standards
- Number of Copies required
- The Language of the reports and records shall be English

2.0 Part I
Reporting Requirements

From the date of the Concession Agreement until the end of the Concession Period, the Concessionaire shall prepare and submit to the NHAI and Independent Consultant 1 copy each of the following reports/ Documents/ Drawings else otherwise stated in the Concession Agreement.

A. Design & Construction Stage

1 A detailed work plan supported with CPM/PERT charts for completion of all project activities related to the Project Highway, at the beginning of the Design Works.

2 **Monthly Progress Report**: within 5 Days of end of each month or a part thereof, which falls within the Construction Period, the Concessionaire shall provide to the NHAI and the Independent Consultant the monthly report, which shall at least identify the following:

- Working drawings submitted/ resubmitted to NHAI/ Independent Consultant during the month ended
- NHAI/ Independent Consultant's comments there on, if any.
- Concessionaire's compliance with NHAI/ Independent Consultant's comments on the drawings submitted to NHAI/ Independent Consultant, during the month ended.
- "As built" drawings submitted to NHAI/ Independent Consultant during the month ended.
- Progress of pre-construction activities such as utility relocation and other obstructions.

- Concessionaire's compliance with the Inspection Report during the month ended, if any.
- Construction Constraints.
- Progress data with 'S' curves, if applicable; Project Data with contract detail and sectional completion details.
- Tests carried out during the month ended, if any; results of these Tests furnished to the NHAI/ Independent Consultant during the month ended, if any.
- Remedial measures taken by the Concessionaire on the basis of these Tests, if any.
- Traffic management steps undertaken by the Concessionaire during the month (particularly on the existing two lanes of the Project highway).
- Achievement of a Project milestone (Schedule H) during the month, if any. The Concessionaire shall also provide information on delay in achievement of such milestone, if any.
- Any suspension of the Construction Works by NHAI as per provisions of the Concession Agreement, if any. The Concessionaire shall also provide information on reason of such suspension, duration of such suspension and the steps undertaken by it to revoke such suspension.
- Any Change of Scope Notice issued by NHAI and status thereof.
- All actual or potential departures from the Project Completion Schedule (Schedule H).
- All grounds for a substantial Dispute, which has occurred, or which may reasonably be foreseen as likely to occur.
- All substantial disagreements among the Concessionaire, and the NHAI and/or Independent Consultant to the design/ construction of the Project Highway.
- The proposed measures to be taken by the Concessionaire to overcome such departures or to resolve such grounds for a Dispute.
- The date on which the Concessionaire expects the Project Highway to be completed.
- The Concessionaire is required to maintain the existing two lanes during the Construction Period. This monthly construction report shall also contain information in respect of maintenance activity, if any, carried out by the Concessionaire during the month ended in respect of these existing two lanes. The Concessionaire and the Independent Consultants shall agree on the information requirements in respect of these two existing lanes during the Construction Period.
- Monthly Weather Report giving daily temperature maximum and minimum value; rainfall and any other significant event.

3 Detailed Engineering Design Report including working drawings, and Environmental Management Plan.

4 Video Recording as per clause 47.1 of the Concession Agreement.

5 Monthly Escrow Account Report: within 5 Days of end of each month, which falls within the Operations Period, the Concessionaire shall provide to the NHAI and the Independent Consultant a copy of the report containing the summary of the receipts in and payments from the Escrow Account for the month ended.

6 The Concessionaire shall supply to the NHAI free of charge the following documents prior to requesting the issue of the Completion Certificate:

- Detailed, accurately scaled, and sequentially numbered plans of the Project Highway "As Built" covering all relevant engineering features, which in relation to structures shall also include cross sections in each plane; and
- Copies of all geo-technical and borehole reports obtained by the Concessionaire in preparation for and during the construction of the Project Highway.

7 All other reports in accordance with the provisions of the Concession Agreement.

8 Such other reports as may be reasonably required by NHAI/ Independent Consultant.

9 Additional Reports: The Concessionaire shall supply to the NHAI free of charge copies of all information, records and test results (including any interpretation of such test results) resulting from any ground, physical or geophysical investigation or archaeological or ecological survey of the Site or Adjacent Areas.

B. <u>Operation Phase</u>

1 Monthly Traffic Report: within 5 Days of end of each month which falls within the Operations Period, the Concessionaire shall provide to the NHAI and the Independent Consultant a copy of the report containing the following information:

- Total traffic count by mode for each day of the month; and
- Tollable traffic count by mode for each day of the month.

2 Monthly Escrow Account Report: within 5 Days of end of each month, which falls within the Operations Period, the Concessionaire shall provide to the NHAI and the Independent Consultant a copy of the report containing the summary of the receipts in and payments from the Escrow Account for the month ended.

3 Monthly Operations Report: within 5 Days of end of each month or a part thereof, which falls within the Operations Period, the Concessionaire shall provide to the NHAI and the

Independent Consultant a copy of the report, which shall identify the following, at the minimum:

- Inspections undertaken by the Concessionaire during the month ended, if any.
- Maintenance Reports submitted to the Independent Consultant during the month ended, if any.
- O&M Inspection Compliance Report submitted to NHAI/ Independent Consultant during the month ended, if any.
- Preventive/ Periodic maintenance undertaken during the month ended, if any.
- Any material modifications made to the Project Highway during the month ended, if any.
- All the accidents or incidents on the Project Road during the month under report (including all accidents on which a report has previously been made to the Concession Agreement).
- Tests performed during operation and maintenance stage along with the defects identified on the Project Highway, if any.
- Number and type of the complaints received from users and others in respect of the Project Highway and the conduct of Operations.
- Incidents of emergency de-commissioning of the Project Highway during the month ended, if any.
- Incidents of lane-closure on the Project Highway during the month ended, if any. The Concessionaire shall provide information on reason, time of such lane-closures.
- All actual or potential departures from the O&M Requirements as specified in 'Schedule L'.
- All grounds for substantial Dispute, which has occurred or may reasonably, is foreseen as likely to occur.
- The proposed measures to be taken by the Concessionaire to overcome such departures or to resolve such grounds for a Dispute.

