



# **Final Environmental and Social Due Diligence Report**

Nagpur Bypass

18 August 2019



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# Issue and Revision Record

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# 1 Introduction

## 1.1 Background

Mott MacDonald Private Limited (“MMPL”) was commissioned by Oriental Structural Engineers Pvt Ltd (hereinafter referred to as “Client” or “OSEPL”) to undertake an Environmental and Social Due Diligence (ESDD) of the Project Road for evaluating an investment opportunity. The Project highway comprises of four laning from Madhya Pradesh-Maharashtra Border of Nagpur section of NH – 7 including construction of Kamptee – Kanhan and Nagpur bypass and maintenance of already 4-laned section from km 14.584 to km 36.600 of NH – 7 (Nagpur-Hyderabad Section) (Project Road) in the state of Maharashtra.

Oriental Nagpur Bypass Construction Pvt. Ltd “ONBCPL” was incorporated as a Special Purpose Vehicle (SPV) for Operation & Maintenance work of NH-7 from MP/MH border to Nagpur, from Km 652- Km to 729 of NH 7 including construction of Kamptee - Kanhan and Nagpur Bypass and including maintenance of already four lane section of NH -7 from KM 14.585 to KM 36(Nagpur-Hyderabad Section) on DBFOT toll basis. ONBCPL was awarded the project and entered into a Concession Agreement (CA) with National Highways Authority of India (hereinafter referred to as “NHA”) in April 2010.

## 1.2 Objectives of the study

The objectives of the assignment are to independently evaluate the project road with respect to Environmental, Social and Health and Safety status and IFC performance standards to identify compliance gaps, issues, improvement opportunities, and develop a detailed time bound mitigation/follow-up Environmental and Social action plan to ensure compliance to the applicable reference framework requirements. The key objectives of the assignment are:

- To categorize the project as Category 1, 2 or 3 as per the screening criteria of IFC applicable to the Project, to determine the screening requirement applicable to the project;
- Assessment & Verification of Project and its key components and aspects vis-à-vis with the requirements and guidelines of the applicable reference framework and good international industry best practices (GIIP);
- Undertake the ESDD in line with the reference framework requirements, which may, where applicable, include reviewing the adequacy of:
  - The ESIA process, including the Environmental and Social Impact Assessment (ESIA), the Environmental and Social Management Program and Monitoring Program (ESMP) to the extent available including Social Impact Assessment (SIA) and Resettlement Action Plan (RAP), if appropriate.
  - The Environmental and Social Management Systems of the Project/SPV in intended to manage E&S risks and impacts on an ongoing basis in accordance with the provisions of the reference framework, reviewing whether capacity and management structures are adequate or not and in place to manage environmental and social risks and impacts. In the event of the Project following the owner’s Company/Sponsor’s E&S systems, the same to be assessed.
- Reviewing the adequacy of proposed designs, measures and budgets, and recommending where required and additional actions as necessary.
- Reviewing the proposed monitoring systems and suggesting amendments as necessary.

- Based on the assessment, providing a detailed evaluation on compliance with the reference framework.
- Developing a detailed and time bound Action Plan with follow-up and implementation plan details, parameters and outcome indicators to judge compliance to IFC Performance Standards and the Equator Principles requirements.

### 1.3 Scope of Work

The scope of work for the ESDD involves an independent verification of all environmental and social aspects of the Project, within the reference framework. This includes the following:

- Review of the environment, health and safety and social management systems of the project proponent, i.e. the SPV and Operation and Maintenance (O&M) Contractor along with the role and influence of regulatory authorities;
- Assessment of the road corridor along with all associated facilities such as toll booths, control rooms, any labour/staff accommodation, onsite maintenance units and set-ups etc;
- Status of environmental clearances, no objection certificates and applicable permits, particularly conditions that apply during the operation phase of the project;
- Consultations with the community in the immediate vicinity and adjacent to the right of way (ROW) of the road as well as any directly impacted land owners during the right of way acquisition;
- Consultations with all direct SPV and O&M employees engaged in the site offices and toll road operations along with the contracted agencies and their workers;
- Review the land acquisition process/ resettlement and rehabilitation undertaken for the project;
- Review the labour working conditions on site; and
- Review the compliance of the project with legislative requirements including the domestic requirements.

### 1.4 Approach and Methodology

To carry out the above scope of work, Mott MacDonald has followed the following approach and methodology:

**Table 1: Preliminary Screening of Assessment Criteria and Approach**

S. No.	Assessment Criteria	Requirements	Approach
1	Litigation and Arbitration	Outstanding litigation and arbitration or notice by regulatory authority related to environmental impact, land / RoW acquisition, labour working condition, Occupational Health and Safety (OHS), and Community Health and Safety (CHS)	This aspect was assessed through the discussion with project in charge and Project Director, NHAI, local community, concessionaire and available documents if any.
2	Other Risk	Stakeholder concerns expressed in public domain, grievance mechanism, protest or civil action related to environmental impacts, RoW acquisition, labour condition, OHS and CHS	This aspect was evaluated through discussion with the site staff of concessionaire, PD, NHAI, labours, local people and stakeholders. Review of project EIA/EMP and SIA reports. Media Reporting to be searched from Google and other forms. Other risk of earthquake, flooding, epidemic, terrorism and vandalism was evaluated during site visit and discussion with stake holders,
3	Assessment and Management of	Status of Environmental and Social Management System (ESMS) with respect to IFC Performance Standard (PS) and World Bank Group (WBG)	This aspect was reviewed through site visit of entire corridor, review of available document including environmental management manual,

S. No.	Assessment Criteria	Requirements	Approach
	Environment and Social Risks and Impacts	Environmental Health and Safety (EHS) guidelines.	SOPs, as well as documents available on internet, discussion with staff of ONBCPL
4	Land and Resettlement issues	Risk related to Land and pending R&R related cases before the court and gaps with respect to IFC PS 5.	Review of land records available at site, discussion with PD, NHAI, staff of ONBCPL, local community,
5	Stakeholder/Community Engagement	Status of stakeholder engagement plan and its status of compliance with IFC PS.	Thorough discussion with those potentially encroaching the corridor, discussion with community along the corridor, PD, NHAI. Review of operational phase community engagement plan of concessionaire
6	Grievance Mechanism	Status of Grievance Redress System (GRS) and its adequacy and effectiveness.	Assessment of existing Grievance Redressal Mechanism, including existing complaints by staff, labours, community, road users at toll and site office. Also enquired this with local community during the site visit.
7	Health & Safety	Health and Safety Management system and status of its performance, adequacy, effectiveness, and performance.	Review of site specific O&M manual prepared by ONBCPL and company level Environmental and Management Manual and discussion with maintenance team at ground.
8	HR/ Contractor Management	Status of HR / Contract Management System and its compliance with IFC PS 2.	Review of existing documents, HR-SOPs, Insurance Policies, PF challans
9	Pollution Prevention	Status of measures adopted to mitigate impacts on air / water / noise / vibration and compliance with respect to IFC PS 3 and WBG EHS guidelines.	Review of EIA/EMP reports, compliance reports submitted, review of mitigation measures implemented, review of corporate policies, and review of monitoring reports.
10	Natural Habitats	In case the project involves forest land, protected areas, coastal area or wetlands, then status of critical habitat and its compliance with IFC PS 6 needs to be reviewed.	Review of EIA report, review of forest department communications and site visit.
11	Indigenous peoples, tribes, and communities	In case the project involves land having Indigenous People (IP), status of compliance with IFC PS 7 needs to be reviewed.	Thorough review of EIA reports, available land acquisition documents, RAP, consultation with PD, NHAI, site staff, local community
12	Cultural Heritage	In case cultural heritage sites are identified in the project, then status of compliance with IFC PS 8 needs to be reviewed.	Through review of EIA, RAP, site visit, consultation with NHAI and other stakeholders.

## 1.5 Category of Project

IFC categorises, road projects into the following three types:

Category 1 – Operating Roads for two years or more,

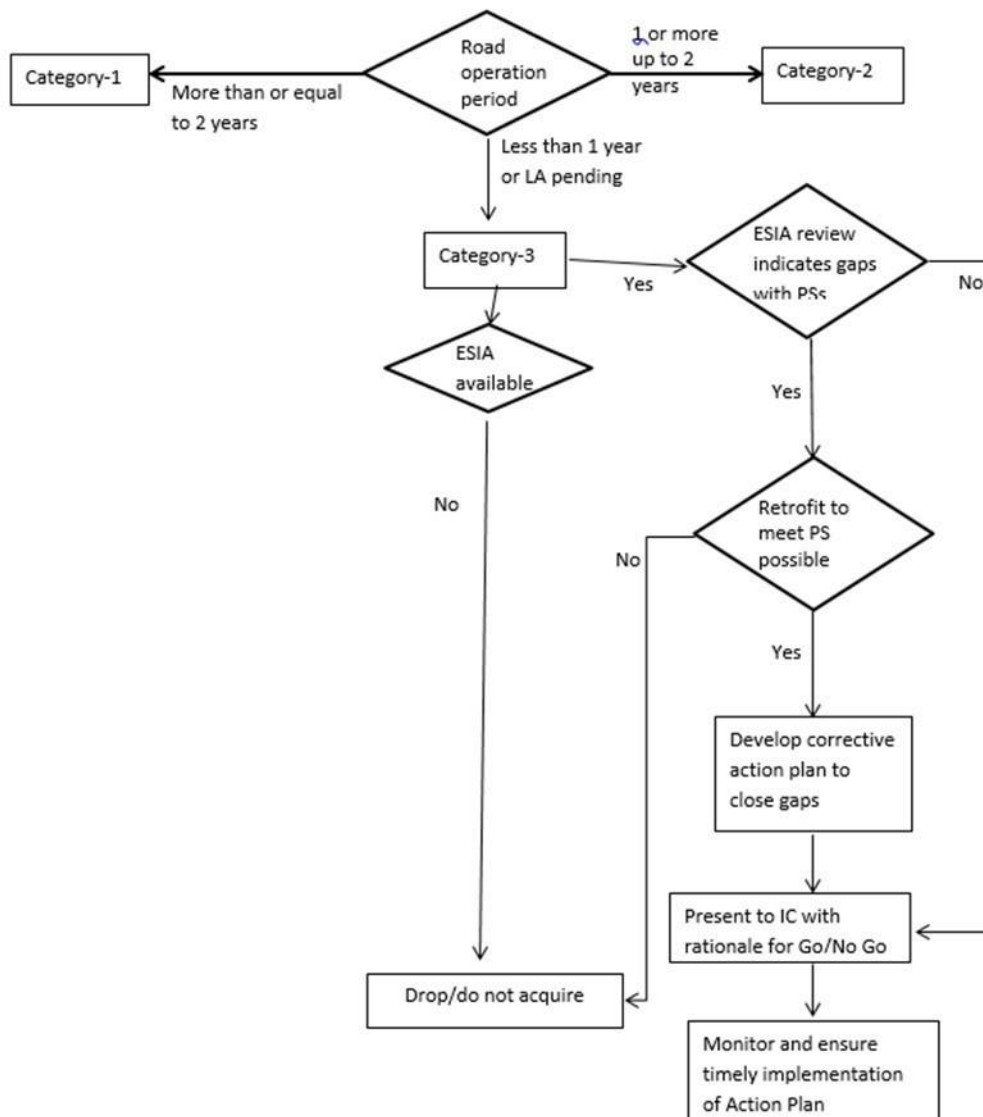
Category 2 – Operating Roads for more than one year and less than two years, and

Category 3 – Operational for less than one year or where there is any pending land acquisition

### 1.5.1 Decision on Category-1 Roads:

The decision flow chart for the operational roads for Category-1 roads is provided in Figure-1.1 below. The environmental and social impact assessment reports are reviewed to identify the gaps vis-à-vis IFC PS requirements, a corrective action plan (ESAP) is prepared to fulfil the gaps identified.

**Figure 1.1: Decision Flow-chart for Category-1 Operating Roads**



Source: OSEPL

**Decision on Category-2 Roads:**

The decision for Category-2 roads follows the same path as that of Category-1 with following additional steps:

- If issues like litigation or other risks are high, the Company may like to review evidence of Informed Consultation and Participation (ICP) process to inform its decision. If significant gap with respect to IFC requirements established, then drop the asset/do not acquire.
- If issues like litigation or other risks are high, the Company may like to undertake procedures akin to Broad Community Support (BCS) for the project to inform decision. If Company is unable to establish BCS, escalate to Board with rationale for go/ no go recommendation.
- Review status of implementation of the R&R Plan for all assets that have been in operation one or more years and up to two years.

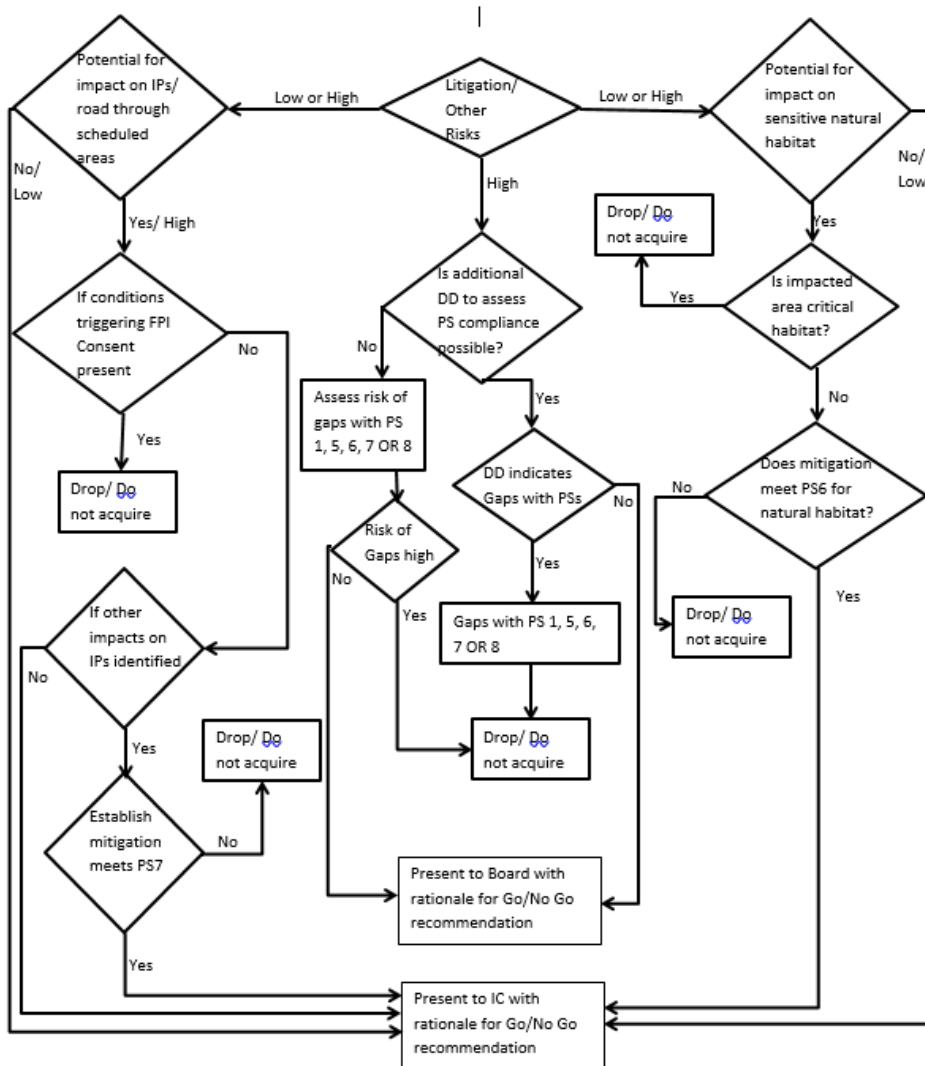
- Resettlement Completion Audit may be requested on a case by case basis.
- If other adverse impact on IPs established, Company needs to ensure that consultation meets ICP requirements.
- The Company needs to review status of implementation of all mitigation measures for IPs.

**Decision on Category-3 Roads:**

The decision flow chart for the operational roads for Category-3 roads is provided in Figure 1.2 below. For Category-3 roads, three key criteria are screened, i.e., (i) potential for impact on IPs, (ii) litigation/other risks, and (iii) potential for impact on sensitive natural habitat. If the project road was identified to have impacted a critical habitat or conditions triggering FPIC present, then the investment is dropped.

If the project road is identified to have high litigation and other risks, then the gaps with respect to IFC PS-1,5,6,7 and 8 are identified during ESDD and a suitable ESAP is prepared.

**Figure 1.2: Decision Flow-chart for Category-3 Operating Roads**



Source: OSEPL

### 1.5.2 Site Assessment

As a part of this ESDD assignment, a site visit was undertaken between 9<sup>th</sup> to 12<sup>th</sup> January 2018 by consultant's environmental and social specialists to assess

- The current status of the project with respect to its completion.
- Punch list items.
- Review of Right of Way (RoW).
- Review of implementation of the policies and procedures on site;
- Assess if any encroachment cases have been identified along the RoW land acquisition and R&R.
- Assess the status of compliance to be permitted conditions along with review of supporting documents.
- Assess the adequacy of the roles and responsibilities of the personnel handling environmental and social risks and impacts.
- Consultations undertaken with direct and indirect stakeholders of the project.
- Identify gaps in compliance of labour regulatory requirements.
- Assess if the road asset is passing through any scheduled areas, critical natural habitat; and
- Including evaluation of the adequacy of mitigation measures implemented for impacts from air and/or noise in accordance with the IFC Performance Standards.

### 1.5.3 Preparation of Report

Based on the observations made during the site visit, information gathered from the meeting held during the site visit and review of the documents collected, a preliminary summary report containing the principal findings was prepared after the site visit. The report highlights red flag environment and social issues that were identified during the review. After discussion on preliminary summary of principal findings with the borrower the draft detailed ESDD Report is prepared and submitted based on the framework provided in the terms of reference.

## 1.6 Limitations and Data Gap

ESDD has been undertaken based on the documents provided by the Oriental Structural Engineers and site visit and visual inspection of the facilities, stakeholder consultations undertaken and discussion with the site representative at the time of site assessment and information available in public domain. The specific limitations are given below.

- Litigations and arbitration are limited to project affected people due to land acquisition (RoW) and Forests.
- There were 42 arbitration cases filed and all these arbitration cases have been resolved as per the order of arbitration. The records and copies of the cases were not made available for review.
- EIA report was not available for review and baseline data was also not available.
- RAP received for review was in two parts and was limited to a stretch of 21 km and 36 km respectively. The RAP of remaining stretch was not made available during site visit and review;
- The land acquisition for the project was carried out by NHAI for four laning. The process is reported to be completed and the detail database was not available to MMPL for review. Hence, the status of the land acquisition process is reported as per consultation with NHAI PD and summary statement provided by NHAI office and related documents shared by OSE from the sources available to them.

- Information on physical displacement and forced eviction is obtained from consultation with NHAI, OSEPL, and limited community consultation;
- The details on the number of physically displaced were not available for review with NHAI, however, the details of the determination of compensation for land and structures were available for review;
- The community consultation records during the land acquisition process was not available to MMPL for review;
- EHS training to staff and workers were reported to be carried out, however their records were not available for review;
- A sub-contractor has supplied labours for construction work. This information was provided during the site visit. The documents of sub-contract were not made available for review;
- The annual environment monitoring is carried out by NHAI for the project road corridor. However, these reports were not available to MMPL for review;
- The records in the CALA office was not specifically compiled for the project and hence, no information could be obtained;
- No data of non-titleholders were provided for the review;
- MMPL has provided its understanding of compliance to applicable EHS and labour laws, rules and regulation. However, the review should not be constructed as a legal review;
- Litigations and arbitration are limited to project affected people due to land acquisition (RoW) and Forests.
- EIA report was not available for review.

## 2 Project Description

### 2.1 Project description

The ESDD study has been conducted for the Project highway comprising four laning from Madhya Pradesh-Maharashtra Border of Nagpur section of NH – 7. This project includes construction of Kamptee – Kanhan and Nagpur bypass and maintenance of already 4-laned section from km 14.584 to km 36.600 of NH – 7 (Nagpur-Hyderabad Section) in the state of Maharashtra.

The highway construction package for the project includes upgrading the existing two-lane carriageway to a four-lane dual carriageway configuration including strengthening of existing two lane carriageway from km 652.00 (new km 653.225) to km 704.227 (length 52.227 km). The segment also includes construction of new four lane bypass of length 42.836 km long, where the first segment is 21.236 km long Kamptee – Kanhan bypass emanating from km 704.227 of NH – 7 joins NH – 6 at km 542.800 and the second segment is 21.6 km being Nagpur bypass taking off at km 542.800 of NH – 6 (end of Kamptee - Kanhan bypass) and joins NH – 7 at km 14.585 of NH – 7 (Nagpur Jabalpur section) south of Nagpur. This also includes maintenance of previously 4 lane section from km 14.585 to km 36.600 of NH – 7. This makes the total length of the project highway as 117.078 km.

The Project highway section from km 652.000 to km 689.450 covering a total length of 37.450 km falls in Ramtek Taluk in Dist. Nagpur and land-use pattern in this section of the Project highway is mostly forest and agricultural land. The length of various stretches of the project road is presented in the table below

**Table 2: Description of Project Road Length**

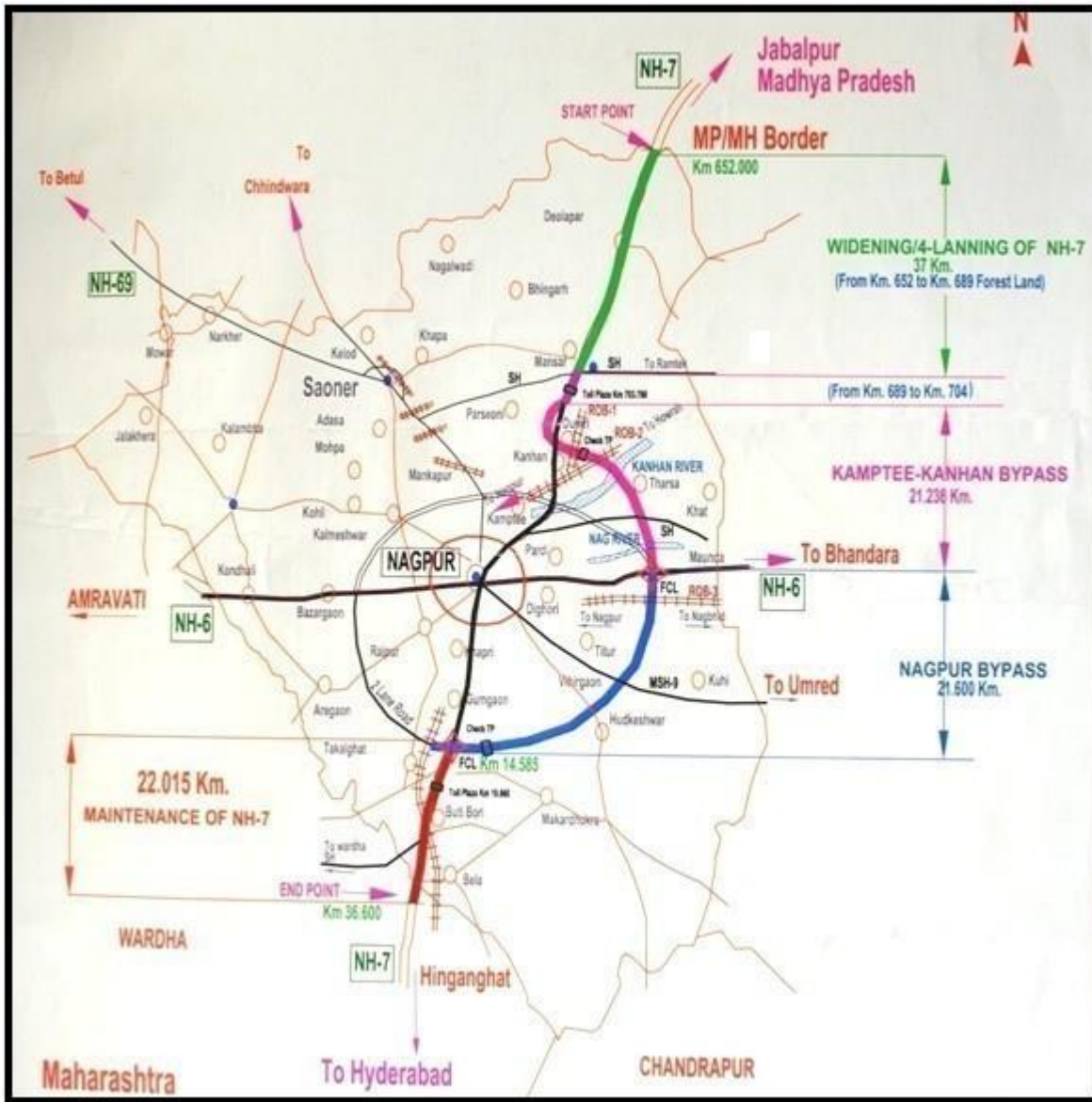
Section of the Project Road	Length in Km
Length of existing road to be upgraded to 4 lane	52.227
Length of Kamptee – Kanhan Bypass	21.236
Length of Nagpur Bypass	21.600
Length of already 4-laned section for maintenance	22.015
Total Project Highway Length	117.078

Source: Concession Agreement

### 2.1.1 Project Highway Location Map

The location map of the project highway is presented in the figure below.

**Figure 3: Project Highway Location Map**



Details of Pre-widening and Post-widening ROW is as indicated in the table below.

**Table 3: Pre and Post Widening ROW**

Project Road or chainage	Length	Pre- widening ROW	Post widening ROW
Length of existing road to be upgraded to 4 lane 37+450 km Forest Section	37.000 km	15.00 M to 45.00 M	30 M To 60 M
Length of existing road to be upgraded to 4 lane 14+777 km.	15.227 km	30.00 M to 45.00 M	60 M

Project Road or chainage	Length	Pre- widening ROW	Post widening ROW
Length of Kamptee – Kanhan Bypass	21.236 km	New Alignment	60 M
Length of Nagpur Bypass	21.600 Km	New Alignment	60 M
Length of already 4-laned section for maintenance	22.015 Km	30.00 to 45.00 m	45 M
Total Project Highway Length	117.078 km.		

Source: ONBCPL

The Concession Agreement (CA) for the project was signed on 5<sup>th</sup> October 2009 between NHAI and Oriental Nagpur Bypass Construction private limited. The construction work envisaged in the concession agreement is briefed below:

- Construction of paved carriage way is defined as 17.50 m wide excluding the median.
- Kamptee-Kanhan Bypass from Design chainage from Km 704.227 of NH-7 to Km 542.800 of NH-6 for a total length of 21.236 Km.
- Nagpur Bypass from design chainage Km 14.585 of NH-7 to Km 542.800 of NH-6 for a total length of 21.600 Km.
- Total length of service road proposed is 72.855 Km
- Major intersections proposed are 16 Nos.
- Minor junctions proposed are 43 Nos.
- Grade separated intersections proposed are 11 Nos.
- Vehicle underpass proposed are 6 Nos.
- Pedestrian Underpass 2 Nos. and Cattle Underpass 5 Nos.
- Major bridges are 2 Nos of new construction and 1 No. rehabilitation/repair/ widening of existing major bridge.
- Minor bridges proposed are 20 Nos.
- Culver reconstruction and proposed new culverts are in total 132 Nos.
- ROB proposed are 3 Nos.

Project facilities to be developed as part of the Project highway defined in Schedule C of the CA are as follows:

- Integrated Toll Plaza 2 Nos.
- Road side furniture shall include traffic signs and pavement marking, Concrete crash barrier, metal beam crash barrier, separators, traffic safety devices, boundary stone, hectometre/kilometre stones and traffic blinker signal.
- Pedestrian facilities shall include guard rails, footpath and lighting.
- Landscaping to be done on the median, grade separated intersections, entry and exit ramps, at grade islands of intersection location and Toll Plaza area.
- Highway lighting using high mast light and solar lighting for minor junctions.
- Highway patrol, ambulance and cranes in adequate number.
- Truck Lay-bye 1 No.
- Bus Bays at 31 locations.

Detailed project description is as indicated in the table below.