4. An annual report on the working of the toll collection system. This report will provide information on method of toll collection (semi-automatic, automatic, etc.), usage of pass system (manual, electronic, etc.), average time taken in toll-collection, Concessionaire's suggestions on improvements in the toll-collection system, which would be considered by NHAI appropriately.

5. Accident Reports: As soon as practicable and in any event no later than 7 days following the occurrence of any accident on the Project Highway involving a fatality or serious personal injury or substantial property damage, the Concessionaire shall investigate the circumstances of such accident and submit to the NHAI and Independent Consultant a

report setting out details of such accident and, to the extent they are known, the causes of such an accident, and the Concessionaire shall thereafter promptly report to the NHAI and/or Independent Consultant any additional details of such accident or its causes which become known to it.

6. Concessionaire shall submit a copy of the audited accounts within 120 days of the close of each Accounting Year after the Appointed Date.

7. All other reports in accordance with the provisions of the Concession Agreement.

8. Such other reports as may be reasonably required by NHAI/ Independent Consultant.

9. Additional Reports: The Concessionaire shall supply to the NHAI/Independent Consultant free of charge copies of all information, records and test results (including any interpretation of such test results) resulting from any ground, physical or geophysical investigation or archaeological or ecological survey of the Site or Adjacent Areas.

3.0 Part II

Record Requirements

The Concessionaire shall take the following action(s) in respect of preparation of the record, its submission to NHAI and retention by the Concessionaire itself.

1.	Design	Retention Period of the Concessionaire
1.1	Design standards containing all relevant design assumptions, codes of practice, design loadings, design parameters and product data sheets for all components of Project Highway.	Till handover to NHAI at Termination of the Concession
1.2	Full set of final design calculations for all parts of the Project Highway including details of the influence on design of actual construction methods, and any changes or any remedial works during construction.	Till handover to NHAI at Termination of the Concession
1.3	Full set of working drawings	Until 2 years after issue of the Completion Certificate
1.4	Full specification for construction and all revisions made thereto.	Until 2 years after issue of the Completion Certificate
1.5	Change of Scope Order(s)	Till handover to NHAI at Termination of the Concession
2.	Construction	Retention Period of the Concessionaire
2.1	Video recording submitted to NHAI	Until 2 years after the issue of Completion Certificate
2.2	Full set of construction site records relating to progress, testing of materials, monitoring of standards of workmanship, meteorological conditions, instructions issued and other site correspondence.	Till handover to NHAI at Termination of the Concession
2.3	Full set of "As-Built" drawings and schedules incorporating all changes to the design and all remedial measures applied to the Project Highway during construction, and all final As-built details and dimensions of the Project Highway. These drawings shall include permanent modifications made to suit the construction method.	Till handover to NHAI at Termination of the Concession
2.4	Full set of Tests results	Till handover to NHAI at Termination of the Concession
2.5	The appropriate proprietary rights, licenses, agreements and permissions for materials, methods, processes and systems used or incorporated into the Project Highway.	Till handover to NHAI at Termination of the Concession
2.6	Monthly Progress Reports	Till handover to NHAI at Termination of the Concession.

3.	Operations and Maintenance	Retention Period of the Concessionaire
3.1	Full records of all incidents, which affect the operation and/or maintenance of the Project Highway including traffic accidents.	Till handover to NHAI at Termination of the Concession
3.2	Full records of inspections and surveys and results of such inspections and surveys (including photographs where applicable).	Till handover to NHAI at Termination of the Concession
3.3	Details of all repairs to the Project Highway and/or replacement, including photographs. As-built drawings and other documentary records.	Till handover to NHAI at Termination of the Concession
3.4	Full sets of all Monthly Reports	Till handover to NHAI at Termination of the Concession
3.5	Adequate records of adverse meteorological conditions.	Till handover to NHAI at Termination of the Concession
3.6	Records of landscape planting.	Till handover to NHAI at Termination of the Concession
3.7	Schedule and strip plan of grassed areas with details of the Routine Maintenance required in the normal course.	Till handover to NHAI at Termination of the Concession
3.8	Record of all permanent traffic signs on the Project Highway.	Till handover to NHAI at Termination of the Concession
3.9	All traffic (both total and tollable) count for each day of the Operations Period	Till handover to NHAI at Termination of the Concession
3.10	Record of daily toll collection at each toll plaza	Till handover to NHAI at Termination of the Concession
3.11	All financial and accounting records to be maintained as per Applicable Laws	Till handover to NHAI at Termination of the Concession
3.12	Encroachment particulars and details	Till handover to NHAI at Termination of the Concession

4. All other records in accordance with the provisions of the Concession Agreement.

5. Additional Requirements

5.1 When there is a conflict between the Reporting and Record Requirement of Schedule 'X' and a requirement in respect of this stated elsewhere in this Agreement, the latter shall take precedence.

5.2 The requirements set out in Reporting and Record Requirements of this Schedule 'X' indicate the minimum requirements to be complied with but are not limited to else only.

5.3 Availability of Records shall be as follows:

- All records of operational aspects of the record keeping system shall be retained.
- Operations' Records shall be systematically and periodically up-dated and filed so as to be readily retrievable.

- All records which have been superceded but are still of historical, contractual or legal importance shall be retained and filed systematically so as to be available anytime.

- Texts of all documents shall be prepared and recorded using agreed software systems and retained in hard form and on diskette, with full back-up diskettes available in case of diskette corruption.