**Table 4: Brief Project Description**

Particulars	Details
Project Description	4 Laning of Madhya Pradesh / Maharashtra border Nagpur section of NH-7 from km 652.000 (new km 653.225) to km 729.000 including construction of Kamptee - Kanhan and Nagpur bypass and maintenance of previously 4 laned section from km 14.585 to km 36.600 of NH 7 in the state of Maharashtra under National Highway Development Programme
Length	117.078 km
Type of PPP	Design Built Finance Operate and Transfer (DBFOT) basis
Name of the Existing Concessionaire	Oriental Nagpur Bye Pass Construction Pvt Ltd.
Name of EPC Contractor	Oriental Structural Engineers Pvt Ltd.
<b>Key dates</b>	
Letter of Award	27.08.2009
Signing of CA	05.10.2009
Financial Closure Date	27.03.2010
Appointed Date	03.04.2010
Provisional COD	11.06.2012 (Km 689.450 to 747.100 and Km 14.585 to 36.600for maintenance)
Provisional COD	13.08.2018 (33.700 km vide letter no CEG/DL/114/2018/361 dated 13.08.2018)
Commercial Operation Date (COD)	11.07.2012 (Borkhedi / Mansar – 10.11.2012) (Km 689.450 to 747.100 and Km 14.585 to 36.600for maintenance)
Completion Certificate of 117.078 km	19 <sup>th</sup> March 2019 vide letter no CEG/DL/114/2019/416
Toll Start Date	18.07.2012
EPC Signing Date	05.12.2009
Concession Period	27 years (from Appointed Date)
Concession Period End Date	02.04.2037
<b>Project configuration and key development works</b>	
Pavement type	- 4 lane divided carriageway with raised median (km 95.063) - Service road of 7 m width (72.855Km BHS)
Width	17.5 m paved carriage way excluding median
RoW	60 m (except for the section falling in forest area where Wild Life Institute of India has recommended 30 m ROW)
Lanes	4 lanes
Service Road	Service road length 72.855 km
Bypass	- Kamptee – Kanhan bypass; Existing ch.km 704+000 to ch.km 729+000; Design ch.km 704+227 to ch.km 542+800; length 21.236 - Nagpur bypass; existing ch.km 704+000 to ch.km 729+000; design ch.km 14+585 to ch.km 542+800; length 21.600 km
Intersection / Junction	- 43 Nos. of minor junction - 16 Nos of major junctions
Clover leaf	2 Nos. (at ch.km 0.000 and at ch.km 21+600 of Nagpur bypass )
Major bridges	<ul style="list-style-type: none"> <li>● 1 No. of existing Major Bridge</li> <li>- (Kanhan Bridge km 709.500), width 6 m, span and length 333.60 m (12 x 27.80)</li> <li>● 2 Nos. of new Major Bridge</li> <li>- Bridge across river Kanhan; Bridge no. 8/1 km 7.90; 2 x 2 lane; PCC girder and RCC slab; span 10 x 36.70m + 2 x 36.02 m</li> <li>- Bridge across river Pora; km 16.720; 2x2 lane; T beam and RCC slab; proposed span 5 x 18 m.</li> </ul>
Minor bridges	● 18 Nos. of existing Minor Bridge

Particulars	Details
	<ul style="list-style-type: none"> <li>- Nalla; Bridge no. 654/2; existing ch.km 653+800; design ch.km 653+866; span and length 1 x 10 m.</li> <li>- Nalla; Bridge no. 658/1; existing ch.km 657+300; design ch.km 657+495; span and length 1 x 7.6 m.</li> <li>- Toria River; Bridge no. 658/2; existing ch.km 657+900; design ch.km 658+118; span and length 3 x 11 m.</li> <li>- Sawarapool river; Bridge no. 661/1; existing ch.km 660+500; design ch.km 660+634; span and length 3 x 8 m.</li> <li>- Potamba River; Bridge no. 661/2; existing ch.km 660+700; design ch.km 660+903; span and length 1 x 10.5 m + 2 x 7 m.</li> <li>- Bharwadi River; Bridge no. 662/1; existing ch.km 661+050; design ch.km 661+274; span and length 1 x 10.0 m + 2 x 7 m.</li> <li>- Arunagun River; Bridge no. 668/2; existing ch.km 667+850; design ch.km 668+161; span and length 3 x 9.0 m.</li> <li>- Nalla; Bridge no. 669/1; existing ch.km 668+650; design ch.km 668+908; span and length 1 x 7 m.</li> <li>- Sawarin River; Bridge no. 670/1; existing ch.km 669+850; design ch.km 670+203; span and length 2 x 12.10 m.</li> <li>- Bharwadi River; Bridge no. 672/1; existing ch.km 671+405; design ch.km 670+203; span and length 3 x 9.8 m.</li> <li>- Nalla; Bridge no. 672/2; existing ch.km 677+850; design ch.km 672+067; span and length 1 x 7.5 m.</li> <li>- Nalla; Bridge no. 678/2; existing ch.km 677+400; design ch.km 677+625; span and length 1 x 7.5 m.</li> <li>- Mararwadi River; Bridge no. 680/3; existing ch.km 679+950; design ch.km 680+075; span and length 3 x 8 m.</li> <li>- Pathpathia Pool River; Bridge no. 682/1; existing ch.km 681+200; design ch.km 681+450; span and length 2 x 7.65m + 1 x 8 m</li> <li>- Nalla; Bridge no. 684/1; existing ch.km 683+300; design ch.km 683+580; span and length 2 x 9.55 + 1 x 9.40 m.</li> <li>- Nalla; Bridge no. 693/1; existing ch.km 692+400; span and length 5m + 4.9 m +4.9 m.</li> <li>- Irrigation Canal; Bridge no. 695/1; existing ch.km 694+400; span and length 3 x 9.0 m.</li> <li>- Nalla; Bridge no. 696/1; existing ch.km 694+400; span and length 3 x 9.0 m.</li> <li>- Nalla; Bridge no. 696/2; existing ch.km 695+800; span 5 m.</li> <li>● 2 Nos. of new minor bridges</li> <li>● River Nalla; 20/1 ch.km 19+260; PCC girder and RCC slab; span 20.60 m</li> <li>● Local train 21/1 ch.km 20+650; RCC Box 2.4 x 4.0m</li> </ul>
Slab culverts	<ul style="list-style-type: none"> <li>● 21 Nos. of slab / box culverts</li> </ul>
Pipe culverts	<ul style="list-style-type: none"> <li>● 57 Nos. of existing pipe culverts</li> <li>● 8 Nos. of new pipe culverts</li> </ul>
Rail Level Crossing	<ul style="list-style-type: none"> <li>● Ch.km 687 + 324 Siding to Kandri Manganese Ore Mines; width 12.0 m</li> </ul>
Truck lay-bays	<ul style="list-style-type: none"> <li>● 1 No. truck lay-bye at chainage km 692.850 (Parsivini Intersection)</li> </ul>
Bus bays and bus shelters	<ul style="list-style-type: none"> <li>● 58 Nos. of bus bays</li> </ul>
Vehicle Under Pass (VUP)	<ul style="list-style-type: none"> <li>● 2 Nos. of VUP in section from ch.km 652+000 to ch.km 704+227 of NH - 7</li> <li>● 6 Nos. of VUP in Nagpur bypass; RCC slab 12 x 5.5 m</li> </ul>
Pedestrian Under Pass (PUP)	<ul style="list-style-type: none"> <li>● 2 Nos of PUP in section from ch.km 652+000 to ch.km 704+227 of NH - 7; RCC box; 7.0 x 3.5 m</li> </ul>
Cattle Under Pass (CUP)	<ul style="list-style-type: none"> <li>● 2 Nos. of CUP in section from ch.km 652+000 to ch.km 704+227 of NH - 7; RCC box; 7.0 x 3.5 m</li> <li>● 3 Nos. of CUP in Nagpur bypass section; RCC box 6.0 x 3.5 m</li> </ul>
ROB / RUB	<ul style="list-style-type: none"> <li>● 2 Nos. of new RUB in Kamptee - Kanhan bypass (at ch.km 1+227 and ch.km 4+247)</li> </ul>

Particulars	Details
	<ul style="list-style-type: none"> <li>1 No. of ROB in Nagpur bypass section at ch.km 19+980</li> </ul>

Source: Concession agreement between NHAI and ONBCPL, Volume – II; Schedules October 2009

## 2.2 Project Facilities

Requirement of project facilities as per the Concession agreement and status of each of these requirements are as listed in table below.

**Table 5: Project Facility Status**

Facility	Status
Toll Plaza	2 Nos. of Toll Plaza 2 Nos of Check plaza
Rest Area	2 Nos of rest area
Traffic Aid Post	2 Nos. of Traffic Aid Post
Medical Aid Post	2 Nos. of Medical Aid Post
Vehicle Rescue Post	2 Nos. of Vehicle Rescue Post
Highway lighting	Highway lighting system is provided including high mast lamps and this lighting system is maintained as per clause of IS 1944 (Part I-V).
Ambulances	Ambulance is stationed at toll plaza
Cranes	Tow Truck / crane for pulling and moving of accident vehicle is available

Source: ONBCPL Concession Agreement

## 2.3 Key features of the Project

The key features of the project road have been summarised below. The description includes major habitation, major junctions, toll plaza and bypasses with their chainage details.

**Table 6: Key Features of Project**

Sr. No.	Section	Chainage	
1	Km.652 to Km.689	652.000	Start of the Project
		664.000	Devlapar
		672.000	Pauni Village
		684.000	Border Check Post
		688.950	Mansar Y Junction. Road going to Ramtek, Mouda, NH-6 crosses
2	Km.689 to Km.704.227	690.600	Mansar Toll Plaza
		692.600	3 Arm Junction going to Parseoni, Saoner
		697.650	Gondegaon road going to Mines
		698.590	Dumri Railway siding for Coal loading unloading
3	Km.704.227 to 747.		Junction of Kamptee-Kanhan Bypass with NH-7
		707.450	KKBP Toll Plaza
		712.200	Kanhan River Major Bridge
		719.800	Lihigaon Road going to NH-6 crosses Bypass
		725.600	NH-6 crosses the bypass, Clover leaf structure

Sr. No.	Section	Chainage	
		733.200	State Highway going to Umred, Gadchiroli crosses the bypass
		745.070	NBP Toll Plaza
4	Km.14.585 to 36.600	14.585	Junction of Nagpur-Hyderabad road & Bypass
		15.850	Jamtha Cricket Stadium
		19.000	Dongargaon Village
		26.200	MIDC Butibori
		28.850	Y-Junction going to Wardha, Yavatmal
		35.600	Borkhedi Toll Plaza
		36.600	End of the Project

Source: ONBCPL

## 2.4 Project Status

The construction of Nagpur bypass project has been completed on 19 March 2019. The stretch from Km 652 to 689.450 includes 5 nos. of animal under pass, 4 nos. of minor mitigation bridges and 17 nos. of box / slab culverts.

As per recommendations of Wildlife Institute of India (WII), the ROW in the forest section of this project highway i.e. between km 652.000 to km 689.450 has been reduced from 60 km to 30 km. The median has also been reduced from 4.5 m to 1.5 m.

## 2.5 Land Acquisition

Land was acquired by NHAI under National Highways Act, 1956 up to April 2017 by 3(G) notification. The ownership of the land remains with NHAI and state government. Permission for construction and operation of the road is given by NHAI on the land acquired or diverted for four laning of National Highway.

The total Land requirement for the project was estimated to be 626.995 ha out of which 243 ha was already available with NHAI. Fresh land acquired for the project is 384 Ha out of which 299.57 Ha is private land, 52.926 Ha is forest land and 31.498 Ha is government land. Details of land acquired is as indicated in Table 7.

**Table 7: Total Land Acquired for the Project**

District	Tahsil	No. Of Villages	Private Land	Forest Land	Govt. Land
Nagpur	Kamptee	8	101.35		31.498
	Nagpur Gramin	9	95.15	3.68	
	Parseoni	14	65.81		
	Ramtek	20	37.27	49.246	
			<b>299.57</b>	<b>52.926</b>	<b>31.498</b>
<b>TOTAL</b>			<b>383.994 Ha</b>		

The details of village wise land acquisition of 359.01 ha have been provided below. The records of remaining land were not available for analysis and compilation.

**Table 8: Village wise land acquisition**

3(D) Gazette notification No.	Name of the District	Taluka	Name of Village	Area in Ha
2012 17/08/2010	Nagpur	Nagpur Gramin	Panjari (Bu)	3.47
2012 17/08/2010	Nagpur	Nagpur Gramin	Waroda	0.02
2012 17/08/2010	Nagpur	Kamptee	Tarodi(Bu)	0.85
2012 17/08/2010	Nagpur	Kamptee	Powari	0.47
2679 28/10/2010	Nagpur	Nagpur Gramin	Dongargaon	6.15
2679 28/10/2010	Nagpur	Nagpur Gramin	Panjari (Bu)	0.81
2565 13/10/2010	Nagpur	Nagpur Gramin	Kapsi (Kh)	23.88
2565 13/10/2010	Nagpur	Kamptee	Kapsi (Bu)	7.85
2312 11/9/2009	Nagpur	Kamptee	Kapsi (Bu)	27.5157
2312 11/9/2009	Nagpur	Nagpur Gramin	Kapsi (Kh)	1.759337
502 26/02/2010	Nagpur	Ramtek	Chorbahuli (Mogra)	0.948
502 26/02/2010	Nagpur	Ramtek	Chorbahuli (Van)	0.0056
502 26/02/2010	Nagpur	Ramtek	Bhondewada	0.0147
502 26/02/2010	Nagpur	Ramtek	Hiwra Bende	0.0013
502 26/02/2010	Nagpur	Ramtek	Devli	0.0019
502 26/02/2010	Nagpur	Ramtek	Pawani Vangram	0.007
502 26/02/2010	Nagpur	Ramtek	Bothiya Palora	0.0035
502 26/02/2010	Nagpur	Ramtek	Bandra	0.1764
502 26/02/2010	Nagpur	Ramtek	Sitapur	0.2712
502 26/02/2010	Nagpur	Ramtek	Katta	0.0139
502 26/02/2010	Nagpur	Ramtek	Moudi	0.0193
502 26/02/2010	Nagpur	Ramtek	Khumari	0.039
502 26/02/2010	Nagpur	Ramtek	Wadamba Malgujar	0.0372
502 26/02/2010	Nagpur	Ramtek	Mansar	0.2292
502 26/02/2010	Nagpur	Ramtek	Pawani	0.0634
502 26/02/2010	Nagpur	Ramtek	Kandri (Ramtek)	0.1357
502 26/02/2010	Nagpur	Ramtek	Devlpar	0.1039
502 26/02/2010	Nagpur	Kamptee	Awandhi	0.526
502 26/02/2010	Nagpur	Kamptee	Gada	0.721
502 26/02/2010	Nagpur	Kamptee	Neri	0.8136
502 26/02/2010	Nagpur	Kamptee	Lhigaon	1.048
502 26/02/2010	Nagpur	Kamptee	Dhargaon	0.623
502 26/02/2010	Nagpur	Parseoni	Wagholi	0.046
502 26/02/2010	Nagpur	Parseoni	Dumri Kala	0.12
502 26/02/2010	Nagpur	Parseoni	Satak	0.038
502 26/02/2010	Nagpur	Parseoni	Kandri (Parseoni)	2.134
502 26/02/2010	Nagpur	Parseoni	Tekadi	3.027
502 26/02/2010	Nagpur	Parseoni	Nandgaon	0.535
502 26/02/2010	Nagpur	Parseoni	Amdi	0.807
502 26/02/2010	Nagpur	Parseoni	Dumri Khurd	0.31
502 26/02/2010	Nagpur	Parseoni	Khandala Dumri	2.55
502 26/02/2010	Nagpur	Parseoni	Khandala (Ghatate)	14.96
502 26/02/2010	Nagpur	Parseoni	Sihora	3.03

3(D) Gazette notification No.	Name of the District	Taluka	Name of Village	Area in Ha
1198 24-05-2011	Nagpur	Nagpur Gramin	Gaosi Manapur	30.56
1198 24-05-2011	Nagpur	Nagpur Gramin	Jamtha	1.53
1198 24-05-2011	Nagpur	Nagpur Gramin	Parsodi	16.02
798 26-04-2011	Nagpur	Parseoni	Tekadi	2.09181 2
798 26-04-2011	Nagpur	Parseoni	Kandri (Parseoni)	4.32
798 26-04-2011	Nagpur	Parseoni	Khandala (Ghatate)	1.62
798 26-04-2011	Nagpur	Parseoni	Sihora	3.14
798 26-04-2011	Nagpur	Kamptee	Awandhi	0.81
798 26-04-2011	Nagpur	Kamptee	Gada	0.18
1149 Dtd.17-08-2005	Nagpur	Ramtek	Mansar	3.912
899 Dtd.28-06-2005	Nagpur	Ramtek	Patgowari	0.186
899 Dtd.28-06-2005	Nagpur	Parseoni	Amdi Khandala	7.398
899 Dtd.28-06-2005	Nagpur	Parseoni	Dumri Kala	1.331
899 Dtd.28-06-2005	Nagpur	Parseoni	Dumri Khurd	2.155
899 Dtd.28-06-2005	Nagpur	Parseoni	Nandgaon	4.58
899 Dtd.28-06-2005	Nagpur	Parseoni	Wagholi	4.1548
899 Dtd.28-06-2005	Nagpur	Parseoni	Champa	0.447
899 Dtd.28-06-2005	Nagpur	Parseoni	Tekadi	9.364
899 Dtd.28-06-2005	Nagpur	Parseoni	Kandri (Parseoni)	12.7159 6
899 Dtd.28-06-2005	Nagpur	Parseoni	Khandala (Ganeshi)	14.887
899 Dtd.28-06-2005	Nagpur	Parseoni	Khandala Dumri	2.367
899 Dtd.28-06-2005	Nagpur	Kamptee	Neri	20.0704
899 Dtd.28-06-2005	Nagpur	Kamptee	Awandhi	13.189
899 Dtd.28-06-2005	Nagpur	Kamptee	Gada	1.839
899 Dtd.28-06-2005	Nagpur	Kamptee	Lihigaon	13.442
899 Dtd.28-06-2005	Nagpur	Kamptee	Dhargaon	13.432
1152 Dtd.17-08-2005	Nagpur	Ramtek	Mansar	6.1598
1152 Dtd.17-08-2005	Nagpur	Ramtek	Hiwra Bende	1.1182
1152 Dtd.17-08-2005	Nagpur	Ramtek	Kandri (Ramtek)	8.6184
1152 Dtd.17-08-2005	Nagpur	Ramtek	Devli	0.8564
1152 Dtd.17-08-2005	Nagpur	Ramtek	Khumari	3.3522
1152 Dtd.17-08-2005	Nagpur	Ramtek	Bhilewara	0.8154
1152 Dtd.17-08-2005	Nagpur	Ramtek	Chorbahuli (Mogra)	4.2161
1152 Dtd.17-08-2005	Nagpur	Ramtek	Chorbahuli (Van)	1.8608
1152 Dtd.17-08-2005	Nagpur	Ramtek	Pawani	2.6419
1152 Dtd.17-08-2005	Nagpur	Ramtek	Pawani Vangram	1.4228
1152 Dtd.17-08-2005	Nagpur	Ramtek	Moudi	1.0528
1152 Dtd.17-08-2005	Nagpur	Ramtek	Sitapur	1.3715
1152 Dtd.17-08-2005	Nagpur	Ramtek	Bothiya Palora	0.2235
1152 Dtd.17-08-2005	Nagpur	Ramtek	Devlpar	6.4203
1152 Dtd.17-08-2005	Nagpur	Ramtek	Katta	1.8486
1152 Dtd.17-08-2005	Nagpur	Ramtek	Wadamba Malgujar	3.9462
1152 Dtd.17-08-2005	Nagpur	Ramtek	Bandra	0.8476
1152 Dtd.17-08-2005	Nagpur	Ramtek	Manegaontek	4.2133

3(D) Gazette notification No.	Name of the District	Taluka	Name of Village	Area in Ha
1152 Dtd.17-08-2005	Nagpur	Ramtek	Bhondewada	2.3152
1152 Dtd.17-08-2005	Nagpur	Parseoni	Satak	0.4690
514 Dtd.16-02-2015	Nagpur	Nagpur Gramin	Kapsi (Kh)	0.73
514 Dtd.16-02-2015	Nagpur	Nagpur Gramin	Borkhedi	3.525
1427 Dtd.02-06-2014	Nagpur	Ramtek	Patgowari	0.03
1427 Dtd.02-06-2014	Nagpur	Ramtek	Mansar	0.9602
1427 Dtd.02-06-2014	Nagpur	Ramtek	Sitapur	0.1
1427 Dtd.02-06-2014	Nagpur	Parseoni	Amdi	1.422
1427 Dtd.02-06-2014	Nagpur	Parseoni	Dumri Khurd	0.0526
1436 Dtd.03-06-2014	Nagpur	Kamptee	Awandhi	0.7
1436 Dtd.03-06-2014	Nagpur	Kamptee	Neri	0.35
1436 Dtd.03-06-2014	Nagpur	Kamptee	Gada	0.18
1436 Dtd.03-06-2014	Nagpur	Kamptee	Lhigaon	1.84
1436 Dtd.03-06-2014	Nagpur	Kamptee	Kapsi (Bu)	1.835
1436 Dtd.03-06-2014	Nagpur	Nagpur Gramin	Kapsi (Kh)	0.8626
1436 Dtd.03-06-2014	Nagpur	Nagpur Gramin	Vhirgaon	0.312
1436 Dtd.03-06-2014	Nagpur	Nagpur Gramin	Jamtha	0.001
1436 Dtd.03-06-2014	Nagpur	Nagpur Gramin	Gaosi Manapur	0.17
1436 Dtd.03-06-2014	Nagpur	Nagpur Gramin	Parsodi	0.2
1436 Dtd.03-06-2014	Nagpur	Nagpur Gramin	Panjari (Bu)	0.1
<b>Total</b>				359.01*

**Note:** \* The records pertaining to the land acquisition of remaining land were not available for analysis, therefore the figures of land acquisition do not match with the totals.

During consultation with Project Director it was informed that no litigation is pending in this project. There are some complaints made to the district magistrate for enhancement of compensation which is being followed up by the NHAI and will be resolved based on decision of district magistrate concerned.

Details of land acquisition and compensation disbursed to title holders is as indicated in the table below:

**Table 9: Details on Land Acquisition and Compensation Disbursement**

Year	Land Area (in Ha)	As a percentage of total land	Titleholders	Compensation Disbursed (INR)	As a percentage of total
	<b>3G Summary</b>			<b>3H Summary</b>	
2008	75.24	25.1%	302	224,644,192	14.6%
2009	16.83	5.6%	170	186,276,019	12.1%
2010	35.94	12.0%	189	164,602,394	10.7%
2011	110.30	36.8%	435	244,853,383	15.9%
2012	41.69	13.9%	175	266,380,564	17.3%
2013	0.00	0.0%	0	135,899,485	8.8%
2014	5.90	2.0%	102	108,661,011	7.1%
2015	5.36	1.8%	23	67,656,856	4.4%
2016	6.05	2.0%	43	63,849,327	4.2%

Year	Land Area (in Ha)	As a percentage of total land	Titleholders	Compensation Disbursed (INR)	As a percentage of total
2017	2.26	0.8%	343	1,610,878	0.1%
2018	0.00	0.0%	0	-	0.0%
<b>Grand Total</b>	<b>299.57</b>	<b>100.0%</b>	<b>1782</b>	<b>1,464,434,109</b>	<b>95.2%</b>

Source: ONBCPL

**Note:** The dates for 3 A and 3 D were not provided for review, hence date of each notification could not be included in the above table.

The details of compensation been paid is as indicated table below.

**Table 10: Compensation Disbursement**

Parameters	Value in INR Cr
Total compensation award	153.83
Total Amount Deposited in Court	5.85
Total Amount Disbursed to PAPs	146.44

Source: ONBCPL

The summary of Land acquisition is s indicated in table below.

**Table 11: Land Acquisition Summary**

Item	Details	
Name of PIU	Nagpur	
Project	MP/MH Border to Nagpur including Kamptee - Kanhan & Nagpur Bypass	
Length in Km	117.000	
NHDP Phase	NHDP II	
Date of Award of Work	April 2010	
Total Land Required (in Ha)	626.995	
Land already in Possession (in Ha)	243.000	
Total additional land required (in Ha)	383.994	
Govt Land alienated (in ha)	31.498	
Forest land diverted (in Ha) as on 19.05.2015 (The forest land diverted and handed over to concessionaire vide letter dated 19 .05.2015. The letter dated government land handing over or dated alienated has not been provided for review.)	<b>52.926</b>	
Progress of Private land acquisition up to 31.12.2017	3A (Ha)	374.23
	3D(Ha)	374.23
	3G(Ha)	299.571
	Possession in Ha	299.571
Total Land (Government Land + Private Land + Forest Land) in possession (in Ha) as on 05 <sup>th</sup> April 2017	626.995	
Date of last 3(G) notifications	05 April 2017	
% of Total land in Possession till January 2018. (The last 3(H) or 3(G) notification copy were not provided. So the date of last portion of land taken in possession is not	100%	

Item	Details
available with us. However most of the land 359 ha of land was in possession of NHAI by 14 June 2014.)	
Number of Project affected titleholder	1782
Total Compensation Award (in Cr)	153.83
Total amount of compensation disbursed to title holders (in Rs. Cr)	146.44
Total No of Court Cases	Nil
Total No of Arbitration cases	42
No of Arbitration cases resolved	42
No of Non-title holders who have received assistance	208
The amount of assistance paid to non-title holders	11,57,80,328/-
Length of road for road development up to 31.12.2017	The working permission in Forest stretch 37 Km has been received and 4-laning work is in progress.

Source: ONBCPL

- A total of 1782 title holders were identified as part of land acquisition process of the project. The data pertaining to the number of titleholders who received the payment was not available for review. However, the amount of compensation disbursed and pending are given below.
- The total compensation award was INR 153.83 Cr. The total amount disbursed to PAPs is INR 146.44 Cr. The compensation status is 95.2%. Total amount deposited in Court is INR 5.85 Cr. During the time of ESDD, the number of titleholders having received the payment was not provided for review. 208 non-titleholders were paid an assistance amount for shifting. The calculation of the assistance amount was not available for review. However, the local community informed during consultation that the gram panchayat had issued lease to the non-titleholder shopkeepers, they were therefore among the non-titleholders who received the assistance amount. However, the assistance amount paid to the non-title holder was not available for review.

## 2.6 Summary of Resettlement Action Plan RAP prepared in 2006

A Resettlement Action Plan (RAP) was prepared in 2006 by NHAI through an independent DPR consultant of NHAI prior to award of the work to concessionaire. The RAP is based on the National Resettlement and Rehabilitation Policy (NRRP) 2003. The RAP available with SPV for Nagpur bypass has been reviewed. The RAP is divided into two parts and the summary of RAP is provided below.

RAP - I covers the chainage from km 14.60 of NH-7 in the southern side of Nagpur city and ends at km 542.60 of NH-6 having total length of 21.60 km. This RAP was prepared for Nagpur bypass in 2006 as part of detailed project report. The land acquisition survey was conducted in November 2005. The land acquisition under the RAP-I was 182.92 ha covering 17 villages. As per the survey 128.82 ha of land was acquired by PWD and 54.10 ha was acquired by NHAI. This includes 177.32 ha of agricultural land, 3.91 ha forest land and 1.69 ha government land. The agricultural land includes 107.12 ha (60.41%) irrigated land and 70.20 ha (39.59%) un-irrigated land.

The loss of structures includes 6 residential structure fully affected structures. 3 Dhaba and 7 commercial structures located in Khapsi-Kh village. As per the field study of RAP, no squatters or encroacher are available within the RoW. Total number of project affected families (PAF) and project affected persons were identified as 347 and 1,333 respectively, in which 624 PAPs are females. As per the socio-economic survey conducted in 2005, the vulnerable families are 1 Scheduled Caste, 6 Scheduled Tribe, 1 Physically Disabled Person and 80 Below Poverty Level.

RAP I provided the following entitlements

**Table 12: RAP 1 Entitlements**

Category	Type of Loss	Need Relocation Assistance	Need Rehabilitation assistance
Category 1	Title holder owning private agricultural land in the affected zone.	No	Yes
Category 2	Title holder owning Residential (Awadi) land in the affected Zone.	No	Yes
Category 3	Title holder Owning structures and Whose structure has been acquired	No	Yes

Source: Resettlement Action Plan Report, (undated)

As per National Rehabilitation and Resettlement Policy for the Project Affected Families 2003 (NRRP-2003) for project affected families in any category will be offered ex-gratia amount of Rs 10,000/- per family, and no other resettlement and rehabilitation benefits shall be available to them.

**Table 13: Details of Entitlements RAP 1**

Type of loss	Applicable	Definition of PAF	Entitlement	Details of Entitlements	Responsibility
Agricultural land by title holders (Private Property)	Land within the Project Right of Way (ROW)	Title holders/ Project affected persons	Compensation at replacement cost	Project affected persons is entitled to replacement cost of the agricultural land (part or full), which will be calculated as per rates collected from Sub Registrar Department of concerned Tehsil. Project affected families will be entitled an ex-gratia amount of Rs 10,000/- per family.	NHAI
Residential Avadi land (Private Property)	Non-agriculture land within project right of way (ROW)	Title holder/ Project affected people	Compensation at replacement cost	Project affected persons is entitled to replacement cost of the agricultural land (part or full), which will be calculated as per rates collected from Sub Registrar Department of concerned Tehsil. Project affected families will be entitled an ex-gratia amount of Rs 10,000/- per family.	NHAI
Structure within ROW (Private Property)	Structure within ROW	Owner of Structures	Compensation at replacement cost	Project affected persons is entitled to replacement cost of the agricultural land (part or full), Right to salvage the material from demolished structure. Project affected families will be entitled an ex-gratia amount of Rs. 10,000/- per family.	NHAI

Source: Resettlement Action Plan Report

RAP - II covers the chainage from 689.000 to 704.227 of NH-7 and Chainage 704.227 to 542.80 on NH-6 having total length of 36.45 km. The land acquisition survey was conducted in November 2005. This RAP was prepared in 2005 as part of detailed project report of Nagpur Bypass. The land acquisition under the RAP-II was 162.5 ha. As per the survey, complete 162.5 ha was

acquired by NHA. This includes total of 386 Households of 1,916 PAPs including 23 ST and 193 SC PAPs.

The community structure affected includes 12 temple/ mosques, 6 community structures, 9 government structures, 2 wells and 45 tube wells. These community structures have been shifted in consultation with community as per PD NHA and ONBCPL. As per the socio-economic survey, there are 96 vulnerable families which include 75 BPL, 16 SC, 3 ST, and 2 Women Headed Households (WHH).

RAP II provides ex-gratia of INR 10,000 per family as per the provision of NPRR-2003. No other rehabilitation and resettlement benefits are provided. The RAP categorizes the project affected persons into three categories.

- Title holders owning private agricultural land in affected zone and whose land has been acquired;
- Title holders owning structures in affected zone and whose structure has been acquired; and
- Title holders owning residential land in affected zone and whose residential land has been acquired.

The entitlement determined for the PAPs are given below

**Table 14: Details of Entitlements RAP 2**

Sl No.	Category	Type of loss	Unit of Entitlement	Entitlement	Details
1A				Compensation at replacement cost or actual market value	<ul style="list-style-type: none"> <li>• If the replacement cost is more than the compensation, as determined by the competent authority, then the difference to be paid by the project in the form of assistance.</li> <li>• If the residual plot is not viable ie. Less than average land holding, of the district, the following option will be given, to the EP.</li> <li>• Compensation and assistance to be given for the entire plot including residual plot if the owner of such land wishes that the project authority should also acquire his residual plot the project authority will acquire the residual plot so paid.</li> <li>• Transition allowance of INR 2000 per month for 9 months if residual land is not viable.</li> <li>• In case of severance of agricultural land an additional grant of 10% will be provided.</li> <li>• All fees, taxes, and other charges as applicable under relevant law incurred in the relocation and resource establishment are to be borne by the project.</li> <li>• If EP becomes landless and falls below poverty line then training for upgradation of skill will be provided.</li> </ul>
1B	Private Property	Non-agricultural land and assets	Title holder / Owner : Residential	Compensation at replacement cost	<ul style="list-style-type: none"> <li>• EP will be provided replacement cost of residential structure (part or full) which will be calculated based on prevailing schedule of rates without depreciation.</li> <li>• Compensation for loss of residential land will be paid at replacement value</li> </ul>

SI No.	Category	Type of loss	Unit of Entitlement	Entitlement	Details
					<ul style="list-style-type: none"> <li>If replacement cost is more than compensation then the difference will be paid by the project in the form of assistance.</li> <li>Transitional assistance of INR 2000 per month for maximum 9 months</li> <li>Absentee land holders will receive only compensation at replacement cost.</li> </ul>
			Title Holder Owner : commercial		<ul style="list-style-type: none"> <li>EP will be provided replacement cost of commercial structure (part or full) which will be calculated based on prevailing schedule of rates without depreciation.</li> <li>Compensation for loss of commercial land will be paid at replacement value</li> <li>If replacement cost is more than compensation then the difference will be paid by the project in the form of assistance.</li> <li>Transitional assistance of INR 2000 per month for maximum 9 months</li> <li>A lumpsum shifting allowance of INR 700for temporary structure and INR 1200 for permanent structures.</li> <li>Absentee land holders will receive only compensation at replacement cost.</li> </ul>
			Tenants Residential		<ul style="list-style-type: none"> <li>Amount deposited or advance payment paid by the tenant to the land lord or the remaining amount at the time of expropriation</li> <li>A sum equivalent to nine months rental will be considered for disruption</li> <li>Shifting allowance of lumpsum amount of INR. 800 will be considered.</li> </ul>
			Tenant Commercial		<ul style="list-style-type: none"> <li>Amount deposit or advance payment paid by the tenant to the land lord or the remaining amount at the time of expropriation</li> <li>A sum equivalent to nine months rental will be considered for disruption</li> <li>Shifting allowance of lumpsum amount of INR. 800 will be considered.</li> <li>Training would be provided for upgradation of skill.</li> </ul>
<b>2</b>	<b>Others</b>				
2A	Livelihood	Wage Earner	Individual	Lumpsum	<ul style="list-style-type: none"> <li>Transition allowance of INR 2,000/-</li> <li>Training for upgradation of skill</li> <li>Economic rehabilitation grant of INR 3,000/- to vulnerable EP.</li> </ul>
2B		Non-Perennial Crops	Family	Notice to harvest crop	<ul style="list-style-type: none"> <li>Provide notice 4 month in advance</li> </ul>
		Perennial crops such as fruits and trees	Family	Compensation at market value	<ul style="list-style-type: none"> <li>Compensation of perennial crops calculated on the basis of annual produce value for one season.</li> </ul>
<b>3</b>	<b>Illegal use of ROW</b>				

SI No.	Category	Type of loss	Unit of Entitlement	Entitlement	Details
3A		Encroacher	Family	Will receive no compensation for land but assistance for assets to vulnerable group	<ul style="list-style-type: none"> <li>Encroacher will be notified in time in which to remove the assets except trees and harvest crops.</li> <li>Compensation of replacement cost to vulnerable person.</li> <li>Training would be provided for upgradation of skills</li> </ul>
3B		Squatters	Family	Will receive no compensation for land but assistance for assets.	<ul style="list-style-type: none"> <li>Compensation for loss of structure at replacement cost.</li> <li>Lumpsum shifting allowance of INR 700 temporary structure and INR 1200 for semi-permanent structures.</li> <li>Compensation of replacement cost to vulnerable person.</li> <li>Training would be provided for upgradation of skills.</li> </ul>
3C	Shifting Business	Mobile and ambulatory business	Family	They are not eligible for compensation nor assistance.	<ul style="list-style-type: none"> <li>Lumpsum shifting allowance of INR. 2000.</li> </ul>
4	Community infrastructure cohesion and amenities	Common property resources	Community	Conservation, protection, compensatory replacement	<ul style="list-style-type: none"> <li>Easily replaced resources, such as cultural properties will be conserved (by means of special protection, relocation, replacement etc) in consultation with community</li> </ul>
4A	Any other impacts not yet identified whether loss of assets or livelihood				<ul style="list-style-type: none"> <li>Unforeseen impact will be documented and mitigated based on the principle agreed upon in this policy framework.</li> </ul>

Budget for RAP -I: The estimated R&R budgets as per RAP-I was INR 47.14 Cr. This includes R&R assistance of 10,000 per family, community infrastructure replacement and improvement and support of implementation of RAP.

Budget for RAP - II - The Estimated R&R budgets as per RAP-II was INR 197.71 Cr. This includes R&R assistance of 10,000 per family, community infrastructure replacement and improvement and support of implementation of RAP.

Although the RAP is prepared as part of the detailed project report, but NHAI follows the national Highways Act, 1956 and amendments and the valuation and compensation made as per the calculation of Competent Authority of Land Acquisition under The National Highways Act, 1956.

The resettlement action plan report for remaining stretch of the project was not made available for review. This was also confirmed during the meeting with NHAI. The NHAI clarified that the RAP was prepared by the Nasik PIU, and later in 2010-11, Amarawati PIU was created, but some of the documents were not transferred to Amrawati PIU. These documents include EIA, RAP, DPR.

Both the above RAP was not used in the implementation. During implementation, the compensation and entitlement were given to the eligible titleholder PAPs as per the rates and compensation determined by CALA, instead of determined budget for RAP I and II. 208 non-titleholders were also given assistance, but the assistance amount or the calculations for determination of assistance amount was not provided by the NHAI.

## 2.7 Litigation and Other Risk

The project highway from chainage km 689.450 to km 747.630 on Jabalpur Nagpur section and km 14.585 to km 36.600 is complete and has achieved final COD in July 2012. NHAI has handed over the land free of encumbrance in stages from 2009 to 2012 to the Concessionaire (M/s Oriental Nagpur Bypass Construction Pvt. Ltd. or ONBCPL). Based on the consultant's discussion with Project Director NHAI, it was confirmed that there was no pending litigation/ arbitration for this section of the project highway. About 8-10 complaints were filed in District Collector's office. Further the discussion held with the Community near Ramtek Village, NHAI officer and CALA officer of Nagpur bypass also confirmed the same.

Construction work is in progress for the stretch of project highway section from km 652.000 to km 689.450. Land for this section has already been acquired by NHAI and compensations for land acquisition were disbursed before 2012. As per discussion held with Project Director of NHAI, there are no pending Litigation / Arbitration for this stretch of the Project highway. The Net Present Value (NPV) has been paid to the Forest Department in compliance with conditions stipulated in the Forest Clearance under Forests Conservation Act, 1980 for diversion of forest land in this section.

Project Director NHAI indicated during consultation that 8-10 complaints were made before the District Collector regarding enhancement of compensation. The district collector resolves the complaints based on merits of the case and transfers the cases that are not under its purview to the arbitrator. The company ONBCPL informed there were 42 arbitration cases filed and all these arbitration cases have been resolved as per the order of arbitrator. However, the records of the arbitration were not made available for review.

Other risk such as earthquake, flooding, spread of epidemic is low. Nagpur district falls in seismic zone II as per bureau of Indian Standards which is least active. Flooding is reported in Nagpur due to heavy rain in the city but not in the rural areas within the project influence region. So, the flooding risk of submergence of pavement of highway is very low. There are no widespread diseases in and around Nagpur and project influence area.

A PIL related to forest clearance from chainage Km 652.000 to 689.450 is available in public domain. The PIL was filed in the Nagpur Bench of Bombay High court and National Green Tribunal. Public Interest Litigation No 88/2013 was filed in Nagpur Bench of Bombay High Court challenging the construction of NH-7 in the forest area with respect to Pench Tiger Reserve and three cases in National Green Tribunal case no 25/2015, 44/2015 and 66/2015. The high court has reviewed the case and decision was given in favour of NHAI for construction of the Nagpur Bypass from chainage Km 652.000 to Km 689.450. Based on this judgment forest clearance was granted in 2015 and construction work proceeded accordingly.

The case filed in National Green Tribunal has been quashed by the Hon'ble High Court in its order dated 29 July 2015 on the basis that two remedies cannot be prosecuted for same cause.

### 2.7.1 Process of resolving dispute at District Collector Level

Project Director NHAI has indicated during the consultation regarding 8-10 complaints that have been made before the District Magistrate regarding enhancement of compensation which will be dealt as per the decision of district magistrate.

The complaints made before the district magistrates are of mainly two types, mutation related and compensation related. The district magistrate reviews complaints of land acquisition under the National Highways Act, 1956 and amendments based on following criteria.

- After 3(A) Gazette notification and publication in newspaper objections are received within 21 days has been resolved under section 3(C) public hearing. Subsequently 3(D) is published.
- During the award process of 3(G) and (H) objections received from PAPs for the mutation cases and enhancement of compensation amount competent authority resolves all cases of except compensation enhancement.

The district magistrate (DM) resolves the complaints which are in the ambit of the district magistrates. Otherwise the DM transfers the case to arbitrator appointed by NHAI as per The National Highways Act, 1956 and amendments.

### 2.8 Pre- and Post-Construction Land-use

Land use pattern in the project influence area is mainly agricultural, habitation, forest, barren and waste land. The project road brings positive impact on land use as this triggers transportation of agricultural goods and services due to better road capacity and reduced travel time.

No negative impact was observed around the project corridor due to development and operation of national highways.

### 2.9 Permits

Status of statutory clearance and approvals for the Project are as indicated in table below:

**Table 15: Status of Statutory Clearance and Approvals**

S. No	Description	Status
1	Environmental Clearance from MOEFCC	<ul style="list-style-type: none"> <li>• NHAI has received three Environmental Clearance for all section of the Project highway. Details are as follows:                             <ol style="list-style-type: none"> <li>1. EC received vide letter dated 18<sup>th</sup> April 2006 for upgrading the existing 2 lane road to lane divided carriage way configuration from <b>km 652.000</b> near Madhya Pradesh / Maharashtra boarder to <b>km 689.000</b> at Mansard covering a length of 37 km. Forest fall on about 55% of the project road on both side for a road length of 20.50 km.</li> <li>2. EC received vide letter dated 18<sup>th</sup> Dec 2006 for widening of Mansar Nagpur section from <b>km 689 to km 723</b> which includes Kamptee – Kanhan bypass in the state of Maharashtra.</li> <li>3. MOEFCC vide letter dated 10<sup>th</sup> May 2007 has clarified that since the <b>Nagpur bypass section</b> is less than 30 km the project section will not attract the provision of EIA notification 1994</li> </ol> <p>Note: EC for Road Projects having RoW 60 m and length less than 100 km are exempted from the preview of EIA notification 1994. Hence the Consultants opine that renewal will not be required for the above EC from MoEFCC.</p> </li> </ul>
2	Forest Clearance	<p>NHAI has received Forest Clearance in two stages for diversion of 49.246 Ha of forest land for upgradation of existing two lane to four lane divided carriageway configuration from km 652 to km 689. Details are as follows:</p> <ol style="list-style-type: none"> <li>1. MOEFCC, Forest Conservation division vide letter dated 13th Dec 2013 has granted in-principle / stage 1 clearance for diversion of 49.246 Ha of forest land under Section 2 of the Forest Conservation Act 1980. The Stage 1 clearance is granted subject to fulfilment of 32 conditions stipulated in the clearance.</li> </ol>

S. No	Description	Status
		2. MOEFCC, Forest Conservation division vide letter dated 15 <sup>th</sup> May 2015 has granted Stage 2 / Final Clearance for diversion of 49.246 Ha of forest land based on the compliance report submitted by the State Government indicating the compliance with 32 conditions stipulated in the Stage 1 clearance. The final clearance is further subject to fulfilment with 26 conditions.
3	Consent to Establish from Maharashtra Pollution Control Board (MPCB) under Air Act and Water Act for start of construction	NHAI has received Consent to Establish from MPCB separately for the three sections of the Project highway. Details are as follows: 1. NHAI has received Consent to Establish from MPCB vide letter no. BO/RO (P&P)/TB/B-40/0 dated 20th July 2005 for section from km 652.000 to km 689.000. 2. NHAI has received Consent to Establish from MPCB vide letter dated 31 <sup>st</sup> Dec 2005 for start of construction of the Project highway from km 689 to km 704 km of NH – 7 and Kamptee and Kanhan bypass with take-off point at km 704.227 to km 542.800 of NH – 6. 3. MPCB has granted Consent to establish vide letter no. BO/RO(P&P)/CC-4-1 dated 9 <sup>th</sup> March 2007 for start of construction of Nagpur bypass section of the Project highway with take-off point at km 14.585 of NH – 7 to km 542.800 of NH – 6.
4	Consent from MPCB for operating the following for project construction: - Crushing plant - Batching Plant - Hot Mix Plant - Toll Plaza D.G sets	<b>Crushing Plant</b> 1. MPCB has granted consent vide letter no. MPCB/17/03001616 dated 23rd March 2017 for operating stone metal crusher located at S.no 109, Mouza-Chimnajari, Taluk -Umred, Dis Nagpur. The sanctioned capacity is 25000 MT/month of crushed stone metal. The Consent is valid till 31.01.2019. <b>Batching Plant</b> 1. MPCB has granted Consent to ONBCPL vide letter no. SRO-Nagpur-II/Consent/1611000052 dated 7th Nov 2016 for operating batching plant at location Kh.No. 97, Village Borkhedi, Wardha Road, Dist Nagpur. The sanctioned capacity is 50 m <sup>3</sup> /day of Ready Mix Concrete. The Consent is valid till 31.10.2019. 2. MPCB has granted Consent to ONBCPL vide letter no. SRO-Nagpur-I/Consent/1611000328 dated 16th Nov 2016 for operating batching plant at location Kh.No. 610, Taluk Ramtek, Dist Nagpur. The sanctioned capacity is 750 T/day of Ready Mix Concrete. The Consent is valid till 30.09.2019. 3. MPCB has granted Consent to ONBCPL vide letter no. SRO-Nagpur-I/Consent/1611000553 dated 22nd Nov 2016 for operating batching plant at location Mauza – Bothiya, KH. No. 266/1, Taluk Ramtek, Dist Nagpur. The sanctioned capacity is 150 T/day of Ready Mix Concrete. The Consent is valid till 30.09.2019. 4. MPCB has granted Consent to ONBCPL vide letter no. SRO-Nagpur-I/Consent/1611000530 dated 16th Jan 2017 for operating batching plant at location Wadamba, 23, PH NO 33, Taluk Ramtek, Dist Nagpur. The sanctioned capacity is 400 T/day of Ready Mix Concrete. The Consent is valid till 30.11.2019. <b>Hot Mix Plant</b> 1. MPCB has granted Consent to ONBCPL vide letter no. MPCB/17/1703001720 dated 23 <sup>rd</sup> March 2017 for operating Hot Mix plant at location Sr. No. 75/2, 75/3, Mouja-khedi, Tq. Kamptee, Dist. Nagpur. The sanctioned capacity is 17000 MT/Month of hot mix. The Consent is valid till 31.10.2019. <b>Toll Plaza D.G Set</b> 1. ONBCPL has obtained Consent from MPCB vide letter no. SRO Nagpur II /Consent/ 1801000410 dated 9th January 2018 for installation of two D.G set of rating 125 KVA and 82.5 KVA at Borkhedi Toll Plaza At. Panjri, Post -Rui, Tal. Nagpur (Gramin), Dist. Nagpur. 2. ONBCPL has obtained Consent from MPCB vide letter no. SRO Nagpur II /Consent/ 1801000422 dated 9th January 2018 for installation of two D.G set of rating 125 KVA and 82.5 KVA at NBP Toll Plaza At. Panjri, Post -Rui, Tal. Nagpur (Gramin), Dist. Nagpur.
5	Permission under Metalliferous Mines Regulation 1961	Oriental Structural Engineers Pvt. Ltd. has obtained permission from Chief Inspector of Mines under Regulation of Metalliferous Mines Regulation 1961 and Mines Act 1952 vide letter no. NR-1/09 dated 2 <sup>nd</sup> Jan 2018 for addition of another 3.78 Ha of land at Khasra No 110, village Chimnazari for mining adjacent to existing Salaimendha Stone mine at Khasra. No. 82, 83 and 84 Village Salaimendha. The permission will be valid for a period of 2 years from the date of issue.
6	Permission for blasting activity	Director General of Mines Safety vide letter no. NR-1/Perm/NC/B/79/15/167 dated 9 <sup>th</sup> Feb 2016 has permitted OSEPL to conduct deep hole blasting and with the help of heavy earth moving machinery for digging, excavation and removal of mineral and

S. No	Description	Status
		overburden at Salaimendha Stone mine at Khasra. No. 82, 83 and 84 Village Salaimendha. The blasting permit was valid till 31 <sup>st</sup> Jan 2018. However, status of permission for blasting in the additional 3.78 Ha of land at Khasra No. 110 is required to be maintained.
7	Permission for drawing water from State Government	Central Ground Water Authority, Ministry of Water Resource has granted NOC, and has approved the rainwater harvesting scheme of ONBCPL for four locations namely Borkhedi Toll Plaza, KKBP Check Toll Plaza, Mansar Toll Plaza and Outer Ring Road at Panjri.
8	Permission for usage of Power	Copy of latest Electricity bill from Maharashtra State Electricity Distribution Co. Ltd. is provided for the Consultants review.
9	License under Factory Act 1948 for Hot Mix Plant, Batching Plant and Crushing plant	Labour License is available at the Project site office. Libor License no ALCN/46/L/12/2014-CL Dated 03/02/14 and it is valid till 02/02/2018.
10	Permission of Village Panchayat and State Government for borrow earth	Not applicable as the borrow of earth is obtained from private land with consent of the owner if required.
11	Permission of State Government for cutting of trees	NHAI has received permission for felling of total 1806 (880 + 926) trees at different locations throughout the Project highway alignment from km 689.000 to km 723. However, status of permission for felling 25934 along project highway section from km 652.000 to km 689.000 is awaited.
12	License from Petroleum and Explosive Safety Organization (PESO)	License has been granted to OSEPL vide license no. P/WC/MH/14/8033(P356482) dated 31 <sup>st</sup> Dec 2016 for storage of Petroleum Class B 40 KL in tanks at Khasra No. 610, Nagpur Umred road, Mansar, Patgowari, Taluk kamptee, Dist. Nagpur Maharashtra under Provisions of Petroleum Act 1934. The License is valid till 31.12.2018.

## 2.10 Management of Environmental and Social Risk

### 2.10.1 Environmental and Social Management Plan Review

Consultant has reviewed the Environmental and Social Management Plan and its compliance by the concessionaire is included in Appendix B.

### 2.11 Right of Way and Encroachment

One instance of encroachment has been reported and the same is removed in this project in last one year. As of now the entire stretch is free from encroachments. Concessionaire monitor the RoW regularly and any encroachment is report to NHAI in the monthly and quarterly reports. In case of encroachment NHAI informs the district administration for removal of encroachment. The district administration removes the encroachment with the use of resources of concessionaire.

Inspection and reporting of encroachment are part of the concession agreement. ONBCPL inspects the project corridor for identifying any encroachment. Report on encroachment is submitted to NHAI on quarterly basis. Removal of encroachment is done with the help of district administration.

The details of encroachment are given below.

**Table 16: Encroachment Details**

Number of Encroachment	Location	Type of Encroachment	Date of Removal
26	Botibori-MIDC junction	Kiosk, signboard, banners,	8 January 2018

## 2.12 List of Temples Impacted due to Project

The following 11 temples were impacted and shifted in consultation with the community. The NHAI informed, during our meeting, that these consultations with community started during detailed project report preparation stage. The NHAI shifted the structures as per the agreement with community. The land was provided by the community and assistance was given by NHAI. The records of consultation with community were not made available for review.

**Table 17: List of Temples impacted due to project**

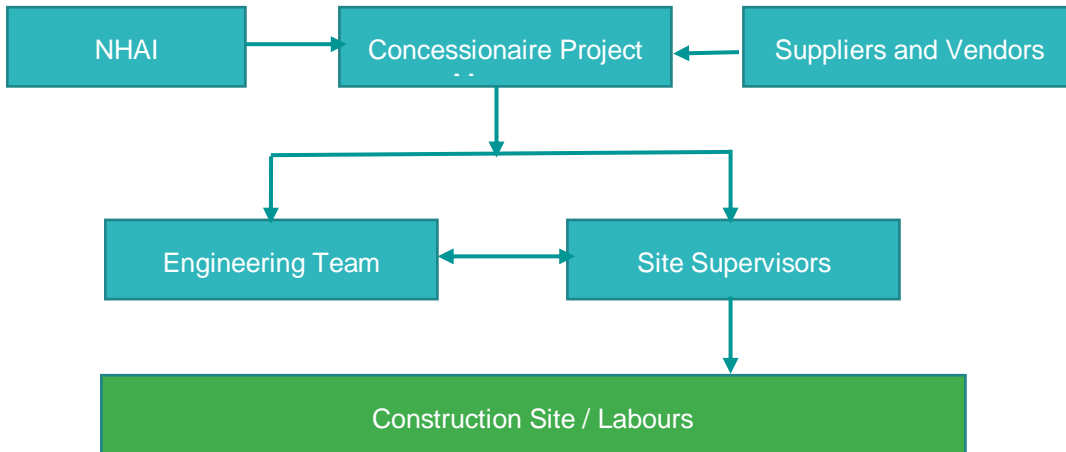
Sr.no	Chainage	Side	Remarks
1	656+340	LHS	HANUMAN MANDIR
2	661+279	RHS	HANUMAN MANDIR
3	668+165	RHS	MATA MANDIR
4	686+992	RHS	MANDIR
5	686+900	RHS	KALI MAA TEMPLE
6	688+500	RHS	DEVI MANDIR
7	686+400	RHS	KALI MAA TEMPLE
8	686+800	LHS	DEVI MANDIR
9	685+100	LHS	HANUMAN MANDIR
10	685+100	LHS	MATA MANDIR
11	672+600		DEVI MANDIR

## 2.13 Organisation of Concessionaire and Human Resources

Concessionaire's operation and maintenance is based on conditions and requirement as laid down under the concession agreement. To comply the requirements of concession agreement, the concessionaire has set up organisation structure in the following manner. ONBCPL has 278 staff on rolls and about 50 labours obtained from sub-contractors. The Project Director, Oriental Nagpur Bypass Construction Private Limited, leads the team and is based at site office. The breakup of 278 staffs are given in Appendix F. The organization chart of Maintenance team and Operation team are presented below.

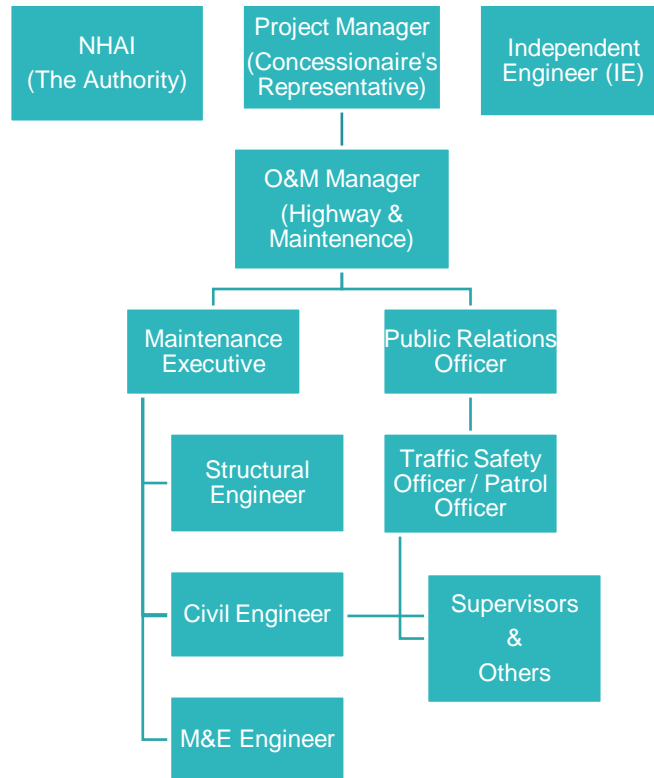
As per the concession agreement, the project is on build operate and transfer on toll basis, so the toll price is collected by the concessionaire ONBCPL. These toll collectors are on the rolls of ONBCPL. The duty of the toll collectors is assigned by the toll manager. The operation of toll gates is automatic and it remains closed, the toll price which determined by the NHAI, is paid by the vehicle driver at the toll booth. The toll collectors open the automatic gates. The amount collected at the toll booth, is transferred to the locker through underground tunnel and subsequently transferred to bank.

### Figure 4: Organisation Chart for Construction Work

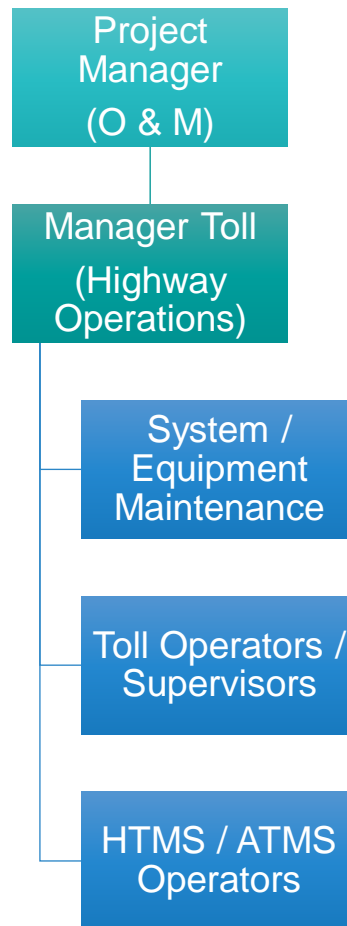


Source: ONBCPL

**Figure 5: Organization Chart – Maintenance Team**



**Figure 6: Organization Chart – Operation Team**



## 2.14 Construction, Operation and Maintenance

Construction work in forest section from chainage Km 652.000 to 689.450 is complete. The type of structure completed in the forest section are animal underpasses, minor bridges, culverts and carriageway.

- Cutting of trees – tree cutting exercise is completed. It was executed as per the requirement of tree cutting permission and forest clearances received. There are requirements of forest clearance to plant trees within the RoW and it will be completed after the carriage way is constructed.
- Cutting filling of earth and borrow area management - The borrow area is taken by the concessionaire after signing agreement and it will be rehabilitated before closure of the borrow area.
- Material requirement and quarry management –material is being purchased from the approved quarry in Pachgaon and Umri. The consultant had visited Umri quarry and was observed to have no impact on agricultural land and on safety of community. It is designated quarry site by the government of Maharashtra.
- Labour management at construction site – the labourers were hired by sub-contracting agency and sub contract agreement is in line with OSEPL SOP. The labour camps are not allowed

within the forest area so night accommodation has not been provided. However, the labours hired belong to local villages and nearby area.

- Shifting of cultural properties
- Prevention and avoidance of impacts on surrounding forest land.

The EHS risk mitigation have been identified and provided in the manual. The consultant identifies gap with respect to hazard identification and risk analysis. It is recommended that SPV prioritise the risk and its mitigation measures in the manual. However the company mentioned that it had engaged one sub-contractor for supply of labours for the construction work which has supplied 50 labours. The documents of sub-contractor was not made available for review..

Operation and maintenance activities are undertaken by the concessionaire as per the Schedule L of the concession agreement. Operation and maintenance are designed as per the design of road and allied infrastructure. Maintenance schedule designed as per design life of the facility and regular inspection and monitoring.

ONBCPL have developed Operation and Maintenance manual and O&M Plan to fulfil the objectives and requirement of the concession agreement.

The objectives identified in the Operation and Maintenance manual are stipulated below:

- Ensure safety of the personnel involved in and or users of project facility or part thereof;
- Keep the project facilities from undue deterioration and wear; and
- Permit unimpaired performance of statutory duties a function of any party in relation to the project.

## 2.15 Compliance with World Bank EHS Guideline for Toll Roads

The status of compliance with World Bank EHS guidelines for Toll roads are as indicated in the table below.

**Table 18: Compliance with World Bank EHS guidelines for Toll Roads**

Requirement of World Bank EHS guidelines for Toll Roads	Project Observation	
	Construction Operation & Maintenance	Monitoring and Reporting
Environment		
Habitat alteration and fragmentation	<p>Project involves diversion of 49.2 ha of forest land in section km 652.000 to km 689.450. the impact of diversion of forest land will be mitigated by providing additional land of 98 ha and plantation of 1,10,000 trees. In addition to compensatory plantation the concessionaire will undertake avenue plantation after completion of construction of road in the forest section.</p> <p>In view of the above the project does not attract significant irreversible impacts on the habitat such as fragmentation of forest habitat or loss of nesting sites or disruption of water course or creation of barrier to wildlife movement. The project has considered mitigation measures by providing 5 number of wildlife animal underpasses, 4 number of minor bridges and culverts.</p> <p>Plantation activities are planned considering the native plant species.</p> <p>Road side plantation and median plantation has been adopted but attracts scope for improvement in terms of maintenance.</p> <p>Chemical fertilizers are avoided, and compost manures are used to maintain landscape in the Project area.</p>	<p>Regular monitoring of avenue plantation in terms of survival rate of trees are conducted and the reports are submitted on monthly basis to NHA1</p> <p>The reporting of plantation is done in the monthly progress report.</p> <p>There is no reporting system of plantation of 1,10,000 trees as compensatory afforestation being performed by the forest department.</p>

Requirement of World Bank EHS guidelines for Toll Roads	Project Observation	
Storm water	The project has provided considerable efforts for storm water management by providing 2 number major bridges, 20 number of minor bridges and 132 number of culverts. However, maintenance of storm water drains along the road side attracts scope for improvement since clogging of drains were noticed in certain areas.	No monitoring is done however any water logging is removed after receiving complaints from community or if water logging is found during regular inspection by the SPV.
Waste	Waste generation in terms of rock and soil was not applicable for the project since the filling requirements were more and additional soil from borrow earth were used for filling. Other construction and operation waste including road litter collected from the right of way are not being managed. The plastic waste is disposed off through pre-identified vendors.	Records of plastic waste handed over to vendors are maintained. But no monitoring and reporting of other construction and operation waste including road litter has been observed.
Noise	The impacts of noise and vibration has been avoided by limiting the project construction duration to day time only. the road operation impact of noise will be lesser than the pre-project scenario. However, since the project is bypass so it the alignment avoids habitation and it does not have intervention of noise. The project alignment passing through few habitations like Devlapar, the recipient of noise is sufficiently away from the carriage way of the road. So the impact is negligible.	Noise levels are monitored at frequent intervals to keep a check on compliance with local noise regulations. However, the locations of noise level testing should include the sensitive locations and habitations.
Air Emissions	16 major intersections, 43 minor junctions, 11 grade separator, , 6 VUPs have been provided in the project. These structures will avoid any traffic congestion and result lesser air emission by traffic in the project. Other measures to avoid traffic congestions such as automated toll charging system, separate high occupancy vehicle lane, measures to minimize grade changes and sharp curves have been considered in the project so as to minimize emission from traffic.	Ambient air quality monitoring is being conducted on regular basis to Keep a check on air quality. However, the sampling location should include sensitive locations.
Wastewater	Waste water generated from toll plaza are treated using septic tank followed by soak pits.	Ground water quality monitoring is conducted on a regular basis to keep a check on compliance with water quality standards.
<b>Occupational Health and Safety</b>		
Physical Hazard	The Project has developed EHS manual which includes measures to ensure work zone safety for construction workers and the travelling public. Trainings are conducted on regular basis for elevated and overhead work, fall protection for workers exposed to such working conditions. Use of Personnel Protection Equipment at the operational section of the project area was observed to be adequate whereas use of PPE at construction site attracts scope for improvement	No monitoring and reporting has been observed to be on site.
Chemical Hazard	Chemical hazards at project site is mitigated by preventing any leakages by maintaining construction machineries, reducing engine idling time, toll booths are fitted with air conditioners. The paints used for road painting are thermoplastic paints. the yellow paints which contains lead are minimum in use while black and white are mostly used.	No monitoring and reporting has been observed.
Noise	The project does not involved any high noise activity however the monitoring of work site noise has not been conducted. Workers exposed to high noise generating equipment during construction work are provided with PPE as hearing aid and work rotation programme is adopted to reduce cumulative exposure.	Noise levels are monitored at frequent intervals to keep a check on compliance with local noise regulations. However the noise monitoring at habitation and sensitive locations are not being conducted.
<b>Community Health and Safety</b>		
Pedestrian Safety	Two number of pedestrian underpasses have been provided. Pedestrian safety is ensured in the project by providing provision for safe corridors along the road alignment and safe crossing for pedestrians. Barriers are installed to prevent pedestrian access to	Accident registers are maintained to keep a record of accidents and the reports are submitted to NHAI for review.

Requirement of World Bank EHS guidelines for Toll Roads	Project Observation	
	roadway except designated crossing points. All sign boards, marking and other traffic regulating devices were observed to be well maintained.	
Traffic Safety	To comply with traffic safety requirement the project has installed adequate signs, signals, marking and other devices to control speed limits. Design has been made considering anticipated traffic volume. Road side rest areas has been provided to minimize driver fatigue. Animal crossing structures and fencing has been provided to avoid accidents between vehicle and animals.	Accident registers are maintained to keep a record of accidents and the reports are submitted to NHAI for review.
Emergency preparedness	Emergency Preparedness and response plan has been prepared. It lacks the handling of emergency situations of accident of vehicles carrying hazardous material and its response plan.	

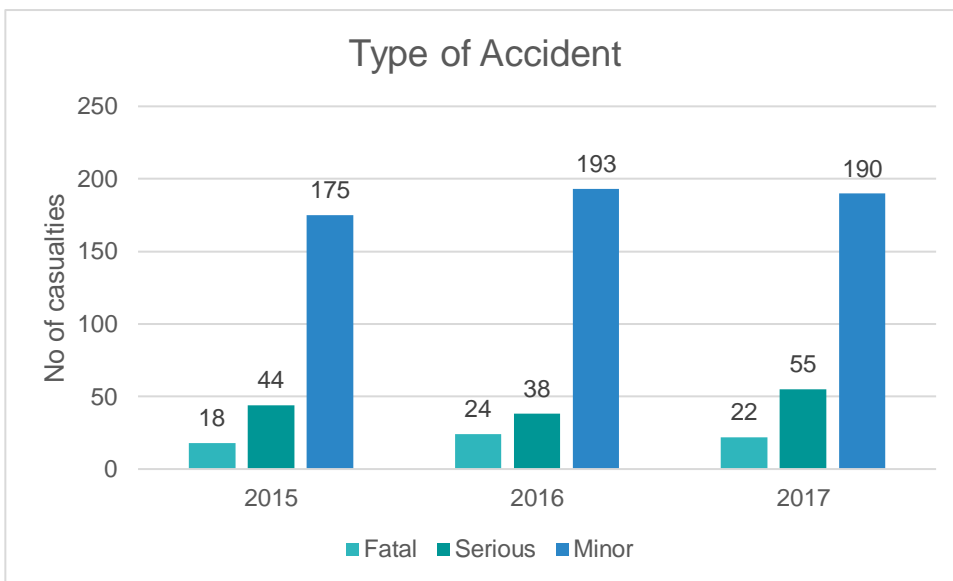
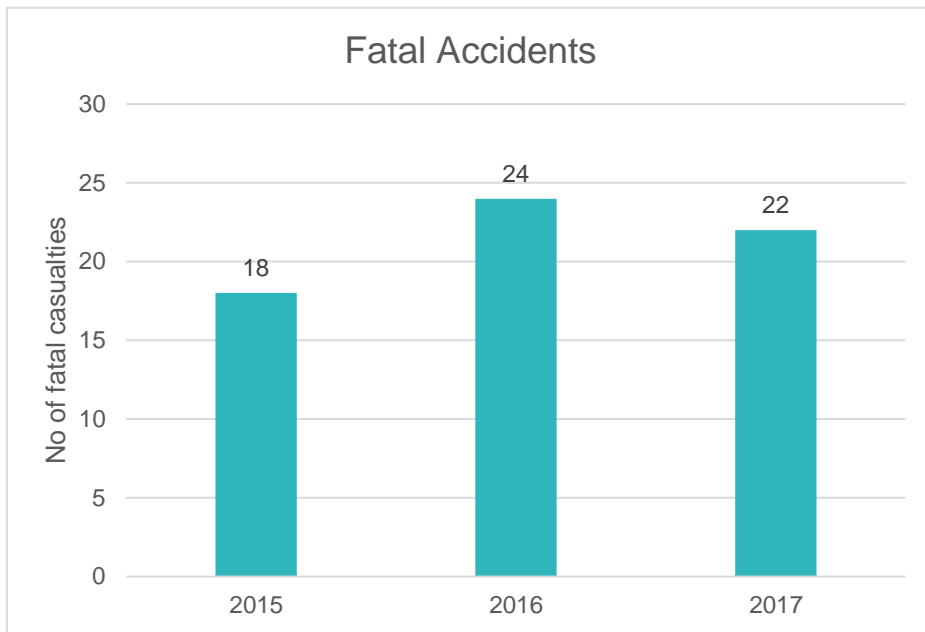
## 2.16 Accident analysis

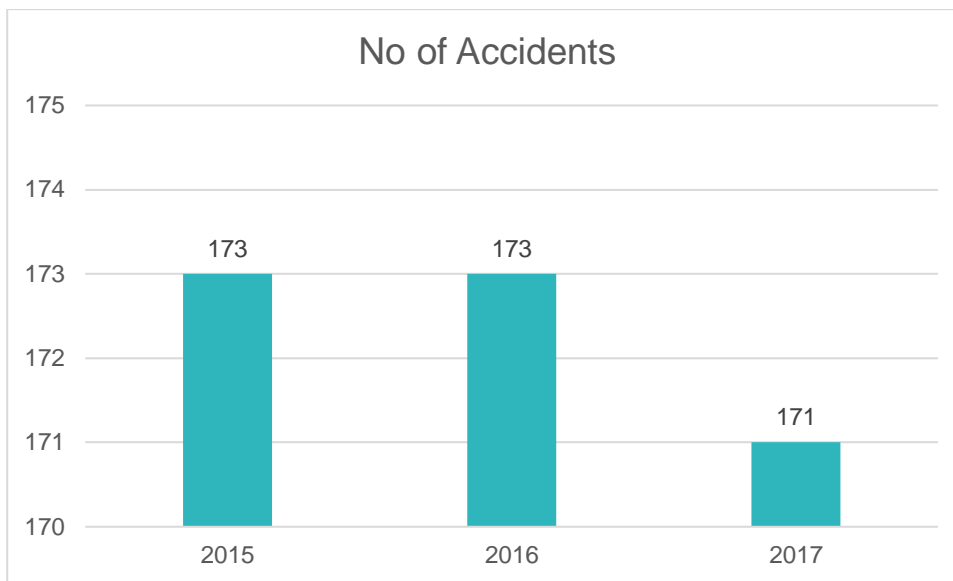
Record of accidents includes information on date of accident, time, location, nature of accident, classification of accident, causes of accident, road feature, road condition, intersection type and control, weather condition, and vehicle responsible. It also includes information on the nature of help provided by ambulance. Accident analysis of previous 3 years, from 2015 to 2017 is as presented below.

**Table 19: Type of Accidents**

Year	Fatal	Serious	Minor	Total Accidents
2015	18	44	175	173
2016	24	38	193	173
2017	22	55	190	171

It has been observed that the total no. of accidents in each year during the period from 2015 to 2017 has been constant and range between 171 to 173. Maximum fatal accidents were observed in the year 2016 which is about 24. Graphical representation of the accident details is as presented below.





The above accident data is submitted to NHAI and NHAI with support of Independent consultant reviews the cases and root cause analysis is undertaken. The outcome of this root cause analysis is communicated to the concerned department and concessionaire for their action. The first two charts indicate that fatalities have increased year wise. The third chart indicates the number of accidents are decreasing year wise. The analysis report is not available for review.

## 2.17 Environmental Management System

The Consultant note that, ONBCPL have Environmental Management Manual (EMM) and Human Resource Management Manual (HRMM) in place at the project site office and these manuals were observed to be in line with the requirements of applicable regulations and legislations of Government of India and Government of Maharashtra.

The Environmental Management Manual and Human Resource Management Manual were observed to be partially in compliance with IFC Performance Standard (PS-1).

The environmental management manual provides the risk assessment procedures and the potential risks. These have been listed below for reference. However, it does not provide the location of occurrence, severity and specific plan to mitigate the risk.

- Natural Hazards: Earthquakes, droughts, floods, avalanches etc.
- Hazards of violence: War, armed conflict, physical assault etc.
- Environmental and Health and Safety Hazards: Declining health, education and other social services, environmental degradation etc.

The Risk assessment in EMM is procedural; however specific risk assessment has not been completed. The EMM is generic for the construction and operation stage. It does not stipulate the plan. It includes the social parts also covering public communication, complaints, grievance, land acquisition, rehabilitation and resettlement, cultural heritage.

The consultant has identified gaps in the EMM and HRMM and these are in grievance Redressal mechanism of affected communities. The gaps are related to the process of lodging complaints by community and resolving those complaints.

ONBCPL project highway also have valid Consent from Maharashtra Pollution Control Board for operating project facilities such as Toll Plaza, Hot Mix Plant, Batching Plant, and Stone Crusher.

Environmental Health and Safety measures are identified in the Environmental Management Manual and is based on the policy of avoidance, minimisation, mitigation and compensation of impacts. The key mitigation measures identified are as follows:

- Avenue and median plantation,
- Avoidance of diversion of any natural streams by providing culverts at suitable locations,
- Rehabilitation of borrow area etc.

The key mitigation measures during construction stage in forest area include the following:

- Complete avoidance of construction during night time.
- No construction camp within forest area
- No disposal of waste in the forest area.

Operational stage mitigation and monitoring plan envisaged in the Environment Management manual include monitoring of environmental quality in terms of air, water and noise levels however, the manual does not specify the criteria for selection of monitoring location and number of samples to be collected. The manual is also silent on the environmental mitigation plan in the supply chain of the operation of project highway such as due to usage of water from selected source which is also one of the requirements as per IFC performance standard.

ONBCPL submits report to NHAI in the desired format of NHAI on a regular basis which includes the following:

- Indicators on Environmental Health and Safety
- Tree plantation and its survival
- Accident reporting
- Compliance with regulatory requirement
- Air, water and noise level monitoring data

However, the Consultants note that there is a gap in terms of criteria adopted in selecting sampling location. The sampling location identified that include representative samples from sensitive locations and community habitat and the data so obtained to be compared with respect to baseline scenario.

A consultative meeting was held during site visit with ONBCPL project site office staff to discuss on the management system adopted for environmental and social impact management and policy guidelines adopted. The Environmental Management manual is required to be updated to include stakeholder engagement plan and selection of environmental monitoring locations. The EIA was prepared but it was not provided for review.

## 2.18 Labour Working Conditions

The Human Resource (HR) Manual covers labour and working conditions. ONBCPL encourages fair treatment, non-discriminatory treatment and equal opportunity for its workers. This is demonstrated through process followed for recruitment, employee promotion and compensation as detailed in Non-Discrimination Policy.

The HR manual covers recruitment process, promotion policy, remuneration, provident fund, insurance, accident cover, maternity benefits, termination policy and hiring of security personnel amongst others.

HR management policy covers employees of ONBPCL. Contracted labours are covered through contract agreements of sub-contracting agency however responsibility of implementation of EHS policy remains with concerned supervisors of SPV.

The working condition and occupational health and safety are compliant to World Bank General EHS Guidelines and World Bank EHS Guidelines for Toll Roads with the gaps identified in different sections highlighted.

Environmental Management Manual and Standard Operating Procedure (SOP) provides guidance note for first aid, medicine stocks, fire extinguishers, emergency records and follow up actions. The environmental manual also lists training requirements like EHS training, fire safety training, PPE training, first aid training etc.

During site visit the Consultants had a quick review of road and OHS accident records maintained at site and toll plaza. It was observed that road accident records are analysed by NHAI and corrective and preventive measures are undertaken by NHAI and Concessionaire. The records of occupational accident were not available and are not being analysed by the company. However, these accidents are handled on a case to case basis. The Environment Management manual also specifies risk assessment, safe working & maintenance procedures and disaster management procedures, emergency preparedness & response.

It was noted during site visits that the first aid system was being maintained at site. The ambulance and highway patrolling system were also in place which is also a requirement of the concession agreement.

The labour working condition was also observed to be satisfactory as labours were observed to be using PPE, ladder with railing fitted, barricading of the site during work hours. The staff working in forest area were aware of the working condition and health and safety measures required while working in that area.

Statutory labour requirements like labour licenses, remuneration payment and facilities provided have been reviewed and it is in line with requirements. The labourers employed are local people. Night accommodation has not been provided as it is also not permitted to construct labour camp in forest area or near the forest area. However, a shed is provided for day time rest, eating area, rain shelter and mobile toilets. The facility provided for labours include drinking water and sanitation facility.

## 2.19 Environmental Monitoring

The concessionaire has selected the monitoring locations at their toll plazas and details are listed below.

**Table 20: Monitoring Location Details**

Environmental Parameter	Environmental Sampling Location				
Air Quality	Mansar @ 690+200	Paoni @669+500	Devlapar @662+500		
Noise	Mansar @ 690+200	Paoni @669+500	Devlapar @662+500	654+000	674+000
Stack Monitoring	Mansar @ 690+200	-	Devlapar @662+500		
Water	Mansar @ 690+200	Paoni @669+500	Devlapar @662+500	Water Body Crossing at 654+000	

Source: ONBCPL

Water quality, Noise level, Ambient Air Quality has been conducted on Kandri Toll Plaza, Near Takadi village, Mansar toll plaza and NBP till plaza from 1<sup>st</sup> October 2015. The results are within the permissible limit of standards prescribed by the State Pollution Control Board. While these parameters should be compared with the baseline condition. The baseline data of Ambient air quality, noise level and water quality has not been maintained. EIA has not been provided for review hence the comparison of current results with respect of baseline data could not be done. The current results of ambient air quality, noise level and water quality has been provided in the appendix E.

The location selected for sampling has been considered to capture the impact of operation of Toll Plaza, whereas the Consultant recommends selecting the monitoring location based on the sensitive receptors, habitations in addition to the above locations. The Consultant further recommends comparing the results with baseline scenario in addition to the standards prescribed.

The observations of monitoring results are given below, and the monitoring data has been provided in Appendix E.

- Ground water samples, one each from three toll plazas were collected for analysis. Each sample were tested for 29 parameters and were tested in accordance with Standards testing method of IS 3025. All the tested parameters comply with norms stipulated in IS 10500: 2012.
- Ambient air samples were collected from one location in Mansar toll plaza and two locations each from KKBP and NBP toll Plaza. Samples were tested for parameters such as Sulphur dioxide, Nitrogen dioxide, Particulate matter PM 10 and PM 2.5 and Carbon Monoxide. All the monitored parameters in each of the locations comply with National Ambient Air Quality Standard (Govt of India MOEFCC notification GSR 826 CE Dated 16.11.2009).
- Ambient noise levels were measured at one location in Mansar toll Plaza and two locations each from KKBP and NBP toll Plaza. Samples collected comply with Noise Pollution Amendment Rules 2000 stipulated for Industrial Area.

## 3 Reference Framework Findings and Compliance

### 3.1 Introduction

Reference frameworks considered while preparing this section include the following

- Revised IFC Performance Standards 2012;
- Applicable World Bank Group/IFC EHS Guidelines, Specifically, the following World Bank Group EHS Guidelines, published on April 30, 2007:
  - IFC EHS General Guidelines
  - IFC EHS Guideline for Toll Roads;
- Equator Principles;
- Applicable Local, National, and International environmental and social legislation

### 3.2 IFC Performance Standard

IFC's Sustainability framework is committed to sustainable development and comprises of policies and performance standards which provides means for identifying potential impacts and affected stakeholders and lays down processes to mitigate adverse impacts.

The 8 PS established under the IFC's sustainability framework are as follows:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Performance Standard 2: Labour and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety, and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Performance Standard 7: Indigenous Peoples
- Performance Standard 8: Cultural Heritage

### 3.3 Categorisation of Project

IFC categorises road projects into following three types:

Category 1 – Operating Roads for 2 years or more,

Category 2 – Operating Roads for more than 1 year and less than 2 years, and

Category 3 – Operational for less than 1 year or where there is any pending land acquisition

Construction in section Km 689.450 to 747.100 was complete and COD was achieved on 11 July 2012 and 4 lane Km 14.585 to 36.600 was also included for maintenance. The construction in forest section from chainage 652.000 to 689.450 is in progress as per the schedule and its physical progress is more than 75%.

As per NHA1 PD, majority of the Land Acquisition was done during the period 2002-2008 including the forest section, private land and government land. However, a small parcel of land ranging from 2 - 5 Ha was acquired and handed over during 2015-16.

As per the information shared by CALA office and PD, NHA1 on 2<sup>nd</sup> May 2018 regarding land acquisition and compensation disbursement, the total private land acquired for the project is 299.57 Ha. The total title holders identified were 1,782 Nos. and the total compensation award was INR 153.83 Cr, out of which total amount disbursed to PAPs was INR 146.44 Cr and an amount of INR 5.85 Cr is deposited in Court. Hence status of completion of amount disbursed to PAPs is 95.2%. Considering the above facts, the project has been considered under Category - 1.

### 3.4 Preliminary screen of IFC Performance Standard

Preliminary screening of each of these PS with our observation for the Project under study are as indicated in table below:

**Table 21: Preliminary Screening on Applicability of IFC Performance Standard**

S. No.	Performance Standard	Applicability to the Project
1	Assessment and Management of Environmental and Social Risks and Impacts	Applicable This PS aims to assesses the existing social and environmental management systems of ONBPCL and to identify the gaps with respect to their functioning, existence and implementation of an environmental and social management plan (ESMP), a well-defined EHS Policy, organization chart with defined roles and responsibilities, risk identification and management procedures as well as processes like stakeholder engagement and grievance management.
2	Labour and Working Conditions	Applicable This PS is guided by a number of international conventions and instruments on labour and workers' rights. It recognises that the pursuit of economic growth through employment creation and income generation should be accompanied by protection of fundamental rights of workers. The PS covers following themes: human resource policy and management, workers' organization, non-discrimination and equal opportunity, retrenchment, protecting the workforce and occupational health and safety. This PS helps to assess the status of the employees and workers in ONBPCL as well as any contractors.
3	Resource Efficiency and Pollution Prevention	Applicable PS-3 covers the use resources and materials as inputs and wastes that could affect human health. The objective of PS-3 are: to avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities; to promote more sustainable use of resources, including energy and water, and to reduce project related GHG emissions. Key themes covered under PS-3 are: pollution prevention, resource conservation and energy efficiency, wastes, hazardous materials, emergency preparedness and response, greenhouse emissions, pesticide use and management. This PS will assess how ONBPCL intends to minimize pollution related impacts, what management plans and systems are in place, and what measures it plans to take to conserve and use resources more efficiently.
4	Community Health, Safety, and Security	Applicable The PS-4 requires due diligence to anticipate and avoid adverse impacts on the health and safety of the affected community during the project life from both routine and non-routine circumstances. It also requires to ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the affected Communities. Key areas of compliance screened under PS-4 includes: infrastructure/equipment safety, hazardous material safety, natural resource issues, exposure to disease, emergency preparedness and response, and security personnel

S. No.	Performance Standard	Applicability to the Project
		requirements. The project would affect the health and safety of the communities adjacent to it during both the construction and operations phases. In addition, the safety of the road uses would also be a concern which needs to be considered.
5	Land Acquisition and Involuntary resettlement	<p>Applicable</p> <p>PS-5 requires project proponents to anticipate and avoid, or where avoidance is not possible, minimize adverse social and economic impacts from land acquisition or restrictions on land use. The key themes covered under this are: compensation and benefits for displaced persons, consultation and grievance mechanism, resettlement planning and implementation, physical displacement, economic displacement. The PS-5 also prescribes private sector responsibility to supplement government actions and bridge the gap between governments assigned entitlements and procedures and the requirements of PS-5</p>
6	Biodiversity Conservation and Sustainable management of Living Natural Resources	<p>Applicable</p> <p>The requirements of this Performance Standard are applied to projects (i) located in modified, natural, and critical habitats; (ii) that potentially impact on or are dependent on ecosystem services over which the client has direct management control or significant influence; or (iii) that include the production of living natural resources (e.g., agriculture, animal husbandry, fisheries, forestry). PS-6 screens relevant threats to biodiversity and ecosystem services, especially focusing on habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological changes, nutrient loading, and pollution. The key themes covered under PS-6 are: natural habitat, critical habitat, legally protected areas, international introduction of alien species, and living natural resources (natural and plantation forest, aquatic resources etc.) are sustainably managed.</p> <p>The Project highway stretch from chainage km 652 to km 689 passes through boundary of the buffer zone of Pench Tiger Reserve. Forest clearance was given in September 2015 after judgement of Nagpur Bench of Bombay High court. The progress of work is also monitored by Hon'ble High Court.</p>
7	Indigenous People	<p>Not Applicable</p> <p>This Performance Standard applies to communities or groups of Indigenous Peoples who maintain a collective attachment, i.e., whose identity as a group or community is linked, to distinct habitats or ancestral territories and the natural resources therein. PS-7 endeavour to ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples. Key themes covered under PS-7 are: avoidance of adverse impacts, consultation and informed participation, impacts on traditional or customary lands under use, relocation of IPs from traditional or customary lands, and cultural resources.</p> <p>The Project highway stretch falls within Nagpur district which is not a notified tribal district. As per the RAP, out of 733 affected families due to the project, ST population is 23 and SC population is 194. However, the nature of impact could not be assessed as the land acquisition data has not been compiled. However, PD NHA informed there is no land acquired from scheduled tribes and there are no PAPs in the category of schedule tribe. As per the RAP, these SC and ST population have free social interaction with the mainstream society. As per RAP these population can be assimilated into mainstream society and does not display distinct demographic, locational, cultural identity. RAP also recommends that the Indigenous People Development Plan is not required. Although RAP identifies ST PAPs, this was discussed with PD NHA and Project Director of NHA confirmed that no tribal land has been acquired from tribal land. Hence, PS-7 is not applicable to the project. The nature of impact could not be compiled as the Land acquisition data has not been compiled.</p>
8	Cultural Heritage	<p>Not Applicable</p> <p>For the purposes of PS-8, cultural heritage refers to (i) tangible forms of cultural heritage; (ii) unique natural features or tangible objects that embody cultural values; and (iii) certain instances of intangible forms of culture that are proposed to be used for commercial purposes. The</p>

S. No.	Performance Standard	Applicability to the Project
		<p>requirements of PS-8 apply to cultural heritage regardless of whether or not it has been legally protected or previously disturbed.</p> <p>No Archaeological site has been identified within the Project Highway. However, 11 nos. of Temple and a Mazar has been identified within the project highway from stretch km 652.000 to km 689.450. One temple has been removed and reconstructed in consultation with the community and Mazar has been saved by realignment of the carriage way.</p> <p>Other structures in operational road has already been shifted in consultation with community.</p>

### 3.5 Screening of Red Flag Criteria

#### 3.5.1 Impact on Critical Habitat

The assessment of critical habitat was carried out by ERM. The summary of the assessment is briefed below.

As per the definition of IFC's Performance Standard 6, Critical Habitat are the areas with high biodiversity value including the following:

- Habitat of significant importance to critically endangered or endangered species listed on IUCN Red list of threatened species or species listed nationally or regionally critically endangered or endangered, or assessed to be endangered or critically endangered species.
- Habitat of significant importance endemic or restricted range species
- Habitat supporting globally significant concentration of migratory species and or congregator species;
- Highly threatened or unique ecosystem
- Area associate with key evolutionary process

The following sub sections describes the project setting, mitigation measures proposed and compliance to IFC's PS 6-14.

#### 3.5.2 Species of conservation importance

**Table 22: Species of Conservation Importance**

S. No	Common Name	Scientific name	IUCN Red List Status	IWP Schedule	Relevant IFC Critical Habitat Criteria	Status
1	White-rumped Vulture	<i>Gyps bengalensis</i>	Critically Endangered	I	Criterion 1	Were identified in the Pench Core Area but have been rarely sighted or recorded outside the core area
2	Indian Vulture	<i>Gyps indicus</i>	Critically Endangered	I	Criterion 1	Were identified in the Pench Core Area but have been rarely sighted or recorded outside the core area
3	Tiger	<i>Panthera tigris</i>	Endangered	I	Criterion 1	Described in subsequent sections
4	Wild Dog	<i>Cuon alpinus</i>	Endangered	I	Criterion 1	Has only been identified within the Pench Core Area and very few sightings of the species is

S. No	Common Name	Scientific name	IUCN Red List Status	IWP Schedule	Relevant IFC Critical Habitat Criteria	Status
						recorded within the buffer region.
5	Indian Pangolin	<i>Manis crassicaudata</i>	Endangered	I	Criterion 1	Described in subsequent sections
6	Leopard	<i>Panthera pardus</i>	Vulnerable	I	Criterion 1	Not eligible for CH assessment under Criteria 1*
7	Gaur	<i>Bos gaurus</i>	Vulnerable	I	Criterion 1	Not eligible for CH assessment under Criteria 1*
8	Sambar	<i>Rusa unicolor</i>	Vulnerable	III	Criterion 1	Not eligible for CH assessment under Criteria 1*
9	Sloth Bear	<i>Melursus ursinus</i>	Vulnerable	I	Criterion 1	Not eligible for CH assessment under Criteria 1*

Note (\*) A sub-criterion of Critical Habitat Criterion 1 is that 'Vulnerable' species that have a poorly understood global distribution should also be assessed within criterion 1. In the case of the Project site however, leopard, gaur, sambar and sloth bear have a well-understood global distribution.

### 3.5.3 Indian Pangolin (*Manis crassicaudata*)

The Indian Pangolin is an extremely shy animal that is rarely found outside of dense forest regions. Based on consultation with the Forest Department it was determined that while a few nos. of the species are found in the Pench Core Zone, there are limited to no sightings of the species in the Pench Buffer Zones. The species is also rarely sighted in Maharashtra with majority of nos. that have been found outside the core zone have been identified in Madhya Pradesh. The species is also very reluctant to approach highly developed areas including highways and settlements and it is possible that a local dispersal of the species away from the existing highway and settlements may have occurred. The Indian Pangolin has therefore been screened out of the critical habitat assessment because of no records of individuals found near the Project site.

### 3.5.4 Tiger Distribution in the Region

National context of Tiger population trends in Maharashtra and India at large were compared to place the impacts of the Project Road stretch. The mitigation proposed in terms of facilitating habitat contiguity, it may be useful to indicate that both tiger numbers and tiger habitat under protection have shown an increasing trend from 2006 onwards. The tiger population has increased by ~ 84% in Maharashtra and nationally by 58% from 2006-14. While there is always cause for caution, the country's efforts at tiger conservation has been lauded internationally. Due to concerted efforts under the Project Tiger program, at present India has the distinction of having the maximum number of tigers in the world (2226 as per 2004), when compared to the other tiger range countries. The Pench sub-population of tigers has grown considerably in this period and therefore there is now an overpopulation of tigers in the National Park that has spilled over to surrounding forest habitat.

The population trends of tigers in India is as presented below

Figure 7: Population trends of tigers in India

State	Tiger Population			Tiger km <sup>2</sup>		
	2006	2010	2014	2006	2010	2014
<b>Shivalik-Gangetic Plain Landscape Complex</b>						
Uttarakhand	178 (161-195)	227 (199-256)	340 (299-381)	1,901	3,476	6,576
Uttar Pradesh	109 (91-127)	118 (113-124)	117(103-131)	2,766	2,511	2,519
Bihar	10 (7-13)	8 (-)	28 (25-31)	510	750	922
Shivalik-Gangetic	297 (259-335)	353 (320-388)	485 (427-543)	5,177	6,712	10,017
<b>Central Indian Landscape Complex and Eastern Ghats Landscape Complex</b>						
Andhra Pradesh	95 (84-107)	72 (65-79)	68 (58-78)	14,126	4,495	4,686
Chhattisgarh	26 (23-28)	26 (24-27)	46 (39-53)*	3,609	3,514	4,735
Madhya Pradesh	300 (236-364)	257 (213-301)	308 (264-352)*	15,614	13,833	15,156
Maharashtra	103 (76-131)	168 (155-183)	190 (163-217)*	4,273	11,960	11,643
Orissa	45 (37-53)	32 (20-44)	28 (24-32)*	9,144	3,398	3,981
Rajasthan	32 (30-35)	36 (35-37)	45 (39-51)	356	637	1,147
Jharkhand	-	10 (6-14)	3*	1,488	1,180	626
Central India	601 (486-718)	601 (518-685)	688 (596-780)	48,610	39,017	41,974
<b>Western Ghats Landscape Complex</b>						

**Tiger Reserves**

Karnataka	290 (241-339)	300 (280-320)	406 (360-452)	18,715	14,414	14,523
Kerala	46 (39-53)	71 (67-75)	136 (119-150)	6,168	6,804	7,137
Tamil Nadu	76 (56-95)	163 (153-173)	229 (201-253)	9,211	8,389	7,229
Goa	-	-	5*			622
Western Ghats	412 (336-487)	534 (500-568)	776 (685-861)	34,094	29,607	29,511
<b>North Eastern Hills and Brahmaputra Flood Plains</b>						
Assam	70 (60-80)	143 (113-173)	167 (150-184)	1,164	2,381	3,848
Arunachal Pradesh	14 (12-18)	-	28*	1,685	1,304	1,169
Mizoram	6 (4-8)	5	3*	785	416	100
Northern West Bengal	10 (8-12)	-	3*	596	799	704
North East Hills, and Brahmaputra	100 (84-118)	148 (118-178)	201 (174-212)	4,230	4,900	5,821
Sundarbans	-	70 (64-90)	76 (62-96)	1,586	1,645	1,841
<b>TOTAL</b>	<b>1,411 (1,165-1,657)</b>	<b>1,706 (1,520-1,909)</b>	<b>2,226 (1945-2491)</b>	<b>93,697</b>	<b>81,881</b>	<b>89,164</b>

\*from camera trap data and scat DNA

(Source: Status of Tigers Copredators & Prey in India, 2014, WII)

### 3.5.5 Tiger distribution across the road stretch

Wildlife Institute of India (WII) 2015 Report indicates that tiger have been sighted along the National Highway 7 where the highway is adjacent to the Pench Tiger Reserve buffer zone. Tiger

presence along the road was determined by sign surveys along the affected road stretches during morning and evening hours to assess animal use of these habitats. For this, the survey team walked parallel to the road stretch at perpendicular distances 30 (roadside), 250, 500 and 750 m from the road on both sides. Signs recorded included pellets, scats, pug/h hoof marks, other animal signs and direct animal sightings. At each sign/sighting, topography and forest type was also recorded. Locations of animal signs collected in field were plotted in a GIS domain and sign occurrence density per unit area was calculated using a Kernel analysis which is a non-parametric statistical method for estimating probability densities from a set of points. The method begins by centring a bivariate probability density function with unit volume (i.e., the “kernel”) over each recorded point. A bivariate kernel probability density estimator (i.e., a “utilization distribution”) is then calculated using the probability density estimates at each sign. The resulting kernel probability density estimator will have relatively large values in areas with many observations and low values in areas with few. Intensity use area estimates were indicated by using colour shading, with light colour showing low sign densities and darker shades indicating higher sign densities. The 3 patches surveyed south of the Madhya Pradesh border which correspond to the project location are given below.



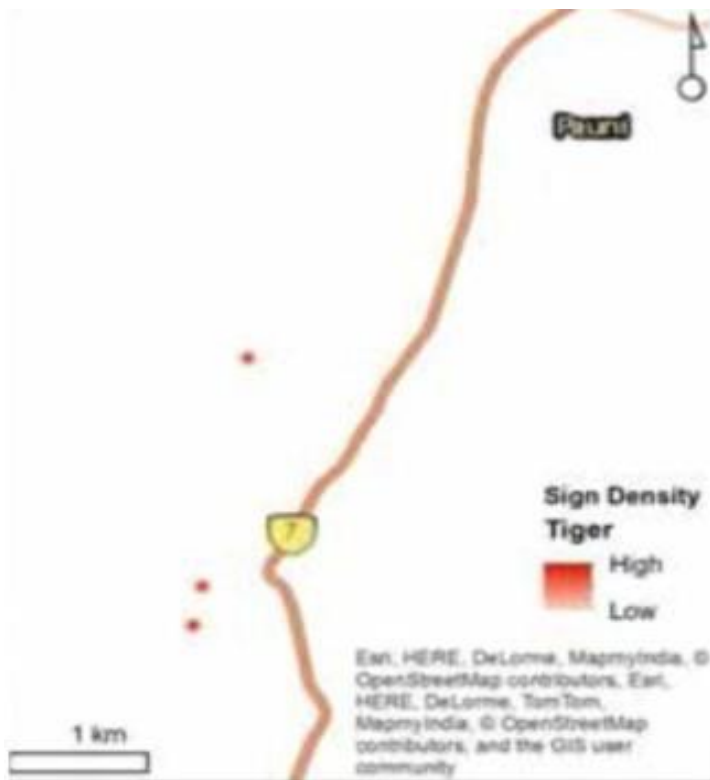
Proposed Mitigation Measures for Maintaining Habitat Contiguity and Reducing Wild Animal Mortality on NH 6 & 7 in the Central Indian Landscape, Technical Report No. 2015/006, Wildlife Institute of India, MoEFCC, Govt. of India.

Tiger signs were detected in Patch 1 and 3 and the Kernel Probability Density

Estimators for each patch are provided below



Kernel probability density estimators of tigers in Patch 1 of the Project road stretch



Discussions with the District Forest Officer indicated that 2 nos. of the species have been seen near the National Highway 7 in a given year. A forest guard located at a check post in Patch 3 within the Maharashtra road stretch has personally seen only one tiger in the last 4 years of his tenure. He also mentioned that travellers have seen 1-2 tigers along the highway every year.

The Tiger is the only species of conservation importance that has been screened-in for the Critical Habitat Screening. Tiger conservation is being done through a network of national parks in India

### 3.5.6 Critical Habitat Assessment

**Table 23: Critical Habitat Assessment**

IFC PS 6 Requirement	Project's Activities demonstrating compliance to the IFC PS 6 Requirement
Project should go ahead after demonstrating no other viable alternatives within the existing region for development of the project in modified or natural habitats that are not critical	The Project is a widening/upgrading of an existing road that has been present for over a 100 year. The road already has an existing flow of traffic, which is significant and a deterrent to movement of wildlife. There have been no reported fatalities of tigers through collision with vehicles. The Project site is also going to be constructed with several underpasses and bridges to allow for contiguity of habitat for crossing wildlife. An alternate route has been considered but it would be 70 km longer and would therefore contribute significantly to habitat degradation and carbon emissions.
The Project should not lead to measurably adverse impacts on those biodiversity values for which the critical habitat was designated, and on the ecological processes supporting those biodiversity values.	The Project has been evaluated by specialists from Wildlife Institute of India (WII) and the National Tiger Conservation Authority of India (NTCA). The Project is also closely monitored by the Nagpur High Court and Nagpur Forest Department to ensure compliance with mitigation measures recommended by WII and NTCA. These mitigation measures focus on key potential tiger crossing points and provision of underpasses, guiding walls and culverts that has been scientifically decided based on primary surveys undertaken by a qualified ecologist (see below).
The Project does not lead to a net reduction in the global and/or national/regional population of any Critically Endangered species over a reasonable period of time	<p>The Project mitigation measures have been planned for tiger dispersal and therefore significantly reduces the possibility of road kills and human-wildlife conflict in the short-term. The details of the mitigation measures has been presented above The mitigation measures include provision for 9 structures which comprises of 5 underpasses and 4 minor bridges. It also has embankments to increase the height of the road above the forest ground level and guiding walls for animals. These have an estimated cost of INR 292.98 cr. Out of the total 22 km of road close to buffer zone, 8 km includes elevated patches/ flyovers and a significant no. of underpasses The mitigation measures however, does not consider (see below).</p> <ul style="list-style-type: none"> <li>- Changes in tiger movement over time;</li> <li>- Spill over of individuals into the highway area due to overpopulation within the Pench and Kanha Tiger Reserves;</li> <li>- Increased chances of poaching from the bottlenecking of individuals to select points along the highway; and</li> <li>- Increased development along the highway area due to the widening of the road and future human-wildlife conflict in the long-term.</li> </ul>
A robust, appropriately designed and long-term biodiversity monitoring and evaluation program should be integrated into the client's management program	The current mitigation measures are in the design stage. Long-term monitoring is suggested in terms of video traps and increased forest guard presence along the mitigation measures. A definitive monitoring and evaluation program has not been identified at this stage of the Project.
The Project should be designed to achieve net gains of those biodiversity values for which the critical habitat was designated.	Based on the results of the WII and NTCA study it is anticipated that continuity of habitat and reduction in human-wildlife conflict will eventually result in a net gain of tigers in the area. The above however, can only be considered compliant if there is a long-term monitoring and evaluation program to ensure that the process is adaptive to changes in the tiger movement and behaviour in the area.

### 3.5.7 Assessing Prevailing Mitigation Methods

Based on the WII (2015) study a system of underpasses and minor bridges are presently being constructed (See Table below). This has been finalized after several visits and consultations with tiger experts and government officials and representatives of the National Highway Authority of India. The locations are provided in the table below.

**Table 24: Mitigation Measures**

Chainage Km	Type	Provision	Dimensions (m)		Remarks
			Length	Height	
656+340	Under pass	RCC Structure	750	5	<ul style="list-style-type: none"> <li>- In general, 15 m Vehicular Underpasses are constructed, 30 m Grade separators are constructed as per Indian Roads Congress guidelines</li> <li>- Structures with such large dimensions (100-750m) are unprecedented in the country and have primarily been constructed to ensure that the stretch remains animal-friendly</li> <li>- The structures has been proposed keeping in mind the traffic heterogeneity, daily and annual traffic volumes, and types of animals found near the stretch</li> <li>- Structure provide sufficient openness for multiple species including solitary animals such as tiger and herd-living animals such as chital and wild pig</li> <li>- Construction of the structure would significantly contribute towards mitigation of the 'barrier effect' due to existing traffic on the road and provide open access to the other side of the road</li> </ul>
		Approaches	960		<ul style="list-style-type: none"> <li>- Longer approaches than the recommended length of 600 m would provide additional safety for the animals crossing the structure</li> </ul>
		Animal Guide Walls	100	2	<ul style="list-style-type: none"> <li>- Construction of guide wall in addition to the approach to the structures ensures usage of the structure by animals</li> </ul>
675+800	Under pass	RCC Structure	750	5	<ul style="list-style-type: none"> <li>- Two underpasses of 750 m length are being constructed. In general, 15 m Vehicular Underpasses are constructed, 30 m Grade separators are constructed as per Indian Roads Congress</li> <li>- Construction of the underpasses would significantly contribute towards providing open passage to the animals without any barrier</li> <li>- Post construction of underpass, the black top of the existing road would be removed. This land would get converted into forest cover resulting in better connectivity to the other side of the road for the animals.</li> <li>- Sufficient vegetation would be ensured on both sides without degradation to the forest cover</li> </ul>
		Approaches	700		<ul style="list-style-type: none"> <li>- Approach remanded by WII was 600 m</li> </ul>
		Animal Guide Walls	100		<ul style="list-style-type: none"> <li>- Ensures usage of the structure by animals</li> </ul>
653+872	Minor Bridge	Structure	60	5	<ul style="list-style-type: none"> <li>- 60 m has been constructed compared to 10 m length as per CA</li> <li>- Minor Bridge of width 60 m has been built over a stream with width around 5-6 m providing longer opening. This ensures no obstruction to the wildlife crossing the stretch.</li> <li>- Structure has been modified from wall type to circular pillar type to provide additional space and free access to the other side of the road</li> <li>- Sufficient vegetation would be ensured on both sides without degradation to the forest cover</li> </ul>
		Animal Guide Walls	100	2	<ul style="list-style-type: none"> <li>- Construction of guide wall in addition to the approach to the structures ensures usage of underpass by animals</li> </ul>

Chainage Km	Type	Provision	Dimensions (m)		Remarks
			Length	Height	
659+710	Under pass	RCC Structure	300	5	<ul style="list-style-type: none"> <li>- Structure provide sufficient openness for multiple species including solitary animals such as tiger and herd-living animals such as chital and wild pig</li> <li>- Construction of underpass will lead to net gain of forest cover beneath the structure and unobstructed pathway for the animals to cross the road</li> <li>- In general, 15 m Vehicular Underpasses are constructed, 30 m Grade separators are constructed as per Indian Roads Congress</li> </ul>
		Approaches	1000		- Longer approaches than the recommended length of 600 m would provide additional safety for the animals crossing the structure
		Animal Guide Walls	100	2	- Ensures usage of the structure by animals
654+478	Under pass	RCC Structure	50	5	<ul style="list-style-type: none"> <li>- Construction of the underpasses would significantly contribute towards providing open passage to the animals without any barrier</li> <li>- Post construction of underpass, the black top of the existing road would be removed. This land would get converted into forest cover resulting in better connectivity to the other side of the road for the animals.</li> </ul>
		Approaches	700		- Approach remanded by WII was 600 m
		Animal Guide Walls	100	2	- Ensures usage of the structure by animals
658+130	Minor Bridge	Structure	80	5	<ul style="list-style-type: none"> <li>- 80 m length of the structure being constructed compared to 51 m length as per Concession Agreement</li> <li>- Minor Bridge of width 80 m provides longer opening across the stream. This ensures no obstruction to the wildlife crossing the stretch.</li> <li>- Structure has been modified from wall type to circular pillar type to provide additional space and free access to the other side of the road</li> </ul>
		Animal Guide Walls	100	2	- Ensures usage of the structure by animals
668+165	Minor Bridge	Structure	65	5	<ul style="list-style-type: none"> <li>- 65 m length of the structure being constructed compared to 27 m length as per Concession Agreement</li> <li>- Minor Bridge of width 65 m provides sufficient opening across the stream for the wildlife crossing the stretch</li> <li>- Structure has been modified from wall type to circular pillar type</li> </ul>
		Animal Guide Walls	200		- Ensures usage of the structure by animals
674+000	Under pass	RCC Structure	100	5	<ul style="list-style-type: none"> <li>- The length of the underpass is much larger than the specification as per Indian Roads Congress</li> <li>- Construction of the structure would significantly contribute towards mitigation of the 'barrier effect' due to existing traffic on the road and provide open access to the other side of the road</li> </ul>
		Approaches	600		
		Animal Guide Walls	100		- Ensures usage of the structure by animals
677+593	Minor Bridge	Structure	50	5	- Length of the minor bridge is much larger than the originally planned width of 8 m as per the Concession Agreement

Chainage Km	Type	Provision	Dimensions (m)		Remarks
			Length	Height	
					- This provides sufficient openness for the animals to cross the road without any barrier
		Animal Guide Walls	500		- Ensures usage of the structure by animals
660+634, 660+903, 661+274	Additional Animal Guide Walls on both sides	Animal Guide Walls	100	2	- In addition to the 9 structures additional guide walls are being constructed to ensure usage of the structures being constructed

ERM has assessed the potential efficacy of these structure in terms of permitting tigers to cross the highway and are quite satisfied with the location and design.

Furthermore, mitigation measures proposed here are superior as length of bridges is much longer. Also, there are embankments for roads and the pillars under these bridges are designed to foster movement.

To ensure that the investments made in the mitigation structures is worthwhile the following suggestions on financial and technical assistance has been made in collaboration with the Forest Department:

1. Strict surveillance of underpasses to ensure that there is no disturbance by cattle graziers, potential poachers of ungulates and other human presence.
2. A long term system of monitoring tiger and prey usage of underpasses with video camera traps. These should be located at either ends of the underpass and in the middle sections. The objective is to record tiger behaviour on entering within and exiting the underpass. Insights into this behaviour will provide further suggestions for ensuring that tigers enter and exit underpasses with greater confidence. It will also provide a good estimate of use of the underpass.
3. Ensuring that access to and exits from the underpasses have good vegetation cover. This will allow tigers to enter and exit underpasses relatively undisturbed from the noise of the highway.
4. Considering use chain links fences to prevent crossing at other points in the highway. We are presently unaware of how long these stretches are and cannot comment on the financial feasibility of this option.

#### 3.5.7.1 Clearance form Forest Department for construction

Clearance from forest department was obtained for diversion of 49.246 Ha after high court judgement on PILs No 88/2013 and cases of National Green Tribunal No 25/2015, 44/2015 and 66/2015.

The alignment in the forest area follows the existing alignment. The status of forest land is Reserved forest, Protected Forest and Zudpi forest. From wildlife perspective, authentic map is not available for verification of core zone or buffer zone. However, as per the consultation with forest department and wildlife department, the alignment of the road is outside boundary of the buffer zone of Pench tiger reserve.

The assessment of impact of project intervention on habitat in pursuant to IFC guidelines has been done. The Nagpur bench of Bombay High court order on PIL No 88/2013 has been studied after site visit and consultation with wildlife and forest department officers.

The impact of widening of project stretch from chainage Km 652.000 to Km 689.450 from two lane to 4 lane within proposed right of way of 30 meters by acquisition/ diversion of forest land for road purpose has been done by the expert committee constituted by the Hon'ble High Court of Nagpur bench. The members of the committee were:

1. Principle Chief Conservator of Forest (Wild life), Nagpur
2. Project Director NHAI
3. Representative of Wildlife Institute of India
4. Representative of National Tiger Conservation Authority
5. Chief Conservator of Forest
6. Field Director, Pench Tiger Reserve, Nagpur
7. Chief Engineer Public Works, Nagpur
8. Chief Conservator of Forests (Territorial) Nagpur

This committee submitted two reports – one is regarding mitigation measures and second is regarding forest conservation measures. The High court’s judgement is based on the recommendations of the expert committee.

Based on the judgement and the recommendations of expert committee, the impact of construction of road within the forest area by diverting 49 ha forest land and through felling of 20,436 trees is mitigated by mitigation measures described in the recommendation of the expert committee. This recommendation was accepted by the Ministry of Environment, Forests, and Climate Change, Ministry of Road Transport and Highways and Government of Maharashtra and same was given in the High Court Judgement.

### 3.5.7.2 Mitigation Measures

The mitigation measures has been suggested taking in to account that the area is one of the corridors which connects Pench Tiger Reserve with Kanha Tadoba Reserve.

- Compensatory afforestation of 1,10,000 trees
- Area earmarked 98.492 Ha for forest conservation
- Animal under passes of configurations explained in the chapter of description of project.

Since the impact of the project intervention can be mitigated, and there is no net loss of biodiversity due to the development of project with mitigation measures suggested above. Thus, it can be construed that the project area from chainage Km 652.000 to Km 689.450 is in the Natural Habitat as per IFC categorization.

### 3.5.7.3 Compliance of Natural Habitat requirement as per IFC Performance Standard 6

**Table 25: Compliance of Mitigation Hierarchy of IFC**

IFC PS 6 requirement of Natural Habitat	Compliance
No other viable alternatives within the region exist for development of the project on modified habitat;	The alternative of long flyover of 1 Km was evaluated and it was found not viable for the project. Another alternative which is 70 Km longer was also considered. However, it would not fulfil the purpose and would lead to higher environmental and social impact.  Hence, the option of proposed animal underpass of configurations suggested by the WII is accepted by the MoEFCC, MoRTH and government of Maharashtra.
Consultation has established the views of stakeholders, including Affected Communities, with respect to the extent of conversion and degradation;	The wildlife department and NHA was consulted during the site visit and they have confirmed that the Judgement of High court in this regard is valid for the project.
Any conversion or degradation is mitigated according to the mitigation hierarchy	The mitigation hierarchy is followed as under a. Anticipate and avoid – avoidance was not possible in this case as the project road is operational since last 100 years and there is no viable alternative route available b. Minimize Impact – The proposed RoW has been reduced from 60m to 30 m with changes in design and without compromising the design standards. c. Compensate – The compensatory plantation of 1, 10,000 trees and land for forest conservation of area 98.492 ha has been provided. 16 number of animal underpasses of various configurations, 15 bridges of varied dimensions and 17 number of culverts have been provided for mitigation measures

Source: MMPL Analysis

### 3.5.8 Free Prior and Informed Consent

As social groups with identities that are distinct from mainstream groups in national societies, are often among the most marginalized and vulnerable segments of the population. In many cases, their economic, social, and legal status limits their capacity to defend their rights to, and interests in, lands and natural and cultural resources, and may restrict their ability to participate in and benefit from development.

A Free and Prior Informed Consent is required in following circumstances

- Impacts on Lands and Natural Resources Subject to Traditional Ownership or Under Customary Use
- Relocation of Indigenous Peoples from Lands and Natural Resources Subject to Traditional Ownership or Under Customary Use
- Where a project may significantly impact critical cultural heritage of IPs

Tribal people are Indigenous people and they are notified scheduled tribes by the state government.

RAP prepared for the project is not adequate in terms of coverage of project area (67 km out of 117 km), out of 3249 affected population (733 project affected families) due to the project, ST population is 23 and SC population is 194. As per the RAP, these SC and ST population are in vulnerable category and non-titleholder engaged in small business within the RoW.

**Note:** The project affected persons including 23 ST PAPs and 194 SC PAPs were identified during the RAP preparation stage. At that stage the identification of alignment was performed, and land acquisition process did not start. So, no. of PAPs identified at RAP stage changes up to the final land acquisition. The information given by the Project Director was based on latest information of the Project hence it can be concluded that the impact of 23 ST population has been avoided. However, this is the summary of RAP and it cannot be used as conclusive and final document. 1782 project affected title holders and 208 non-title holders are the actual PAPs. As per the information of Project Director there is no ST PAPs among 1782 title holders and 208 non-title holders. However, PD NHAI confirmed that land acquisition does not include tribal land and tribal PAPs including non-titleholders.

### 3.6 Applicable Local and National Legal Requirement

The list of applicable environmental, health, safety and social regulation applicable for a road project in India are as indicated in table below.

**Table 26: List of Applicable Regulations**

S. No.	Legal Requirements	Compliance
<b>Environmental Regulations</b>		
1	The Environment (Protection) Act, 1986 (amended in 1991)	ONBCPL has obtained Environmental clearance for the Project highway as per the requirements EIA notification 1994 under the Environmental Protection Act and is also found to follow other provisions of the Act such as Abatement of Emission / Discharge of Pollutants, waste management, etc.
2	The Environment (Protection) Rules, 1986	
3	Wild Life Protection Act, 1972	MoEFCC has conducted the study by the Wildlife Institute of India an organisation listed under the Wildlife Protection and Act, 1972 and National Tiger Conservation Authority. The forest clearance has been granted based on the High Court order.

S. No.	Legal Requirements	Compliance
		The concessionaire is required to develop action plan for operation and maintenance of project highway section in the forest area.
4	The Air (Prevention & Control of Pollution) Act, 1981	ONBCPL has valid Consent from MPCB for operating the project facilities which is mandatory as per Air Act, Water Act and Noise Rules
5	The Water (Prevention & Control of Pollution) Act, 1974	
6	The Noise Pollution (Regulation & Control) Rules, 2000	
7	The Pesticides Management Act, 2008	Avenue and median plantation of the Project highway is maintained using natural compost manure and use of pesticides are restricted.
8	The Forest (Conservation) Act, 1980 (amended in 1988)	ONBCPL has obtained both in-principal and final clearance from the MOEF Forest Conservation Division under section 2 of the Forest Conservation Act 1980.
9	Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016	Complied. CTO has been obtained for the operation of DG sets at toll plaza from MPCB.
12	Solid Waste Management Rules, 2015	The Project highway falls under the Gram Panchayat jurisdiction and is observed to be in compliance with the panchayat regulation for management of solid waste.
<b>Health and Safety Aspect</b>		
1	The Motors Vehicles Act, 1988	Drivers are having valid driving licenses and vehicles are maintained as per the Motors Vehicles Act, 1988.
2	The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996	ONBCPL has Certificate of Registration under The Building and Other Construction Workers Act 1996. The certificate was amended on 19th Feb 2016 and was valid till 17th Feb 2017. Status of renewal of the certificate is awaited.
3	Fatal Accidents Act, 1855	ONBCPL has Employees Compensation Policy valid for a period from 02.03.2017 to 01.03.2018 as per the requirement of Employee Compensation Act, Fatal Accident Act and Common Law
4	Factory Act 1948	ONBCPL has valid License under Factory Act 1948
	Petroleum Act 1934	OSEPL has license from PESO for storage of Petroleum Class B at Nagpur bypass highway.
5	Metalliferous Mines Regulation 1961	OSEPL has valid permission from Chief Inspector of Mines under Metalliferous Mines Regulation 1961 and Mines Act 1952.
6	Mines Act 1952	
<b>Social Aspect</b>		
1	The National Highways Act, 1956	Complied. Land Acquisition has been completed has per NH Act 1956.
2	The National Highways Rules, 1957	
3	The Bonded Labour System (Abolition) Act, 1976	Complied. No bounded labour is allowed as per ONBCPL HR Policy
4	The Child Labour (Prohibition and Regulation) Act, 1986	Complied Child Labour is prohibited as per ONBCPL HR Policy
5	The Minimum Wages Act, 1948 and rules made thereunder	Complied. The SOP of ONBCPL follows minimum wages law specified in SOP under restrictive labour practices policy. The wage register is maintained in the office. As per SoP, all employees working at sites shall be paid minimum wages as per SOP.
6	The Contract Labour (Regulation and Abolition) Act, 1970	ONBCPL has License under The Contract Labour (Regulation and Abolition) Act 1979. The License has been renewed till 2nd Feb 2018.
8	The Workmen's Compensation Act, 1923	Complied. SOP of ONBCPL covers the Workmen's Compensation Act, 1923. Group personal accident policy has been taken. The SOP covers

S. No.	Legal Requirements	Compliance
		the compensation, hospitalisation and transportation of the affected person and their survivors. All employees of S &W grades shall be covered under the Workmen Compensation Act, 1923.
9	The Equal Remuneration Rules, 1976	Complied. SOP of ONBCPL covers the Equal Remuneration Rule, 1976
10	The Maternity Benefits Act, 1961	Complied. SOP of ONBCPL covers the Maternity Benefits Act, 1961.
11	The Trade Union Act, 1926	Complied. SOP of OPNPL covers the Trade Union Act, 1926. However, no trade union formed within the organisation.
12	The Employees Provident Funds and Miscellaneous Provisions Act, 1952	Complied SOP of ONBCPL covers the Employees Provident Funds and Miscellaneous Provisions Act, 1952.
13	The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013	Complied The SOP defines the unwelcome acts or behaviour with respect to sexual harassment. And lays out procedure for complaints and redressal mechanism.

### 3.7 Compliance with Environmental Clearance

**Table 27: Compliance to Environmental Clearance**




S. No.	EC Conditions	Compliance Status
<b>EC for project highway section from km 689 to km 723 including Kamptee – Kanhan bypass</b>		
1	Bus bays should be provided instead of bus stops in all accident-prone areas	ONBCPL has provided bus bays in the project highway as per the CA requirements <ul style="list-style-type: none"> <li>• 13 Nos. bus bays from chainage km 652.00 to km 704.227 of NH 7</li> <li>• 32 Nos. bus bay at 16 locations in section km 689.400 to km 704.227</li> <li>• 2 Nos. bus bays in Nagpur bypass</li> </ul>
2	Alignment in the catchment area should be provided with adequate no. of sediment and grease sediment trap to treat any spillage.	No spillage has been encountered. Hence no grease trap have been proposed.
3	Water requirement shall be met from surface water / ground water only after obtaining approval from Concerned Authority	Approval obtained from Central Ground Water Authority
4	Compensatory tree plantation should be taken up at the rate of minimum of three times the number of trees cut.	The compensatory plantation is being done by the Forest department at the cost recovered in terms of NPV from NHAI.
5	Necessary rainwater harvesting structure should be provided along the alignment	Approval obtained for rainwater harvesting structures from Ministry of Water Resource.
6	Solid waste should be disposed at identified and approved location	ONBCPL is in Compliance with local gram panchayat regulation for handling of solid waste. The disposal of solid waste is done on designated dump site by the gram panchayat.
7	Longitudinal drains should be provided all along the project road to ensure proper drainage of the area. In addition, adequate number of under pass and culverts shall be provided to act as cross drainage structure	ONBCPL has provided underpass and culverts along the project highway alignment as per the requirements in CA: Realignment of existing 21 Nos. of box / slab culverts Realignment of existing 57 nos. of pipe culverts 8 Nos. of new pipe culverts. Lined longitudinal drains have been provided in habitation in urban area and unlined longitudinal drains have been provided in the rural area.

S. No.	EC Conditions	Compliance Status
8	Rehabilitation and payment of compensation to the Project Affected People (PAP) should be made as per the policy stated in the State Government.	Partly Complied, as the disbursement of compensation are not 100% complete. The compliance of RAP is provided in appendix B.
9	The embankment / slopes and the slopes left after cutting should be provided with vegetative turving to avoid soil erosion	Complied
10	Noise barriers should be provided at appropriate locations particularly in area where the alignment passes through inhabited areas so as to ensure that the noise level do not exceed the prescribed standards.	Habitation is away from the alignment so Noise Barrier is not required. The nearest habitation in Devlapara and Ramtek villages are about 200-300 meters away from the carriageway.
11	The blue metal and barrow material should be obtained only from approved queries.	OSEPL has approved stone metal mines for meeting the metal stone requirement for the Project highway.
12	Necessary permission for felling of trees from the concerned department should be obtained before commencement of project work	NHAI has obtained permission for felling (880 +926) no. of trees along the project highway.
13	Effort should be made for use of fly ash in the project.	Pavement is being constructed as per the design approved by the NHAI.
14	Adequate provision for infrastructure facilities including water supply, fuel and sanitation must be ensured for construction workers during the construction phase of the project in order to avoid any damage to environment.	Labour camps are provided with safe drinking water, sanitary latrines and urinals and fuel for cooking.
15	Borrow pits and other scars created during the road construction material so that it does not affect the environment adversely	Complied. All borrow pits have been stabilised for slopes as per IRC Standards.
16	The Project Affected People should be adequately rehabilitated	Complied. The NHAI has deposited the compensation amount to Competent Authority for the payment as per the prevailing Laws and guidelines of compensation disbursement of land.
17	The Project proponent shall set-up and Environment Management Cell for effective implementation of environmental safeguards.	NHAI has Environmental Management Cell at National level for implementation of environmental safeguards. At PIU level, the Project director is responsible for implementation of environmental safeguards at the project level.
<b>EC for project highway section from km 652.000 to km 689.000</b>		
1	About 25934 trees are to be felled for the project area and project proponent should ensure that three times the number of felled trees should be taken up for afforestation.	The compensatory afforestation is being done by the forest department at the site identified by the forest department.
2	Animal crossing and cattle underpass in the forest area shall be provided	ONBCPL shall be providing 5 Nos. of animal underpasses of various dimensions, 4 number of mitigation minor bridges and 17 number of culverts in line with recommendation of Wildlife Institute of India (WII).
3	Rainwater harvesting structures shall be provided along the section of the project highway.	
4	The drain shall be shifted inside and the utility corridor should be taken to the edge and should be raised to serve as a footpath.	Complied. The cross section has been designed as per the IRC codes.
5	To prevent damage to the agricultural land, the drainage flow should be diverted to the natural course avoiding the agricultural land	As per the cross section the parallel drains which follows the natural slop connects to the culverts. Drainage is being constructed as per the approved design of NHAI in compliance to IRC.
6	Road profile should be raised on the low-lying structures to prevent flooding of road.	Vertical and Horizontal profile has been designed as per the IRC which takes care of pavement profile being 1 meter above the high flood level (HFL) to

S. No.	EC Conditions	Compliance Status
		prevent from damages due to capillary action of water.
7	Green belt development may be undertaken as suggested in the EMP	Complied by planting avenue plantation
8	Permission shall be taken from the State Irrigation Department before drawing water from the river sources for the purpose of the construction activity.	Complied. Water was purchased from private suppliers for construction work.
9	The embankment / slopes and the slope left after cutting will be provided with vegetative turving to avoid soil erosion	Complied
10	The project should be implemented only after obtaining clearance under Forest Conservation Act for the forest land falling under the road section.	NHAI has obtained Stage – I and Stage – II forest clearance for diversion of 49.246 Ha of forest land.

### 3.8 Community Consultation and External Factors

**Table 28: Stakeholder Consultation**

SI No	Location	Findings of Consultation	Photographs
1	Location	Description	Photographs
2	Range Forest office in Devlpar. Chainage 564.000 on LHS.	Consultation with Local Forest office near Pench Tiger Reserve was conducted on 11 January 2018. The Forest Inspector informed about the forest area and its boundary. Wherein alignment passes through Forest land. They do not have any litigation or complaint against the contractor working on site.	
3	Near Devlpar Chainage 564.000 on LHS.	Consultation with local Community near Devlpar in Nagpur Bypass was held on 11 January 2018. The local business persons and title holder and non-title holders attended the meeting. Local community informed that they have received their compensation before 2012. Non-title holders having shops within RoW have also received financial assistance for shifting. The local community informed the PAPs of non-titleholder category have also received shifting assistance during land acquisition.	
	Office of Additional Principal Conservator of Forest (Wildlife) East, Nagpur	A consultation with Dr. N. Rambabu, Additional Principal Conservator of Forest (Wildlife) East, Nagpur was conducted on 11 <sup>th</sup> January 2018 at his office. This meeting was attended by Environmental Specialist, Social Specialist, Oriental representative Mr. Prashant Bargi and Mr. Rajesh Yadav. The APCCF informed that the Project has been granted clearance and being monitored by the Hon'ble High Court.	

Source: MMPL

### 3.9 Assessment of IFC performance standard

**Table 29: Assessment of IFC Performance Standard**

Ref to PS	Subject	Observations	Key Gaps	Recommendation
PS-1	Assessment and Management of Environmental and Social Risks and Impacts	<p>ONBCPL has developed an Environmental Management Manual that defines the following:</p> <ul style="list-style-type: none"> <li>• Environmental Health and Safety (EHS) Policy,</li> <li>• Organization structure of SPV for EHS compliance indicating roles and responsibilities is available. The EHS organisation structure requires improvement. The consultant recommends inclusion of dedicated and specialist EHS staff.</li> <li>• The legal case register with provisions for details of petitioner's name, nature of cases etc is available with SPV.</li> <li>• The legal register of latest environmental law, notifications and orders is not maintained.</li> <li>• Environmental management system indicating measures to minimise environmental impacts.</li> <li>• Risk assessment and Disaster management procedures and identified hazards are available but Hazard identification risk assessment procedure is not available.</li> <li>• Emergency Response Plan covers the emergencies identified in the SOP. These are fire, flood, Strikes, power cuts, IT and TMS related, Telecom failure, Earth quake, terrorism, public disorder and Accidents and injuries.</li> <li>• Procedure for Public Grievance Handling and has Public Grievance</li> <li>• Stakeholder engagement is being done by ONBCPL through</li> </ul>	<ul style="list-style-type: none"> <li>• EHS Management system: ONBCPL has not developed Environmental and Social Management System (ESMS) at the corporate level.</li> <li>• Formal stakeholder engagement plan is not available</li> <li>• After reviewing the Environment Management Manual, it was observed to be very generic and include procedures largely for the construction phase only without much emphasis on operation and maintenance phase.</li> <li>• OSEPL has also developed a Standard operating procedure, which largely covers all its human resource policy including health &amp; safety at work, but lacks Environmental and Social Risk assessment.</li> <li>• The concessionaire has also developed an operation and maintenance manual as per CA, the gaps identified in this manual are <ul style="list-style-type: none"> <li>○ Carriageway waste management plan;</li> <li>○ Borrow area management plan</li> <li>○ Oil/ chemical spill contingency plan;</li> <li>○ Storm water management Plan;</li> <li>○ ROW maintenance Plan;</li> <li>○ Avenue and Median Plantation and management plan.</li> </ul> </li> <li>• The project does not have dedicated EHS personnel for overall management and supervision of EHS aspects associated with project operations</li> <li>• ERP does not include situation such as accident and spillage of hazardous material</li> <li>• Monitoring of environmental parameters is being done at toll plaza and not near the locations with sensitive receptors and major habitations.</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• ONBCPL should improve the SOP to cover environmental and social aspects in compliance to IFC standards.</li> <li>• Formal stakeholder engagement plan must be incorporated and carryout systematically.</li> <li>• ONBCPL and OSEPL shall train its people for managing EHS issues with the corporate people. The competency of personnel engaged for monitoring and review and for implementation shall, to the extent possible, meet the following minimum qualification: Corporate level, EHS Manager. Project level, Supervisor with working experience in road and infrastructure projects. The incumbent shall be well versed with good H&amp;S industrial practices and all applicable Environmental related laws.</li> <li>• OSEPL shall establish a "Traffic Incident Management Plan for Hazardous Materials Spills". This plan shall meet the following minimum requirements: <ul style="list-style-type: none"> <li>○ Training for identification of hazardous materials for first responders; and</li> <li>○ Emergency contact for government authorities responsible for Response management and clean-up</li> </ul> </li> <li>• OSEPL to consider displaying emergency contact details at more locations, especially near accident-prone areas.</li> <li>• Monitoring of environmental parameters should be carried out at locations with sensitive receptors and major habitations.</li> <li>•</li> </ul>

		<p>conducting awareness programmes for road safety, HIV/ AIDS awareness, for road users and local community. However, the SoP does not cover the stakeholders' engagement plan for information disclosure, dissemination and feedback.</p> <ul style="list-style-type: none"> <li>In terms of the environmental and social management system to be employed, an organisational chart has been provided in the policy. The chart details roles and responsibilities and has clear lines of authority. The role and responsibility of EHS organisation is given in Appendix D.</li> </ul>		
PS-2	Labour and Working Conditions	<p>The labours engaged for the construction work for the forest stretch are locals and supplied by the sub-contract agency. No migrants labour has been used in this project. Accommodation for staff and labours provided are as follows</p> <ul style="list-style-type: none"> <li>Mansar Camp has quarters for 32 number of staff 5 labours.</li> <li>Paoni Camp has quarters for 07 number of staff &amp; 06 labours</li> <li>Deolapar camp has quarters for 10 number of staff &amp; 4 labours quarters at Deolapar Camp</li> </ul> <p>All the construction camps are located atleast 500m away from the nearest settlements.</p> <p>Since labour camps are not allowed in forest area a day time shelter have been provided for eating, resting and storage of belonging of labours.</p> <p>ONBCPL has Certificate of Registration from Government of India, Ministry of Labour and Employment and License under Contract Labour Act and Employees Compensation Policies.</p> <p>ONBCPL's HR policy prohibits Child/forced labour. They also have Professional Standard and Business Conduct Procedures which includes</p>	<ul style="list-style-type: none"> <li>The ONBCPL's grievance redressal mechanism lacks the non-attribution policy or confidentiality policy of the grievances. This requires improvement of grievance redressal mechanism of SPV.</li> <li>Risk identification is also being carried for the projects. The identified risks are Fire, Flood, Strikes, Power Cuts, IT &amp; TMS related, Telecom, Revenue, Earthquake, Terrorism, Public Disorder and Injury. The consultant identifies gap in mitigation measures. The manual does not provide the mitigation measures of the identified risks</li> <li>Formal Hazard Identification and Risk Analysis (HIRA) is not being carried out and has not been included in the SOP</li> <li>Fire extinguishers were observed at multiple locations at the toll and site office. Fire hydrant system is also installed at the toll and office. However, there is no dedicated water storage tank for the fire hydrant system. Reportedly, UST for the water used for domestic purpose will be used in case of any fire emergency.</li> <li>ONBCPL does not have retrenchment policy.</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>HR policy must be extended to include non-attribution policy or confidentiality policy</li> <li>ONBCPL to develop mitigation measures for the risk identified and risk assessment should include the risk rating and consequences of risks</li> <li>ONBCPL to establish HIRA and carryout regularly assessment as the project develops.</li> <li>ONBCPL should plan and construct a dedicated water storage tank of adequate capacity for the fire hydrant system.</li> <li>The ONBCPL should develop retrenchment policy. Which should determine the compensation and other entitlements in case of retrenchment</li> </ul>

		<p>guidelines for ethical conduct, fair dealing, sexual harassment etc.</p> <p>ONBCPL has maintained record of safety work permit, first aid register, medicine stock register, PPE register and list of trainings conducted and schedules for mock drills for emergency incidence</p> <ul style="list-style-type: none"> <li>• Wage register is maintained by ONBCP and sample wage registers for some contractors were reviewed by MMPL team. It included basic wages, PF amount and was duly signed by its workers. The wages for daily wage workers were observed to as per the Minimum Wage requirements as laid down by Maharashtra Government and Government of India.</li> <li>• The notice boards across all the facilities highlight key rules, rights of workers; labour licenses and registration, abstract of Minimum Wages, 1948 and Contract Labour Act 1970</li> </ul> <p>The general working shift is from 09:00 hrs to 18:00 hrs. The toll plaza operations are run in three shifts:</p> <ul style="list-style-type: none"> <li>○ Shift A- 08:00 hrs to 16:00 hrs</li> <li>○ Shift B- 16:00 hrs to 00:00 hrs</li> <li>○ Shift C- 00:00 hrs to 08:00 hrs</li> </ul> <ul style="list-style-type: none"> <li>• The working hours at construction site is morning 08.00 AM to 6.00 PM.</li> <li>• The security workers have 12 hours rotating shift.</li> <li>• For worker working overtime (more than 9 hours a day) is given compensatory off or paid the due overtime payment of double of the</li> </ul>		
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		<p>hourly rate calculated at gross levels.</p> <ul style="list-style-type: none"> <li>• An attendance register for employees and master roll for contract workers is maintained at toll plaza offices for tracking attendance and in-time and out-time of employees.</li> <li>• It was reported that none of the employees of ONBCPL are part of any union. However, the policy of OBBCPL/ OSEPL does not prevent formation of any union.</li> <li>• While Shops and Establishment Act recognises trade unions; it does not mandate formation of trade unions for facilities registered under the act.</li> <li>• A formal Grievance Redressal Mechanism for employees and contract workers as per the SOP is provided. It is in three stages.             <ul style="list-style-type: none"> <li>• Stage 1 – Immediate superior level</li> <li>• Stage 2 – Department head</li> <li>• Stage 3 – Grievance committee constituted by multi-functional employees</li> </ul> </li> </ul> <p>As a part of standard operating procedure (SOP), ONBCPL has developed health and safety policy specification which largely covers topics such as:</p> <ul style="list-style-type: none"> <li>• Maintaining cleanness at toll and highway;</li> <li>• Waste management;</li> <li>• Waste water management;</li> <li>• Provision of urinals at toll;</li> <li>• Provision of first aid and ambulance for accident/incident at highway;</li> <li>• Providing sufficient numbers of dustbins and spittoons;</li> </ul>		
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		<ul style="list-style-type: none"> <li>• Maintaining of accident/incident register;</li> <li>• Firefighting; and</li> <li>• Providing safe working condition to workers.</li> </ul> <p>It was observed adequate PPEs are being provided to the workers engaged in O&amp;M activities. Inventory of PPEs being issued is maintained at site office.</p> <p>Accident/ incident investigation record and register is also maintained at the site.</p>		
PS-3:	Resource efficiency and Pollution Prevention	<p>Solar panel has been installed at Toll plaza of capacity 50 KVA. Average production is 200 units per day. 100 unit is utilised and about 100 unit is fed to the Grid.</p> <p>During the site assessment, it was observed that trash bin has been kept near each truck lay by locations. Waste collected through dust bins are disposed off through panchayat collection system. It was also observed that hazardous waste such as electrical wires, used brush of road sweeper machines, empty oil containers, oil barrels were stored in a covered shed.</p> <p>Diesel generator at the toll had stacks. In addition, ladder, platform, and porthole for stack monitoring was not provided.</p> <p>It was observed that regular maintenance of rights-of-way to control vegetation may involve only mechanical methods (e.g. mowing) and manual methods (e.g. hand pruning) and no herbicides or pesticides is being used.</p>	<ul style="list-style-type: none"> <li>• Environmental Management Manual developed by OSEPL, has clause on the air quality monitoring, oil spillage, waste management. However, it does not cover issues such as noise and hazardous waste.</li> <li>• Hazardous material spills: ONBCPL has not identified environmental risks arising from vehicular fluid spills, spills of lubricants and fuel and hazardous materials cargo spills and appropriate environmental emergency response measures.</li> <li>• PUC certificates: ONBCPL utilizes vehicles, which includes patrolling vehicles, ambulance, crane, and office commute vehicles. During the assessment, Pollution Under Control (PUC) Certificates for some of its vehicles such as crane and ambulance were not available for review.</li> <li>• Poor maintenance of the carriageway with respect to solid domestic waste, debris and litter that was observed to be scattered on the ROW edge as well as the median in some chainages. Poor maintenance of the carriageway with solid waste has resulted to clogging of the ROW drains.</li> <li>• The site representative reported that the waste generated at the toll is minimal and is stored in the stockyard and is disposed through authorized vendor. However, ONBCPL has not maintained any record for storing and disposal of hazardous waste. The site management was</li> </ul>	<ul style="list-style-type: none"> <li>• ONBCPL should extend the SOP to include hazardous waste management, clearly indicating procedures for – transportation, handling, storage and disposal..</li> <li>• Traffic Incident management plan for hazardous material spills: As mentioned above, in SI No. 1.6 of PS1, OSE shall establish a “Traffic Incident Management Plan for Hazardous Materials Spills” and meet minimum requirements mentioned thereunder.</li> <li>• ONBCPL must maintain a register to track the validity of PUC for its vehicles and renew accordingly. A copy of PUC must be maintained at site all times.</li> <li>• Solid waste management: ONBCPL is required to ensure that only degradable waste generated at site is disposed in an environmentally sound manner. Periodic maintenance of carriageway for appropriate solid waste removal and drain management should be carried out. As it was reported that quantities of non-biodegradable waste generated at plaza are limited, such waste must be collected, stored and disposed on a need basis at designated sites utilized by the municipality. Additionally, ONBCPL should, if the need arises, extend this responsibility to a third-party vendor for safe disposal.</li> <li>• Hazardous waste management: All hazardous waste generated onsite shall be provided with secondary containment and safety measures, which include means of containment &amp; system integrity and separation from ignition sources. Security in terms of restricted access, signage displaying storage area as designated site for hazardous waste storage and covered shed for weather protection shall also be provided. ONBCPL should maintain Inventories of hazardous materials to be used during maintenance and operation of the project. Subcontracted workers involved in the painting activities to be trained on the use of hazardous material. Adequate PPEs such as dust mask, reflecting jacket, eyeglasses and safety shoes to be provided to the workers. All the activities involving use of hazardous chemicals to be supervised by ONBCPL. Adequate labels, secondary containment, and spill response kit should be provided wherever the</li> </ul>

			<p>unaware of the disposal mechanism followed by the vendor.</p> <ul style="list-style-type: none"> <li>Used paint containers and empty drums of diesel (Category # 33.1 under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016) were also observed to be stored at undesignated location without any secondary containment in the office premises near toll plaza</li> <li>Additionally, Diesel is used to operate 2 DG sets at each Toll plaza. On the day of the site visit, diesel was observed to be stored in day tanks connected to DG set. Also, 50 litres diesel was stored in the drum of capacity 200 litres at the DG area without secondary containment, open to sky.</li> <li>Hazardous material used for maintenance of road include Paint &amp; Thinner for painting of kerb, dividers and signage etc. Paints and thinner is being supplied by ONBCPL. ONBCPL does not have any procedure/SOP for storage and handling of hazardous material. ONBCPL and its subcontractors do not maintain an inventory of hazardous materials.</li> </ul>	<p>hazardous material (HAZMAT) is used and workers should be trained to respond to accidental spills and emergencies due to hazardous material.</p> <ul style="list-style-type: none"> <li>ONBCPL can develop a GHG inventory and strategy for reduction of GHG during fuel utilisation in DG set, vehicles, energy consumption, water utilisation, cement, steel, bitumen utilisation. The indirect emission of GHG savings from operation of 4 lane highway can be documented and presented as value addition.</li> <li>ONBCPL should keep records of water consumption and develop Water Conservation Plan. This plan should identify area of the water saving, capacity and sustainability of the water sources and water conservation measures etc.</li> <li>For environmental monitoring, it is recommended to include samples of sensitive area like schools and hospitals, habitation area.</li> <li>ONBCPL should arrange to provide stack to the DG sets as per the CPCB guidelines, along with the platform and porthole for stack monitoring.</li> </ul>
PS-4	Community health, safety and security	<ul style="list-style-type: none"> <li>ONBCPL has developed Risk Assessment and Disaster Management Procedure.</li> <li>Emergency Response Plan has been developed and Emergency Response Cell has been constituted under the chairmanship of District Collector.</li> <li>Annual Road Safety awareness program is performed in the month of January.</li> <li>ONBCPL is also conducting HIV awareness campaign</li> <li>Trained security guards have been deployed at the locations assets and Toll Plaza. However, the security guards are not trained for behavioural aspects with community hence it does not comply the PS4.</li> </ul> <p>Tunnel has been provided for handling cash at the toll plaza.</p>	<ul style="list-style-type: none"> <li>Physical barricading along the roadside and divider was observed to be missing at many locations where settlements are adjacent to the road.</li> <li>At some of the locations, divider was observed to be broken and pedestrians and vehicles were crossing the road, increasing the risk of accident.</li> <li>Traffic Safety audit was conducted by consultant employed by NHAI M/s Lion Engineering Consultants during construction phase. Operation phase traffic audit was not done.</li> <li>Multi-axle vehicles ply on this road and were cited during the site visit. These may include heavy vehicles carrying dangerous/hazardous goods. ONBCPL has not identified associated risks and established a management plan in this regard.</li> <li>Security management has been done by the guards hired through sub contractor employed by the ONBCPL. Gunmen at Toll plaza is not allowed by the Maharashtra Government so, no gunmen were deployed at site. In discussion</li> </ul>	<ul style="list-style-type: none"> <li>ONBCPL should conduct an assessment of structures that have been damaged. Based on the assessment, ONBCPL in consultation with IC should repair damaged divider to ensure compliance with requirements of the concession agreement and install barricade to minimize its adverse impacts on the community.</li> <li>ONBCPL to create more awareness on safe driving and increase patrolling particularly where settlements are adjacent to the road and black spot.</li> <li>Provide adequate number of designated pedestrian crossings at strategic locations as per the concession agreement to ensure effective segregation of pedestrians and vehicular traffic.</li> <li>Provide advance warnings and traffic control signs in the approach zone. Signage to meet requirements of concession agreement.</li> <li>ONBCPL shall regularly monitor and patrol the project area and identify reasons for water logging. Logging of storm water drains wherever applicable shall be cleared regularly.</li> <li>ONBCPL shall display sign boards containing emergency contact, guide and warnings at more locations as per IRC: 67- 2001 (Code of Practice for Road Signs)</li> </ul>

		<ul style="list-style-type: none"> <li>As reported, all emergencies are directed to the control room; call recipient at the control room forwards and dispatches appropriate department depending on the emergency. All emergencies are recorded and registered along with corrective actions and resolutions.</li> <li>Signboards displaying emergency contact details, warning signs, guide signs were observed to be adequate.</li> </ul>	<p>with the security personal, it was understood that basic training on fire and emergency situation are given to the security guards however, the security personnel are not provided with training on behavioural guidelines for personnel handling</p>	<ul style="list-style-type: none"> <li>ONBCPL management to develop some mechanism to ensure that the agency providing security services at the toll verifies the past record of the security personal before deputing them at the site.</li> <li>Training on behavioural guidelines to be provided to the security personal. Site management should record and investigate security incidents to identify any necessary corrective or preventive actions for continuing security operations.</li> <li>To promote accountability, ONBCPL (or other appropriate party such as the security contractor) should take corrective and/or disciplinary action to prevent or avoid a repetition if the incident was not handled according to instructions.</li> </ul>
PS-5	Land Acquisition and involuntary resettlement	The project design has been done considering the rehabilitation and resettlement impacts by avoiding settlement area.	The compensation award was 153.83 out of which INR 146.44 Cr has been disbursed to PAPs and INR 5.85 Cr is deposited to court.	The pending payment will be made as per the direction of the court.
		The compensation for the project affected person have been determined based on The National Highways Act, 1956 and amendment.		
		The alignment selection is done based on the community consultation apart from the engineering requirement. The Land Acquisition process at stage 3(B) and 3 (C) under The National Highways Act, 1952 invites complains and suggestion and public hearing at stage 3(C) is done.		
		The grievance mechanism for land and rehabilitation and resettlement is done at the district magistrate level. Any PAPs can approach district magistrate of the concerned district with their grievances. The district magistrate resolves the cases based on their powers given. Otherwise the district magistrate transfers case to the arbitrator.		
		The rehabilitation and resettlement of PAPs lies with the state government.		

		It is done through district collector office / Revenue department.		
		<p>For the Project highway the physical and economic displacement has been undertaken as per the National Highways Act, 1956 and amendments.</p> <p>The total private land acquired for the project is INR 299.57 Cr. The total no of title holders are 1782 Nos. The compensation award was 153.83 out of which INR 146.44 Cr has been disbursed to PAPs and INR 5.85 Cr is deposited to court.</p>		
PS-6		<p>The Project highway stretch from chainage km 652 to km 689 passes through boundary of buffer zone of Pench Tiger Reserve.</p> <p>The Project highway has received Forest clearance of Stage I and Stage II under the Forest Conservation Act and has received recommendation from Wildlife Institute of India (WII).</p> <p>The mitigation measures for forest section from Km 652.000 to Km 689 450 are given below:</p> <ul style="list-style-type: none"> <li>● Area of 98.492 Ha allocation for forest conservation measures</li> <li>● Confirmation of Compensatory afforestation of 1,10,000 to be done by the Forest department</li> <li>● Construction of animal underpasses</li> </ul> <p>The section of project highway is currently complete.</p> <p>ONBCPL maintains monthly progress report on road plantation (median and avenue plantation)</p>		ONBCPL/NHAI should monitor the progress of compensatory afforestation and implementation of forest conservation plan in allocated area of 98.492 Ha for forest purpose.

## 4 Environment and Social Action Plan

### 4.1 Category of Project

IFC categorises road projects into the following three types:

Category 1 – Operating Roads for 2 years or more,

Category 2 – Operating Roads for more than 1 year and less than 2 years, and

Category 3 – Operational for less than 1 year or where there is any pending land acquisition

### 4.2 Rational of Categorisation

Construction in section Km 689.450 to 747.100 was complete and COD was achieved on 11 July 2012 and 4 lane Km 14.585 to 36.600 was also included for maintenance. The construction in forest section from chainage 652.000 to 689.450 is in progress as per the schedule and its physical progress is more than 75%.

As per NHAI PD, majority of the Land Acquisition was done during the period 2002-2008 including the forest Section, private land and government land. However, a small parcel of land ranging from 2 - 5 Ha was acquired and handed over during 2015-16.

As per the information shared by CALA office and PD, NHAI on 2<sup>nd</sup> May 2018 regarding land acquisition and compensation disbursement, the total private land acquired for the project is 299.57 Ha. The total title holders identified were 1,782 Nos. and the total compensation award was INR 153.83 Cr, out of which total amount disbursed to PAPs was INR 146.44 Cr and an amount of INR 5.85 Cr is deposited in Court. Hence status of completion of amount disbursed to PAPs is 95.2%. Considering the above facts, the project has been considered under Category - 1.

### 4.3 Environmental and Social Action Plan

This chapter describes the gap assessment of the project road against the IFC Performance Standards and IFC EHS guidelines.

The projects are screened using 12 key environment and social criteria, which covers IFC PS-1 to 8 (see table below).

**Table 30: Screening – 12 Key Environmental and Social Criteria**

Sl. No	E&S Criteria	Relevant IFC PS
1	Litigation	PS-1
2	Protests	
3	Assessment and Management of Environment and Social Risks and Impacts	
4	Stakeholder/Community Engagement	
5	Grievance Mechanism	
6	HR/ Contractor Management	PS-2
7	Health and Safety	PS-2 and PS-4
8	Pollution Prevention	PS-3

Sl. No	E&S Criteria	Relevant IFC PS
9	Resettlement Action Plan (RAP)	PS-5
10	Natural Habitat	PS-6
11	Indigenous Peoples	PS-7
12	Cultural Heritage	PS-8

The overall risk or compliance ratings for these key screening criteria was assigned using the definitions below.

<b>Significant Gap</b>	Material issue with potential severe consequences and limited opportunities of correcting, leading to operations shut down or triggering of IFI's accountability mechanism (e.g. CAO/Ombudsman, CEIU, Inspection Panel, etc.).
<b>H</b>	Material regulatory and/or policy non-compliances that may: <i>induce temporary business interruption, and/or</i> <i>induce a material cost, and/or</i> <i>significantly affect sensitive (IP, vulnerable, protected area, C/N habitat, water source, etc.)receptors,</i> <i>induce community opposition that may damage Owner's reputation.</i>  <i>Contradict the intent of the applicable standards (e.g. compensation at replacement value, non-titled land users, no-net loss/net gain of biodiversity, broad community support, etc.)</i> <i>Have residual impact not acceptable as per applicable standards and with a low likelihood to remediate</i>  Severe cases may affect business continuity and/or trigger Lender's compliance mechanism
<b>M</b>	Regulatory permitting non-compliance, which may result in non-material rectification cost or fine, and is unlikely to result in the short term in business discontinuity in current regulatory enforcement context.  Residual impact not in line with applicable standards and likelihood to remediate high
<b>L</b>	Legal non-compliance, which may result in minor cost or only requires management time to address the issue. Or opportunity for improvement.  Residual impact could be considered acceptable as per applicable standards and necessity to remediate low
<b>A</b>	Acceptable performance and compliance to IFC PS Requirements

The current overall risk ratings for each of the screening criteria as well as risk ratings expected after implementation of ESAP is provided below.

IFC PS	Screening Criteria	Current Risk Rating	Risk Rating After ESAP Implementation
PS-1	1. Litigation	Moderate	Low
	2. Other risks- Protests	Acceptable	Acceptable

	3. Assessment and Management of Environment and Social Risks and Impacts	Moderate	Acceptable
	4. Stakeholder/Community Engagement	Moderate	Acceptable
	5. Grievance Mechanism	Low	Acceptable
PS-2	6. HR/ Contractor Management	Moderate	Acceptable
PS-2 & 4	7. Health & Safety	Low	Acceptable
PS-3	8. Pollution Prevention	Moderate	Acceptable
PS-5	9. Resettlement Action Plan (RAP)	Moderate	Low
PS-6	10. Natural Habitats	Low	Acceptable
PS-7	11. Indigenous peoples, tribes and communities	Acceptable	Acceptable
PS-8	12. Cultural Heritage	Acceptable	Acceptable
<b>Overall Site Ranking</b>		Moderate	Acceptable

Thus, the overall current risk rating of the road is “Moderate” which would be reduced to “Acceptable” level after implementation of ESAP recommended.

The detailed analysis of project road against IFC PS with observation, gaps identified, and action plan is discussed below.

#### 4.4 Environmental and Social Corrective Action Plan

**Table 31: Environmental and Social Corrective Action Plan**

SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion after closing	Cost Estimates
1	Legal and Regulatory	Legal and Regulatory Compliance	ONBCPL	Legal Register	3 Months	Minor cost and management time
	Develop an applicable Environmental and Social Legal Register Develop a system for updating of the register and its tracking Appoint qualified EHS personnel for implementation of EMP as per EIA and applicable national and local policies and safeguards. Develop retrenchment policy					
2	Water Conservation Plan	PS 3	ONBCPL	Project Specific Documented Plan	6 Months	Minor cost and management time
	Permission/ permit license for abstraction of ground water/ surface water Estimation of Water Demand Plan to maintain water register for consumption and supply Listing of sources of water and availability of water at that location Quality testing of Water Identification of point for recycling and reuse of water Rainwater Harvesting Storm water management					
3	Waste and Hazardous Waste Management Plan	PS 3	ONBCPL	Project Specific Documented Plan	3 Months	Minor cost and management time
	Carriageway solid waste management plan including construction waste; Oil/ chemical spill contingency plan; Plan for Accidental spillage on road Qualitative and Quantitative Characterization of Waste and its utilization Plan Management of Hazardous Waste at both the sites as per norms, Form 3 – record of hazardous waste to be maintained,					

SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion after closing	Cost Estimates
	Form 4 – annual return to be submitted to the Pollution Control Board Hazardous waste not be stored for more than 90 days and to be disposed as per the norms with the authorized vendor					
4	GHG Emission Reduction Plan	PS 3	ONBCPL	Project Specific Documented Plan	3 Months	Minor cost and management time
	Inventory of GHG Annual Monitoring Prepare plan for <ul style="list-style-type: none"> <li>• Carriageway waste management plan;</li> <li>• Borrow area management plan</li> <li>• Oil/ chemical spill contingency plan;</li> <li>• Storm water management Plan;</li> <li>• ROW maintenance Plan;</li> <li>• Avenue and Median Plantation and management plan.</li> </ul>					
5	Stakeholder Engagement Plan	PS 1 and PS 5	ONBCPL	Project Specific Documented Plan	3 Months	Minor cost and management time with third party engagement (consultant)
	Information disclosure Plan and communication of grievances Formulate a Stakeholder Engagement Plan and carry out stakeholder engagement systematically Feedback/ Suggestion Disclosing the action taken report in the form of monthly and quarterly report should be disclosed to community.					
6	Emergency Response Plan	PS 1	ONBCPL	Project Specific Documented Plan	3 Months	Minor cost and management time
	Onsite emergency preparedness and response plan (covering road stretch, Toll Plazas and other associated facilities) to be prepared, maintained at site, communicated to the staff and staff to be trained on handling and responding to various kind of emergencies identified in the plan.					

SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion after closing	Cost Estimates
	Emergency assembly area to be identified and to be displayed. Emergency Exit, Emergency Contact Numbers to be displayed at conspicuous locations. Log book being maintained at ambulances for response time Predefined mitigation plan of identified risk					
7	Environmental Monitoring Plan	PS 1	ONBCPL	Project Specific Documented Plan	3 Months	Minor cost and management time
	Air Quality, Noise level and water quality testing and identification of locations to get the representative sample of the environmental baseline criteria. ROW maintenance Plan covering maintenance of road furniture, preventing unauthorised entry to and exit and encroachment on the ROW and project site; Avenue and Median Plantation and management plan;					
8	EHS Plan	PS 1 PS 2	ONBCPL	Project Specific Documented Plan	3 Months	Management time
	Adequate number of HSE trainings to be conducted (both labour and staff) and records to be maintained. Accident/ incident register to be maintained at both the Toll Plazas. Hazard Identification and risk analysis to include Risk Identification, Risk analysis, risk management and risk communication					
9	Grievance Redressal Mechanism	PS 5 PS 6	ONBCPL	Project Specific Documented Plan	3 Months	Minor cost and management time with third party engagement (consultant)
	Grievance Redressal Mechanism for Community Contracted and Sub contract labour Include non-attribution policy and confidentiality policy in SOP include whistle blower policy					




SN.	Recommendation Action/Corrective Measure against the ESDD Screening Criteria	Reference	Responsibility and Resources	Measurable Outcome/ Documentation	Target Timelines for Completion after closing	Cost Estimates
10	Community Health and Safety Plan	PS 4	ONBCPL	Project Specific Documented Plan	3 Months	Minor cost and management time with third party engagement (consultant)
	<ul style="list-style-type: none"> <li>Undertake awareness program for community and to ensure vehicles are not parked within the corridor or in ROW and people should not cross in opposite direction.</li> <li>Median plantation needs to be strengthened.</li> </ul> Hazard material management and safety plan specific to spillage of hazardous material on road. Awareness programs on HIV and AIDS among truck drivers.					
11	Ecological Mitigation measures	PS 6	NHAI			Management time
	<ul style="list-style-type: none"> <li>Construction of Animal underpass as suggested for this project</li> <li>As per the Biodiversity Action Plan</li> </ul> 1. Strict surveillance of underpasses to ensure that there is no disturbance by cattle graziers, potential poachers of ungulates and other human presence. 2. A long term system of monitoring tiger and prey usage of underpasses with video camera traps. These should be located at either ends of the underpass and in the middle sections. The objective is to record tiger behaviour on entering within and exiting the underpass. Insights into this behaviour will provide further suggestions for ensuring that tigers enter and exit underpasses with greater confidence. It will also provide a good estimate of use of the underpass. 3. Ensuring that access to and exits from the underpasses have good vegetation cover. This will allow tigers to enter and exit underpasses relatively undisturbed from the noise of the highway. 4. Considering use chain links fences to prevent crossing at other points in the highway. We are presently unaware of how long these stretches are and cannot comment on the financial feasibility of this option.	PS 6	ONBCPL		As per the schedule of the project completion plan	




Source: MMPL



## 4.5 Photographs of the project



**Table 32: Photographs with discription**



SI No.	Location	Description	Photographs
1	Range Forest office in Devlapar	<p>Consultation with Local Forest office near Pench Tiger Reserve was conducted on 11 January 2018. The Forest Inspector informed about the forest area and its boundary. Wherein alignment passes through Forest land. They do not have any litigation or complaint against the contractor working on site.</p>	
2.	Near Devlapar	<p>Consultation with local Community near Devlapar in Nagpur Bypass was held on 11 January 2018. The local business persons and title holder and non-title holders attended the meeting. Local community informed that they have received their compensation before 2012. Non-title holders having shops within RoW have also received financial assistance for shifting. During consultation it was also revealed that there are cases of pending litigation.</p>	



SI No.	Location	Description	Photographs
3.	Office of Additional Principal Conservator of Forest (Wildlife) East, Nagpur	<p>A consultation with Dr. N. Rambabu, Additional Principal Conservator of Forest (Wildlife) East, Nagpur was conducted on 11<sup>th</sup> January 2018 at his office. This meeting was attended by Environmental Specialist, Social Specialist, Oriental representative Mr. Prashant Bargi and Mr. Rajesh Yadav. The APCCF informed that the Project has been granted clearance and being monitored by the Hon'ble High Court. The photograph with officer was not allowed in the APCCF office.</p>	
4.	Nagpur Bypass	<p>Animal Guiding wall being constructed at each animal underpass in the Nagpur Bypass project. These guiding walls will prevent animals from access to approaches of the Animal underpass and prevent from barrier effect of animal movement.</p>	
5.	Nagpur Bypass	<p>The temple proposed for demolition due to construction of Road</p>	

SI No.	Location	Description	Photographs
6.	Nagpur Bypass	Temple is in the progress of construction in the Nagpur Bypass	
7.	Nagpur Bypass	Use of safety measures during construction work	
8	Nagpur Bypass Clover Leaf junction	Drip Irrigation being used to irrigate plantation at clover leaf junction at Nagpur Bypass	

SI No.	Location	Description	Photographs
9.	Camp office in Nagpur Bypass	Solar Panel has been installed at Camp office of Nagpur Bypass	
10	Toll Plaza in Nagpur bypass	Solid Waste Collection system at toll plaza of Nagpur Bypass	

SI No.	Location	Description	Photographs
11.	Nagpur Toll Plaza	Disclosure of Fire action in case of fire	
12.	Nagpur Toll Plaza	Notices related to emergency preparedness	

SI No.	Location	Description	Photographs
13.	Nagpur Toll Plaza	Fire extinguisher at toll plaza	
14.	Nagpur Bypass Camp site	Workers camp for skilled labours	


SI No.	Location	Description	Photographs
15.	Workers camp located in Nagpur Bypass	Drinking Water treatment facility in workers facility	
16.	Workers Camp in Nagpur Bypass	Drinking Water storage facility	

SI No.	Location	Description	Photographs
17.	Camp site in Nagpur Bypass	Workshop for maintenance of construction and operation vehicles	
18.	Camp site in Nagpur Bypass	Storage of gas cylinder	

SI No.	Location	Description	Photographs
19.	Camp site in Nagpur Bypass	Material storage and dispatch office.	
20.	Camp site in Nagpur Bypass	A consultation with staffs involved in the material handling supply chain management.	

SI No.	Location	Description	Photographs
21.		Accommodation provided for Toll Collectors at Toll Plaza in Nagpur Bypass	
22.	Toll Plaza at Nagpur Bypass	First aid and emergency service at Toll Plaza.	
23.	Toll Plaza at Nagpur Bypass	Control Room at Toll Plaza	

SI No.	Location	Description	Photographs
24.	Nagpur Bypass Toll Plaza	As part of community engagement, an awareness posters to prevent epidemics	
25.	Toll Plaza at Nagpur Bypass	Tunnel provided for transport of cash from Toll Booth to cash locker.	
26.	Nagpur	Road Safety week celebrated in January 2016	

SI No.	Location	Description	Photographs
27	Nagpur	Street Show for safety awareness in Nagpur	

Source: MMPL



# Appendices

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## A. Existing and Proposed Right of Way

**Table 33: Right of Way details**

Chainage	Pre - Construction ROW	Post - Construction ROW
Km.652 to Km.689 (Forest Section)	15 M (Forest Area) to 45 M (Revenue Area)	30 M (Forest Area) to 60 M (Revenue Area)
Km.689 to Km.704 (Existing Road)	45 M	60 M
Km.704 to Km.747 (Bypass)	0	60 M
Km. 14.585 to Km.36.600 (Maintenance Stretch)	45 M	45 M

Source: ONBCPL

## B. Compliance to EMP of Environmental Manual and RAP

### B.1 Compliance to Environmental Management Plan

**Table 34: Compliance to Environmental Management Plan**

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status
				Implementation	Supervision
A. Pre-construction Stage					
Land and Properties Acquisition	The acquisition of land and private properties will be carried out in accordance with the National Highway Act.  It will be ensured that R&R activities are to be completed before the construction activity starts, on any sub-section of project roads.	Corridor of Impacts	Before Construction Starts	Competent Authority for acquisition of land and properties.	PIU, NHAI  Right of way has been acquired by NHAI and handed over to Concessionaire to proceed to work.
Removal of Trees	Before the commencement of construction with prior Forest Clearance will be taken from the Forest Department for removal of trees. Joint inspection will be carried out with the forest department for counting of trees.  All works shall be carried out in such a fashion that the damage or disruption to the flora is minimum.	ROW	Before Construction Starts	PIU/ ONBCPL	PIU NHAI  Tree felling permission is part of forest clearance which has been obtained by the NHAI and communicated to Concessionaire to proceed to work.
Utility shifting/ Relocation	All utilities will be relocated with prior approval of the concerned agencies	ROW	Before Construction Starts	PIU NHAI, Construction Agencies	PIU NHAI  All utility shifting/ relocation work has been completed.
Removal of Community Utility	All community utilities, such as community sources of water will be replaced at appropriate locations.	All electric pole/ transformers, etc, as per details given in Strip Plan	Before Construction Starts	Design Consultants/ PIU NHAI	PIU NHAI  Community Utility like hand pumps have been shifted.
Underpass for people and animals	Many settlements are located along the project road; underpass will need to be provided at such locations to facilitate crossing facilities for people and cattle.	At Settlement wherever possible	Design Stage	Design Consultants/ PIU NHAI	PIU NHAI  The animal underpass in the forest area is being constructed and it is being monitored by Hon'ble High Court.
Procurement of Machinery					

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status	
Hot-mix Plants & Batching Plants	Specifications of hot mix plants and batching plants will comply with the requirements of the relevant current emission control legislations.	To be decided by the ONBCPL	Construction Phase	PIU/We	PIU NHAI	NoC from Maharashtra Pollution control board has been obtained for establishment and operation of Hot-mix plant and batching plant
Other Construction Vehicles, Equipment and Machinery	<p>The discharge standards promulgated under the Environment Protection Act, 1986 will be strictly adhered to.</p> <p>All vehicles, equipment and machinery to be procured for construction will conform to the relevant Bureau of Indian Standard (BIS) norms. Noise limits for construction equipment to be procured such as compactors, rollers, front loaders, concrete mixers, cranes (moveable), vibrators and saws will not exceed 75 dB (A), measured at one meter from the edge of the equipment in free field, as specified in the Environment (Protection) Rules, 1986.</p>	ROW	Before Construction Starts	PIU NHAI, Construction Agencies	PIU NHAI	The emission of construction vehicle is tested as per the Motor Vehicle Act, 1988.
Identification & Selection of Material Sources						
Borrow Areas	<p>Arrangement for locating the source of supply of material for embankment and sub-grade as well as compliance to environmental requirements, as applicable, will be the sole responsibility of PIU NHAI.</p> <p>Locations identified shall be reported to the independent Consultant and shall in turn report to the PIU.</p>	ROW	Before Construction Starts	PIU NHAI, Construction Agencies	PIU NHAI	Any opening of borrow area is done after proper agreement with the owner and it is restored as per IRC and conditions as desired by the owner.
Quarries	<p>Identification of materials from existing licensed quarries with the suitable materials for construction.</p> <p>Apart from approval of the quality of the quarry materials, the Supervision Consultant's representative will verify the legal status of the quarry operation, as to whether approval is obtained.</p>	ROW	Before Construction Starts	PIU NHAI, Construction Agencies	PIU NHAI	Material are obtained from licensed quarries only.

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status	
Water	<p>Water will be sourced preferentially from surface water bodies, such as river and nullah in the project area and will be allowed to pump only from the surface water bodies. Boring of any tube wells will be prohibited. To avoid disruption/disturbance to other water users, will extract water from fixed locations. Consultation with the local people will be held before finalizing the locations.</p> <p>Only at locations where surface water sources are not available, extraction of ground water can be done.</p>	ROW	Before Construction Starts	PIU NHAI, Construction Agencies	PIU NHAI	Water is being procured from local vendor.
Labour Requirements	unskilled labour drawn from local communities shall be hired to avoid any additional stress on the existing facilities (medical services, power, water supply, etc.)	Along project corridor at construction sites	Before Construction Starts	PIU NHAI, Construction Agencies	PIU NHAI	The construction labour is procured through contractor and its health and safety is the responsibility of ONBCPL.
Construction Camp Locations Selection, Design & Layout	<p>Construction camps will not be proposed: Within 1000 m from the nearest habitation to avoid conflicts and stress over the infrastructure facilities, with the local community.</p> <p>Locations for stockyards for construction materials will be identified at least 1000 m from watercourses.</p> <p>The waste disposal and sewage system for the camp will be designed, built and operated such that no odour is generated.</p> <p>Unless otherwise arranged by the local sanitary authority, arrangements for disposal of excreta suitably approved by the local medical health or municipal authorities or as directed by Supervision Consultant.</p>	Construction Workers Camps including areas immediate vicinity.	Before Construction Starts	PIU NHAI, Construction Agencies	PIU NHAI	<p>It is complied as the construction labour are locals and do not require labour camp.</p> <p>Moreover, the establishment of labour camp in the forest area is not allowed.</p> <p>The worker camp of skilled labour are located near the construction camp and it is compliant to the requirements.</p>

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status	
Arrangements for Temporary Land Requirement	<p>ONBCPL as per prevalent rules will carry out negotiations with the land owners for obtaining their consent for temporary use of lands for construction sites/ hot mix plants /traffic detours /borrow areas etc.</p> <p>The Supervision Consultant will be required to ensure that the clearing up of the site prior to handing over to the owner (after construction or completion of the activity) is included in the contract.</p>	Areas Temporarily Acquired for construction sites/ hot mix plants/ borrow areas/ diversions / detours.	Before Construction Starts	PIU/ ONBCPL	PIU NHAI	The temporary land requirement for crushers, RMP are obtained through agreement and it is restored as per the requirement of owner and IRC standards.
<b>B. Construction Stage</b>						
<b>Site Clearance</b>						
Clearing and Grubbing	<p>The demarcated vegetation will be removed from the COI before the commencement of construction.</p> <p>All works will be carried out such that the damage or disruption to flora is minimum.</p> <p>Under any circumstances will not damage trees (in addition to those already felled with prior permission from the forest department).</p>	Corridor of Impact (COI)	Construction Phase	PIU/ ONBCPL	PIU NHAI	Clearing and grubbing is complete as construction is progressed more than 50%.
Generation of debris from dismantling of pavement structures	<p>Debris generated due to the dismantling of the existing pavement structure shall be suitably reused in the proposed construction, subject to the suitability of the material and the approval of the Supervision Consultant. Unutilized debris material shall be suitably disposed off, either through filling up of borrow areas created for the project or at pre-designated dump locations, subject to the approval of the Supervision Consultant.</p> <p>Debris generated from pile driving or other construction activities shall be disposed such that it does not flow into the surface water bodies or form mud puddles in the area.</p>	Throughout Project Corridor	Construction Phase	PIU/ ONBCPL	PIU NHAI	The debris and dismantled structures are used for filling of low lying area.

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status	
Bituminous and non-bituminous waste disposal	Bituminous and non-bituminous construction wastes will be utilized in the road construction. No disposal of solid waste will be required.	Throughout Project Corridor	Construction Phase	PIU/ ONBCPL	PIU NHAI	The bituminous waste is recycled in hot mix pant and non-bituminous is used for filling of low lying areas.
Planning Traffic Diversions Detours	<p>Temporary diversions will be constructed with the approval of the Supervision Consultant. Detailed traffic control plans will be prepared and submitted to the Supervision Consultant for approval.</p> <p>Environmental personnel of the Supervision Consultant will assess the environmental impacts associated as the loss of vegetation, productive lands and the arrangement for temporary diversion of the land prior to the finalization of diversions and detours.</p> <p>Special consideration will be given to the preparation of the traffic control plan for safety of pedestrians and workers at night. He shall inform local community of changes to traffic routes, conditions and pedestrian access arrangements.</p>	All along the Project Corridor.	Construction Phase	PIU/ ONBCPL	PIU NHAI	Traffic diversion is done at the construction site of structures with proper signages.
Procurement of Construction Materials	<p>No borrow area will be opened without permission of the Supervision Consultant.</p> <p>Borrow pits will not be dug continuously in a stretch. The location, shape and size of the designated borrow areas will be as approved by the Supervision Consultant.</p> <p>The borrowing operations will be carried out as specified in the guidelines for siting and operation of borrow areas. The unpaved surfaces used for the haulage of borrow materials will be maintained dust free. Since dust raising is the only impact along the haul roads sprinkling of water will be carried out twice a day along such roads during their period of use.</p>	All along the project corridor, all access roads, sites temporarily acquired & all borrow areas	Construction Phase	PIU/ ONBCPL	PIU NHAI	Complied.
Stripping, stocking	The topsoil from borrow areas, areas of cutting and	Throughout project	Construction Phase	PIU/ ONBCPL	PIU NHAI	Complied.

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status	
and preservation of top soil	<p>areas to be permanently covered will be stripped to a specified depth of 150 mm and stored in stockpiles. At least 10% of the temporarily acquired area will be earmarked for storing topsoil.</p> <p>The stockpile will be designed such that the slope does not exceed 1:2 (vertical to horizontal), and the height of the pile is to be restricted to 2 m. Stockpiles will not be surcharged or otherwise loaded and multiple handling will be kept to a minimum to ensure that no compaction will occur. The stockpiles will be covered with gunny bags or tarpaulin.</p>	corridor, where Productive land is acquired.				
Quarries	The quarry operations will be undertaken within the rules and regulations in force.	All along the project Corridor and all haul roads.	Construction Phase	PIU/ ONBCPL	PIU NHAI	Complied.
Operation of Construction Equipment and Vehicles	<p>All vehicles and equipment used for construction will be fitted with exhaust silencers.</p> <p>During routine servicing operations, the effectiveness of exhaust silencers will be checked and if found to be defective will be replaced. Noise limits for construction equipment used in this project (measured at one meter from the edge of the equipment in free field) such as compactors, rollers, front loaders, concrete mixers, cranes moveable), vibrators and saws will not exceed 75 dB(A), as specified in the Environment (Protection) Rules, 1986.</p>	All construction equipment and vehicles	Construction Phase	PIU/ ONBCPL	PIU NHAI	Complied.
Precautionary/ Safety Measures During Construction	All relevant provisions of the Factories Act, 1948 and the Building and other Construction Workers (regulation of Employment	All construction sites	Construction Phase	PIU/ ONBCPL	PIU NHAI	Complied.

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility		Compliance Status
	<p>and Conditions of Service) Act, 1996 will be adhered to.</p> <p>Adequate safety measures for workers during handling of materials at site will be taken up.</p> <p>Regulations regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, trenches and safe means of entry and egress should be complied.</p>					
Earthworks						
Excavations	<p>All excavations will be done in such a manner that the suitable materials available from excavation are satisfactorily utilized as decided upon beforehand. The excavations shall conform to the lines, grades, side slopes and levels shown in the drawings or as directed by the Supervision Consultant.</p> <p>While planning or executing excavation shall take all adequate precautions against soil erosion, water pollution, etc. and take appropriate drainage measures to keep the site free of water, through use of mulches, grasses, slope drains and other devices.</p>	All along the project road	Construction Phase	PIU/ ONBCPL	PIU NHA1	Complied.
Earth fill	Embankment and other fill areas, unless otherwise permitted by the Supervision Consultant, be constructed evenly over their full width and will control and direct movement of construction vehicles and machinery over them.	Along earth fill areas	Construction Phase	PIU/ ONBCPL	PIU NHA1	Complied.
Stripping, Stocking and Preservation of Topsoil	The stockpiles will be located at least 100 m from water courses.	Wherever productive land is acquired	During Construction Phase	ONBCPL	Supervis ion Consulta nt, PIU NHA1	Complied.
Slope Protection and Control of	Embankments and other areas of unsupported fill will not be constructed with	All along the project road.	During Construction Phase	ONBCPL	Supervis ion Consulta	Complied

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status	
Erosion	<p>steeper side slopes, or to greater widths.</p> <p>While planning or executing excavations will take all adequate precautions against soil erosion.</p>				nt, PIU NHA I	
Drainage requirements at Construction sites (Flooding)	In addition to the design requirements, will take all desired measures as directed by the Supervision Consultant, such measures to prevent temporary flooding of the site or any adjacent area.	All along the project road	Construction Phase	PIU/ ONBCPL	PIU NHA I	Complied.
Dust Emissions	<p>All earthworks will be protected in a manner acceptable to the Supervision Consultant to minimize generation of dust. Will take every precaution to reduce the level of dust along construction sites involving earthworks, by frequent application of water.</p> <p>All vehicles delivering materials to the site shall be covered to avoid spillage of materials.</p> <p>Shall every precaution to reduce the level of dust emission from the hot mix plants and the batching plants up to the satisfaction of the Supervision Consultant in accordance with the relevant emission norms.</p>	All along the project road	During Construction Phase	ONBCPL	Supervis ion Consulta nt, PIU NHA I	Complied.
Contamination of soil by Fuel and Lubricants	Vehicle/machinery and equipment operation, maintenance and refueling will be carried out in such a fashion that spillage of fuels and lubricants does not contaminate the ground. An "Oil interceptor" will be provided for vehicle parking, wash down and refueling areas within the construction camps. Fuel storage will be in proper bunded areas. All spills and collected petroleum products will be disposed off in accordance with MoEF and State Pollution Control Boards guidelines.	All along the project road	During Construction Phase	ONBCPL	Supervis ion Consulta nt, PIU NHA I	Complied

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility		Compliance Status
	Fuel storage and refilling areas will be located at least 300 m from drains and important water bodies as directed by the Supervision Consultant. In all fuel storage and refueling areas, if located on agricultural land or areas supporting vegetation, the topsoil will be stripped, stockpiled and returned after cessation of such storage and refueling activities					
Silting, Contamination of Water bodies	<p>Silt fencing will be provided around stockpiles at the construction sites close to water bodies. The fencing needs to be provided prior to commencement of earthworks and continue till the stabilization of the embankment slopes, on the particular sub-section of the road.</p> <p>Construction materials containing fine particles will be stored in an enclosure so that sediment-laden water does not drain into nearby watercourses.</p> <p>All discharge standards promulgated under Environmental Protection Act, 1986, will be adhered to. All liquid wastes generated from the site will be disposed off as acceptable to the Supervision Consultant</p>	Water bodies close to the project	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA1	Complied
Surfacing	<p>Will take all necessary means to ensure that works and all associated operations are carried out in conformity with to MoRTH 501.</p> <p>All workers employed on mixing asphalt material etc. will be provided with protective footwear. Noise levels from all vehicles and equipment used for surfacing will conform to standards. Construction activities involving equipment with high noise levels will be restricted to the daytime</p>	All along the project road	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA1	Complied.

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status	
Bridge Works & Culverts	<p>While working across or close to the rivers, flow of water should not be disrupted. If for any bridgework, etc., closure of flow is required, apart from obtaining the requisite clearances, approval of the supervision consultant will be sought.</p> <p>Construction over and close to the non-perennial streams will be undertaken in the dry session. Construction work expected to disrupt users and impacting community water bodies will be taken up after serving notice on the local community. Dry stone pitching for apron and revetment will be provided for bridges and cross drainage structures</p>	All along the project road	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA I	Complied.
Soil						
Generation of Debris	Debris generated due to construction shall be suitably reused, subject to the suitability of the material and approval of the Supervision Consultant	ROW	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA I	Complied. Debris is suitably used by filling of low area for the construction of carriage way.
	All arrangements for transportation during construction including provision, maintenance, dismantling and clearing debris, where necessary will be considered incidental to the work.					Complied.
Loss of Top Soils	(a) The top-soil from all areas of cutting and all area to be permanently covered shall be stripped to a specified depth of 150 mm and stored in stockpiles of height not exceeding 2 m. At least 10% of the temporarily acquired area shall be earmarked for storing top soil.	Where productive land is acquired	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA I	Top soil is preserved and reused.
	(b.)The stock pipe shall be designed such that the slope does not exceed 1:2 (Vertical to Horizontal), and the height of the pile be restricted to 2 m. to retain soil and to allow percolation of the water, the					Complied.

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status	
	edge of the pile shall be protected by fencing.					
Compaction Soil	Construction vehicles, machinery and equipment shall move or be stationed in the designated area only, while operating on temporarily acquired land for traffic detours, storage, material handling or any other construction related or incidental activities, topsoil from agricultural land will be preserved as mentioned above.	Where productive land is acquired	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA1	Complied.
Borrow Areas	<p>No borrow area should be opened without permission of the Supervision Consultant.</p> <p>Borrow pits will not be dug continuously in a stretch. The location, shape and size of the designated borrow areas will be as approved by the Supervision Consultant and in accordance to the IRC recommended practice for borrow pits for road embankments (IRC 10: 1961).</p> <p>Borrow pit location shall be located at least 0.8 km from villages and settlement. If unavoidable, they should be not being dug more than 30 cm and drained.</p> <p>Borrow pits shall be redeveloped as per MoEF guidelines. Spoils shall be dumped with an overlay of stockpiled topsoils in accordance with compliance requirements with respect to MoEF guidelines.</p>	All along the project road	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA1	Complied
Stripping, Stocking and Conservation of Topsoil	<p>The topsoil from borrow areas, areas of cutting and areas to be permanently covered will be stripped to a specified depth of 150 mm and stored in stockpiles. At least 10% of the temporarily acquired area will be earmarked for storing topsoil.</p> <p>The stockpile will be designed such that the slope does not</p>	Throughout project road, where Productive land is acquired.	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA1	Complied.

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility		Compliance Status
	exceed 1:2 (vertical to horizontal), and the height of the pile is to be restricted to 2m heights					
Soil Erosion	<p>On road embankment slops, slopes of all cut, fill etc, will be stabilized through retaining, breast walls and geo textiling. In addition, shrubs and grasses will be planted on slops. The section with high filling and deep cutting the side slop will be graded and covered with bushes and grasses as per specifications for stone pitching, grasses and shrubs.</p> <p>The work shall consist of measures as per design or as directed by the Supervision Consultant to control soil erosion, sedimentation and water pollution through use beams, disks, sediment, basins, fibres mats, mulches, grasses, slope, drains and other devices. All temporary sedimentation and pollution control works and maintenance thereof will be deemed as incidental to the earthwork and other items of work.</p>	Throughout project road	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA1	Complied.
Transporting Construction Materials						
Transporting Construction Materials	<p>All vehicles delivering materials to the site will be covered to avoid spillage of materials. All existing roads used by vehicles of or any of his sub - We or suppliers of materials and similarly roads which are part of the works will be kept clean and clear of all dust/mud or other extraneous materials dropped by such vehicles.</p> <p>The unloading of materials at construction sites close to settlements will be restricted to daytime only.</p>	All along the project road	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA1	Complied.
Water						
Water Extraction for Project	Wastage of water during construction activities will be minimized.	All along the project road	During Construction Phase	ONBCPL	All along the project road,	Complied.

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status	
	<p>Shall not open a new bore well or extract new groundwater without permission from Ground Water Board. May, however, use any existing bore well or any other source of water supply subject to necessary or relevant arrangement.</p>				<p>PIU NHA1</p>	
<p>Infrastructure Provisions at Construction Camps</p>	<p>Erect and maintain necessary (temporary) living accommodation and ancillary facilities for labours to standards and scales approved by the supervision consultant.</p> <p>There shall be provided within the precincts of every workplace, latrines and urinals in an accessible place, and the accommodation, separately for each for these, as per standards set by the Building and other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996.</p> <p>All temporary accommodation must be constructed and maintained in such a fashion that uncontaminated water is available for drinking, cooking and washing. The sewage system for the camp must be designed, built and operated so that no health hazard occurs and no pollution to the air, ground or adjacent watercourses takes place.</p> <p>Compliance with the relevant legislation must be strictly adhered to garbage bins must be provided in the camp, shall be regularly emptied and the garbage disposed off in a hygienic manner. Construction camps are to be sited at least 1000 m away from the nearest habitation and adequate health care is to be provided for the work force.</p>	<p>All along the project road</p>	<p>During Construction Phase</p>	<p>ONBCPL</p>	<p>Supervision Consultant, PIU NHA1</p>	<p>Complied.</p>

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status	
Operation of Construction Equipment and vehicles	<p>All vehicles and equipment used for construction will be fitted with exhaust silencers.</p> <p>Noise limits for construction equipment used in this project (measured at one meter from the edge of the equipment in free field) such as compactors, rollers, front loaders, concrete mixers, cranes (moveable), vibrators and saws will not exceed 75 dB (A), as specified in the Environment (Protection) Rules, 1986.</p> <p>ONBCPL to ensure that the Ambient Air Quality at the construction sites are within the acceptable limits of industrial uses in case of hot mix plants and crushers and residential uses around construction camps.</p> <p>In construction sites, nearest habitation noisy construction work such as crushing, concrete mixing and batching, mechanical compaction etc. will be stopped between 2200 hours to 0600 hours.</p>	All construction Equipment and vehicles	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA1	Complied.
Material Handling at Site						
Material Handling at Site	All workers employed on mixing asphaltic material, cement, concrete etc., will be provided with protective footwear and protective goggles. Workers, who are engaged in welding works, would be provided with welder's protective eye-shields.	All along the project road	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA1	Complied
Archaeological Property						
Chance to found Archaeological Property	<p>All fossils, coins, articles of value of antiquity, structures and other remains or things of geological or archaeological interest discovered on the site shall be the property of the Government and shall be dealt with as per provisions of the relevant legislations.</p> <p>The Supervision Consultant shall seek direction from the Archaeological Survey of India (ASI) before instructing</p>	All along the project road	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHA1	Complied.

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status	
	to recommence work on the site.					
Road Furniture and Enhancements						
Road Furniture	Road furniture including footpaths, railings, storm water drains, crash barrier, traffic signs, speed zone signs, pavement markers and any other such items will be provided as per design. The drains will be provided for near the outfall to a natural drain.	All along the project road	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHAH	Complied.
Enhancements	Enhancement of all cultural properties, water bodies, incidental spaces will be carried out as per the enhancement designs prior to completion of construction in road sub sections. Adequate signage along these enhancement locations will be erected.	All along the project road	Construction Phase	ONBCPL	Supervision Consultant, PIU, NHAH	Complied.
Monitoring of air, water and noise quality	Seasonal monitoring of air, water, and noise and soil quality will be undertaken through an approved monitoring agency.					Complied.
Demobilization						
Clearing of Construction of Camps & Restoration	We to prepare site restoration plans for approval by the all along the project road. The plan will be implemented by prior to demobilization. On completion of the works, all temporary structures will be cleared away, all rubbish burnt, excreta or other disposal pits or trenches filled in and effectively sealed off and the site left clean and tidy, to the entire satisfaction of the Supervision Consultant.	All Construction Workers' Camps	Construction Phase	ONBCPL	Supervision Consultant, PIU NHAH	Complied for operational section and it will be complied for the section from chainage Km 652.000 to 689.450
Redevelopment of Borrow Areas	Redevelopment of borrow areas will be taken up in accordance with the plans approved by the Supervision Consultant.	At all borrow area locations suggested for project	During Construction Phase	ONBCPL	Supervision Consultant, PIU NHAH	Complied for operational section and it will be complied for the section from chainage Km 652.000 to 689.450

Environmental Impacts	Mitigation Measures	Location	Time Frame	Responsibility	Compliance Status
<b>C Operation Stage Activities By PIU-Environmental Cell</b>					
Monitoring & Operational Performance	<p>The PIU will monitor the operational performance of the various mitigation/enhancement measures carried out as a part of construction of the project road.</p> <p>The indicators selected for monitoring include the survival rate of trees, utility of enhancement provisions for cultural properties, water bodies, incidental spaces and within forest areas, status of rehabilitation of borrow areas and utility of double glazing for noise sensitive receptors</p>	All along the project road	During Operation Phase	ONBCPL	Supervision Consultant, PIU NHAH Complied for operational section and it will be complied for the section from chainage Km 652.000 to 689.450
<b>D. Other Activities</b>					
Orientation of implementing agency and Wes	The PIU shall organize orientation sessions during all stages of the project. The orientation session shall involve all staff of Environmental Cell, field level implementation staff of PIU, Supervision Consultant and We.	All along the project road	During Operation Phase	ONBCPL	Supervision Consultant, PIU NHAH Complied for operational section and it will be complied for the section from chainage Km 652.000 to 689.450

## B.2 Compliance to Resettlement Action Plan

**Table 35: Compliance to Resttlement Action Plan**

SI No	Target	Compliance status as per consultation with PD NHAH and ONBCPL
1.	<p>Common Properties affected due to project road</p> <p>Temple/ Mosque – 12 No</p> <p>Community Structure – 6 Nos.</p> <p>Government Structure – 9 Nos.</p> <p>Wells – 2 Nos.</p> <p>Tube Wells – 45</p> <p>Total - 198</p>	<p>Complied and Completed.</p> <p>The Temples and mosques and community structure has been shifted/ relocated or avoided in consultation or consent with local community. These consultations were done by the NHAH and necessary action were taken by the ONBCPL according to the instructions of NHAH.</p>
2.	<p>Project Affected Non Title Holders</p> <p>Squatter – 20</p> <p>Encroachers – 39</p>	<p>Complied.</p> <p>NHAH has paid assistance to the eligible non-titleholders depending upon their eligibility based on entitlement matrix.</p>

SI No	Target	Compliance status as per consultation with PD NHAI and ONBCPL
	Total - 59	
3.	Vulnerable House Hold Below Poverty level – 75 Schedule Caste – 16 Schedule Tribe – 3 Women Headed House Hold – 2 Total - 96	Complied. The assistance and compensation to the affected house were given as per the decision of competent authority.
4.	Displaced House holds Title holder – 311 Nos Squatters and Encroachers – 59 No. Ambulatory Kiosks – 16 Nos. Total – 710 Nos.	The compensation of Title Holders have been paid by NHAI as per the decision of Competent Authority Land Acquisition. The assistance to eligible non-title holders have been paid as per decision of NHAI based on entitlement matrix
5.	Budget for Rehabilitation and Resettlement Land Acquisition – Rs 174.50 million R&R Cost – Rs. 5,21 million Assistance – Rs. 1.44 million Community Infrastructure – Rs. 2.12 million Site Development – Rs. 2.94 million RP implementation cost – Rs. 9.86 million Contingency and miscellaneous Expenses Rs. 1.63 million Total – Rs. 197.9 million	Complied. NHAI informed during consultation that the cash compensation, assistance has been paid in cash.

## C. List of Documents Reviewed

**Table 36: List of Documents Reviewed**

SI No	Document	Source/ Department
1	CTO under Air act, Water act and Hazardous Waste Management and Handling Rules for Nagpur Bypass (Panjri) Toll Plaza for operation of DG set	Maharashtra Pollution Control Board(MPCB)
2	CTO under Air act, Water act and Hazardous Waste Management and Handling Rules for Borkhedi Toll Plaza for operation of DG set	Maharashtra Pollution Control Board
3	NOC for Permission to Abstract Ground Water for Infrastructure Use at Borkhedi Toll Plaza	Central Ground Water Authority(CGWA)
4	NOC for Permission to Abstract Ground Water for Infrastructure Use at KKBP Check Toll Plaza	Central Ground Water Authority(CGWA)
5	NOC for Permission to Abstract Ground Water for Infrastructure Use at Mansar Toll Plaza	Central Ground Water Authority(CGWA)
6	NOC for Permission to Abstract Ground Water for Infrastructure Use at Nagpur Bypass(Panjri) Toll Plaza	Central Ground Water Authority(CGWA)
7	Copy of stage 2 forest clearance for diversion of 49.246 ha from km 652-689 of forest land	MoEFCC
8	Issue of working permission for commencement of work - for diversion of 49.246 ha from km 652-689 of forest land	Chief Conservator of Forest, Govt of Maharashtra
9	Environmental Clearance of Mansar -Nagpur section (Km 689-km 723	MoEFCC
10	Environmental Clearance of Nagpur Bypass	
11	Clarification letter for non-attraction of EIA notification 2006 and Consent to Establish for Nagpur Bypass	MoEFCC and MPCB
12	Blasting Permission	Ministry of labour and employment, Directorate General of Mines Safety
13	License to store petroleum in tank/s in connection with pump outfit for fuelling motor conveyances	Ministry of Commerce and Industry, Petroleum & Explosive Safety Organisation (PESO)
14	Consent to Renewal air act, Water act and Hazardous Waste Management and Handling Rules for crusher	MPCB
15	CTO under Air act, Water act and Hazardous Waste Management and Handling Rules for Borkhedi Batching Plant	MPCB
16	Consent to Renewal air act, Water act and Hazardous Waste Management and Handling Rules for Hot Mix Plant	MPCB
17	CTO under Air act, Water act and Hazardous Waste Management and Handling Rules for Mansar Batching Plant	MPCB
18	CTO under Air act, Water act and Hazardous waste Management and Handling Rules for Pawani Batching Plant	MPCB
19	CTO under Air act, Water act and Hazardous waste Management and Handling Rules for Wadamba Batching Plant	MPCB
20	NoC for petrol Pump Nagpur	District Collector, Nagpur
21	NoC for petrol Pump Tehsil Ramtek	District Collector, Nagpur
22	Tree cutting permission	Forest department, Govt of Maharashtra

SI No	Document	Source/ Department
23	Electricity bill, KKBP toll Plaza	Maharashtra State Electricity Distribution co ltd
24	Six Monthly Compliance Report to MoEFCC, Jan-June 17	ONBCPL
25	Work order and sub contract agreement for supply, fixing, developing, maintaining the new plants as well as existing plants for Nagpur Bypass with vendor M/s Snehal Kisan Nursery	ONBCPL
26	Certificate of Registration, Nagpur Bypass Toll Plaza	Ministry of Labour & Employment, Office of the registering officer
27	Contract Labour License	Ministry of Labour, Office of the licensing officer
28	Applicability of Employees' Provident Funds and Miscellaneous Provision Act	Office of the regional provident fund commissioner, Nagpur
29	ESIC form	Return of Contributions Employees' State Insurance Corporation
30	Employees Compensation Policy, covering risk for Nagpur Bypass	The New India Assurance Company Ltd
31	PF Challans	Employees' Provident Fund Organisation
32	Legal Register	ONBCPL
33	Concession Agreement	ONBCPL/NHAI
34	PCOD	ONBCPL
35	HIV/AIDS Awareness programme Photographs	ONBCPL
36	Environmental Management Manual and HR Manual	ONBCPL
37	EMP	CRAPHTS Consultants (I) Pvt Ltd
38	O&M Manual	ONBCPL
39	Establishment notice of Public Grievance Committee at 4 toll plazas	ONBCPL
40	Public Grievance Handling record book	ONBCPL
41	Road Safety Week Photographs	ONBCPL
42	Asset Integrity Inspection Records - DG set and Crusher	ONBCPL
43	Rainwater Harvesting Approval	Ministry of Water Resource
44	Tree Plantation Record	ONBCPL
45	Accident data	ONBCPL
46	Emergency Response Plan	ONBCPL
47	Employers Liability Policy	ONBCPL
48	Public Liability Policy (Non-Industrial Risk)	ONBCPL
49	Fidelity Guarantee Policy	ONBCPL
50	Standard Fire and Special Perils Policy	ONBCPL
51	Business Interruption (Fire) Policy	ONBCPL
52	Burglary Insurance	ONBCPL
53	Electronic Equipment Insurance Policy	ONBCPL
54	Money Insurance Policy	ONBCPL
55	PPE issue record	ONBCPL
56	Internal Order copy of Employee Grievance Committee formation	ONBCPL
57	Resettlement Action Plan	ONBCPL
58	Details of ROW	ONBCPL

SI No	Document	Source/ Department
59	Amount of Compensation determined as per 3(G) for village Dewlapar and Kandri	ONBCPL
60	List of Arbitration for Enhancement of Compensation	ONBCPL
61	Safety Audit report	ONBCPL
62	Additional work under change of scope	ONBCPL
63	WII No TR 2012/006 Revised Proposals for 4 laning of National Highways 7 : Review, May 2012	Wildlife Institute of India
64	High Court Judgement on PIL No 88/2013	NHAI Website

## D. Roles and Responsibility of EHS organisation

### D.1 Director - Responsibility for implementation of Environmental Policy

Director is ultimately responsible for the Implementation of The Environmental Policy. He has overall responsibility for maintaining an organisation that ensures that all requirements of the policy and associated statutory obligations are met by all employees and visitors/contractors to all sites or other premises under the control of the Company. Special responsibilities include:

To approve, personally sign and date, to take ownership of the company Environmental policy and ensure that there are procedures in place for the statement to be adhered to.

Setting the targets and objectives to ensure compliances of all applicable environmental laws

Ensuring that the conditions and requirements of the Environmental Policy are understood and implemented in the respective area or section of control Ensuring that all necessary liability is covered by insurance and advising the extents to which risks are acceptable;

Ensuring that adequate financial resources are made available to relevant departments to ensure sufficient resources to achieve the objectives as set out in the Environment Plan Set an example, including considering the Environmental impacts of the offices, adhering to the hierarchy of control measures.

Assess training needs for the division and arrange for all employees under his control to have suitable safety training on an ongoing basis Resourcing and investigating all Environmental related accidents, including any complaints directed at Oriental Monitoring and updating any information received from internal and external sources

Co-ordinating all activities/training/policy related to spillages, dusts, noise and related environmental procedures Site and Office inspections

### D.2 Plaza Head EHS responsibilities

Directly responsible to the Director for the health and safety arrangements on all areas of business under their control, and include implementation of company's Environmental policy

Ensure that any work carried out under their control is affected in accordance with all contract and regulatory requirements. Seek the advice of the Director, when in doubt, on matters relating to Environmental matters. Liaise with the Director at the planning stage of contracts.

Plan and maintain an orderly site. Supervise arrangements with subcontractors and possible other contractors on site to avoid confusion over areas of responsibility. Constantly look out for hazards from equipment and materials. Ensure checks on Plant and machinery either hired or owned by the company and used within contracts are carried out to ensure that they are safe and in good working order, and maintained accordingly. Investigate Environmental issues and environmental complaints immediately and report on them to Director as appropriate. Ensure that Subcontractor information is passed to the Executive Director for approval to the Approved Contractor List. Ensure all site personnel are fully competent and trained in the tasks to be undertaken. Ensure that the Environmental plan, policy, and procedures are implemented. Ensure that the human and physical resources are in place for those who will be carrying out the works.

### **D.3 Maintenance Head EHS responsibilities**

He is directly responsible for Environmental arrangements under his control, and includes:

Be conversant with the requirements of the Site Environmental Management Plan. Carry out regular inspections of plant, equipment, tools and PPE as appropriate. Bring to the attention of all operatives any information or new legislation which requires to be effectively implemented. Ensure that all personnel are trained in the relevant emergency procedures. Ensure that wherever an activity is deemed hazardous, and therefore subject to permit-to-work, that all appropriate records are held, and staff receive suitable instruction. Discuss any training needs identified with the Plaza Head

### **D.4 Site HR Head EHS responsibilities**

Ensure that all the consents, permissions, licences etc. are in place and ensure renewal within timelines. Ensure that all the employees are well aware about environmental policy. Ensure to resolve all local environmental issues under the guidance of Plaza Head.

### **D.5 Employees EHS responsibilities**

Read and understand the Company Environmental Policy and comply with its requirements, arrangements and safety rules. Carry out the work in accordance with all relevant risk assessments. Comply with all written or verbal instructions given. Not take unnecessary risks, which could cause Environmental harm. Observe all laid down safe systems of work; permit to work; and other safety procedures concerning work activities, plant, materials and substances. Dress sensibly and safely for the particular work environment or occupation involved in. Report any environmental hazard within the work area or defect in any office equipment, machinery, plant to the all concerned.

## E. Environmental Monitoring Data

**Table 37: Environmental Monitoring Details**

<b>Company</b>	<b>M/s Oriental Nagpur Bye Pass Construction Pvt Ltd</b>
Environmental Consultant	M/s Earthcare Labs Private Limited
Test Report	Water Quality
Sampling Location	Drinking Water from Mansar Toll Plaza Office
Sample Description	Ground Water
Sampling Date	29.09.2017

### E.1 Water Quality Testing at Mansar

**Table 38: Water Quality Testing at Mansar**

S. No	Parameter	Unit	Acceptable / Permissible Limit	Result
1	Colour	Hazen Unit	15-May	<5
2	Odour	—	Agreeable	Agreeable
3	pH Value	—	6.5 to 8.5	7.55
4	Turbidity	NTU	1/5	<0.1
5	Total Dissolved Solids	mg/l	500 - 2000	660
6	Aluminum (as Al)	mg/l	0.03 - 0.2	0.014
7	Total Ammonia (as N)	mg/l	0.5	<0.1
8	Boron (as B)	mg/l	0.5 - 1.0	0.082
9	Calcium (as Ca)	mg/l	75 - 200	70.9
10	Chloride (as Cl)	mg/l	250 - 1000	32.9
11	Copper as Cu	mg/l	0.05 - 1.5	0.01
12	Fluoride (as F)	mg/l	1.0 - 1.5	0.01
13	Free Residual Chlorine	mg/l	0.2 - 1.0	< 0.1
14	Iron (as Fe)	mg/l	0.3	0.088
15	Magnesium (as Mg)	mg/l	30 - 100	26.2
16	Manganese (as Mn)	mg/l	0.1 - 0.13	0.018
17	Nitrate (as NO <sub>3</sub> )	mg/l	45	1.06
18	Phenolic Compounds or Phenol (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	0.001 - 0.002	< 0.001
19	Selenium (as Se)	mg/l	0.01	< 0.01
20	Sulphate (as SO <sub>4</sub> )	mg/l	200 - 400	27.5
21	Sulphide (as H <sub>2</sub> S)	mg/l	0.05	< 0.04
22	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	200 - 600	346.5
23	Total Hardness (as CaCO <sub>3</sub> )	mg/l	200 - 600	284.9
24	Zinc (as Zn)	mg/l	5 _ 15	0.063
25	Cadmium as (Cd)	mg/l	0.003	< 0.003
26	Lead (as Pb)	mg/l	0.01	< 0.01
27	Nickel (as Ni)	mg/l	0.02	< 0.02
28	Total Arsenic (as As)	mg/l	0.01	<0.01
29	Total Chromium (as Cr)	mg/l	0.05	0.014

## E.2 Air Quality at Mansar

**Table 39: Air Quality in Mansar**

S. No	Test Parameter	Unit	Norm	Result
1	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	18.6
2	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	29.2
3	Particulate Matter size less than 10 µm (PM <sub>10</sub> )	µg/m <sup>3</sup>	100	57.3
4	Particulate Matter size less than 2.5 µm (PM <sub>2.5</sub> )	µg/m <sup>3</sup>	60	28.2
5	Carbon Monoxide (as CO)	mg/m <sup>3</sup>	4	0.4

## E.3 Noise Level at Mansar

**Table 40: Noise Level at Mansar**

Test Parameter		During Day Time Hourly Avg.	During Night Time Hourly Avg.
Equivalent Sound Level Leq dB (A)		68.2	61.1
Norm	Industrial Area	75	70
	Commercial Area	65	55
	Residential Area	55	45
	Silence Zone	50	40

## E.4 Water Quality Testing at Kandri Kanhan

**Table 41: Water Quality Testing at Kandri Kanhan**

S. No	Parameter	Unit	Acceptable / Permissible Limit	Result
1	Colour	Hazen Unit	1/5	<5
2	Odour	—	Agreeable	Agreeable
3	pH Value	—	6.5 to 8.5	7.87
4	Turbidity	NTU	1/5	<0.1
5	Total Dissolved Solids	mg/l	500 - 2000	694
6	Aluminum (as Al)	mg/l	0.03 - 0.2	0.016
7	Total Ammonia (as N)	mg/l	0.5	<0.1
8	Boron (as B)	mg/l	0.5 - 1.0	0.048
9	Calcium (as Ca)	mg/l	75 - 200	89.2
10	Chloride (as Cl)	mg/l	250 - 1000	104.5
11	Copper as Cu	mg/l	0.05 - 1.5	0.01
12	Fluoride (as F)	mg/l	1.0 - 1.5	0.962
13	Free Residual Chlorine	mg/l	0.2 - 1.0	<0.1
14	Iron (as Fe)	mg/l	0.3	0.058
15	Magnesium (as Mg)	mg/l	30 - 100	38.5
16	Manganese (as Mn)	mg/l	0.1 - 0.13	0.016
17	Nitrate (as NO <sub>3</sub> )	mg/l	45	<0.2

S. No	Parameter	Unit	Acceptable / Permissible Limit	Result
18	Phenolic Compounds or Phenol (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	0.001 - 0.002	<0.001
19	Selenium (as Se)	mg/l	0.01	<0.003
20	Sulphate (as SO <sub>4</sub> )	mg/l	200 - 400	73.4
21	Sulphide (as H <sub>2</sub> S)	mg/l	0.05	<0.04
22	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	200 - 600	286
23	Total Hardness (as CaCO <sub>3</sub> )	mg/l	200 - 600	382
24	Zinc (as Zn)	mg/l	5 - 15	0.046
25	Cadmium as (Cd)	mg/l	0.003	<0.003
26	Lead (as Pb)	mg/l	0.01	<0.01
27	Nickel (as Ni)	mg/l	0.02	<0.02
28	Total Arsenic (as As)	mg/l	0.01	<0.01
29	Total Chromium (as Cr)	mg/l	0.05	0.01

## E.5 Ambient Air Quality at Kandri Kanhan

**Table 42: Ambient Air Quality at Kandri Kanhan**

S. No	Test Parameter	Unit	Norm	Kandri Kanhan Toll Plaza
1	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	7.38
2	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	15.9
3	Particulate Matter size less than 10 µm (PM <sub>10</sub> )	µg/m <sup>3</sup>	100	59.5
4	Particulate Matter size less than 2.5 µm (PM <sub>2.5</sub> )	µg/m <sup>3</sup>	60	26.6
5	Carbon Monoxide (as CO)	mg/m <sup>3</sup>	4	0.25

## E.6 Noise level at Kandri Kanhan

**Table 43: Noise level at Kandri Kanhan**

Test Parameter	During Day Time Hourly Avg.	During Night Time Hourly Avg.
Equivalent Sound Level Leq dB (A) Kandri Kanhan Toll Plaza	61.7	55.1
Equivalent Sound Level Leq dB (A) NH 44 (old NH 7) Near Tekadi Village	65.5	59
Norm		
	Industrial Area	75
	Commercial Area	65
	Residential Area	55
	Silence Zone	50

## E.7 Water Quality at NBP Toll Plaza

**Table 44: Water Quality at NBP Toll Plaza**

S. No	Parameter	Unit	Acceptable / Permissible Limit	Result
1	Colour	Hazen Unit	1/5	<5.0
2	Odour	—	Agreeable	Agreeable

S. No	Parameter	Unit	Acceptable / Permissible Limit	Result
3	pH Value	—	6.5 to 8.5	8.12
4	Turbidity	NTU	1/5	<0.1
5	Total Dissolved Solids	mg/l	500 - 2000	116
6	Aluminum (as Al)	mg/l	0.03 - 0.2	0.008
7	Total Ammonia (as N)	mg/l	0.5	0.13
8	Boron (as B)	mg/l	0.5 - 1.0	0.026
9	Calcium (as Ca)	mg/l	75 - 200	11.2
10	Chloride (as Cl)	mg/l	250 - 1000	9.46
11	Copper as Cu	mg/l	0.05 - 1.5	<0.006
12	Fluoride (as F)	mg/l	1.0 - 1.5	0.09
13	Free Residual Chlorine	mg/l	0.2 - 1.0	<0.1
14	Iron (as Fe)	mg/l	0.3	<0.02
15	Magnesium (as Mg)	mg/l	30 - 100	6.33
16	Manganese (as Mn)	mg/l	0.1 - 0.13	<0.003
17	Nitrate (as NO3)	mg/l	45	<0.02
18	Phenolic Compounds or Phenol (as C6 H 5 OH)	mg/l	0.001 - 0.002	<0.001
19	Selenium (as Se)	mg/l	0.01	<0.03
20	Sulphate (as SO4)	mg/l	200 - 400	2.816
21	Sulphide (as H2S)	mg/l	0.05	<0.04
22	Total Alkalinity (as CaCO3)	mg/l	200 - 600	54.4
23	Total Hardness (as CaCO3)	mg/l	200 - 600	54
24	Zinc (as Zn)	mg/l	5 _ 15	<0.03
25	Cadmium as (Cd)	mg/l	0.003	<0.003
26	Lead (as Pb)	mg/l	0.01	<0.01
27	Nickel (as Ni)	mg/l	0.02	<0.02
28	Total Arsenic (as As)	mg/l	0.01	<0.01
29	Total Chromium (as Cr)	mg/l	0.05	0.007

## E.8 Air Quality at NBP Toll Plaza

**Table 45: Air Quality at NBP Toll Plaza**

S. No	Test Parameter	Unit	Norm	NH 44 (old NH 7) Near Dongargaon Village
1	Sulphur Dioxide (SO2)	µg/m3	80	<6.0
2	Nitrogen Dioxide (NO2)	µg/m3	80	10.3
3	Particulate Matter size less than 10 µm (PM10)	µg/m3	100	46.2
4	Particulate Matter size less than 2.5 µm (PM2.5)	µg/m3	60	21.2
5	Carbon Monoxide (as CO)	mg/m3	4	0.14

## E.9 Noise level at NBP toll plaza

**Table 46: Noise Level at NBP toll Plaza**

Test Parameter		During Day Time Hourly Avg.	During Night Time Hourly Avg.
Equivalent Sound Level Leq dB (A) NH 44 (old NH 7) Near Dongargaon Village		65.7	54.3
Equivalent Sound Level Leq dB (A) NBP Toll Plaza		65.8	55.2
Norm	Industrial Area	75	70
	Commercial Area	65	55
	Residential Area	55	45
	Silence Zone	50	40

## F. Break Down of ONBCPL Staff list

**ORIENTAL NAGPUR BYE PASS CONSTRUCTION PVT. LTD.**

**No. of Employees : Head Counts.**

<i>SL. No.</i>	<i>Designation</i>	<i>Nos. of Employees</i>
1	JT. GENERAL MANAGER	1
2	TOLL MANAGER	3
3	SR PROJECT ENGINEER	1
4	ASST. MANAGER HR	1
5	OFFICER ACCOUNTS	1
6	SHIFT INCHARGE	11
7	SR OFFICER- HTMS	1
8	SHIFT IN CHARGE CUM SYSTEM ENGINEER	10
9	ASST OFFICER ROUTE PATROLLING	1
10	DOCUMENT CONTROLLER	1
11	VALIDATOR	16
12	CASHIER	10
13	POS OPERATOR	2
14	TOLL LANE SUPERVISOR	23
15	LANE GUIDER	14
16	TOLL COLLECTOR	94
17	OFFICER HR.	1
18	ASST. STORE KEEPER	1
19	SUPERVISOR HIGHWAY	4
20	PATROLLING SUPERVISOR	1
21	LANE MARSHAL	19
22	SR PARAMEDIC	4
23	ELECTRICIAN	10
24	WATCH & WARD	4
25	WELDER	1
26	PLUMBER	1
27	CRANE OPERATOR	1
28	DRIVER	15
29	COOK	4
30	OFFICE BOY	11
31	MESS HELPER	3
32	GARDENER	2
33	SWEEPER	6
<b>TOTAL</b>		<b>278</b>

# Glossary

<b>AIDS</b>	Acquired Immune Deficiency Syndrome
<b>AMC</b>	Annual Maintenance Contract
<b>BOT</b>	Build, Operate and Transfer
<b>CA</b>	Concession Agreement
<b>CEO</b>	Chief Executive Officer
<b>CGWA</b>	Central Ground Water Authority
<b>CPCB</b>	Central Pollution Control Board
<b>CTE</b>	Consent to Establish
<b>CTO</b>	Consent to Operate
<b>D.G.</b>	Diesel Generators
<b>DBMW</b>	Delhi Brass & Metal Works
<b>E&amp;S</b>	Environmental and Social
<b>EC</b>	Environmental Clearances
<b>EHS</b>	Environment, Health and Safety
<b>EMP</b>	Environment Management Plan
<b>EPC</b>	Engineering, Procurement, Construction
<b>EPRP</b>	Emergency Preparedness and Response Plan
<b>ESAP</b>	Environmental and Social Action Plan
<b>ESDD</b>	Environmental and Social Due Diligence
<b>ESMP</b>	environmental and social management plan
<b>ESMS</b>	Environmental and Social Management System
<b>GHG</b>	Greenhouse Gasses
<b>GIIP</b>	Good International Industry Practice
<b>HIV</b>	Human Immunodeficiency Virus
<b>HR</b>	Human Resource
<b>IE</b>	Independent Engineer
<b>IFC</b>	International Finance Corporation
<b>IP</b>	Indigenous Peoples
<b>IRC</b>	India Road Congress
<b>LA</b>	Land Acquisition
<b>LARR</b>	Land Acquisition Resettlement and Rehabilitation Bill
<b>LHS</b>	Left Hand Side
<b>MoEFCC</b>	Ministry of Environment, Forest and Climate Change
<b>MORTH</b>	Ministry of Road Transport and Highway
<b>MPPCB</b>	Madhya Pradesh Pollution Control Board
<b>MPR</b>	Monthly Progress Report
<b>NGO</b>	Non-Governmental Organisations
<b>NH</b>	National Highway
<b>NHAI</b>	National Highways Authority of India
<b>NOC</b>	No Objection Certificate
<b>O&amp;M</b>	Operation and Maintenance
<b>OHS</b>	Occupational Health and Safety
<b>OPIPL</b>	Oriental Pathways (Indore) Private Limited
<b>OSE</b>	Oriental Infrastructure Engineers
<b>PRO</b>	Public Relation Officer
<b>PS</b>	Performance Standard
<b>R&amp;R</b>	Rehabilitation and Resettlement

<b>RFCT LARR</b>	Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement
<b>RHS</b>	Right Hand Side
<b>RO</b>	Reverse Osmosis
<b>ROW</b>	Right of Way
<b>SIA</b>	Social Impact Assessment
<b>SPCB</b>	State Pollution Control Board
<b>SPV</b>	Special Purpose Vehicle
<b>ST</b>	Scheduled Tribe

