ENGLISH SUMMARY

Development of 6 lane Access Controlled Greenfield Highway of Shamli-Ambala Sec. from Ch. 0+000 to Ch. 120+970 (Total length: 120.970 km) under Bharatmala Pariyojana Phase II (Lot-9/Package-I)in the States of Uttar Pradesh, Haryana and Punjab

Project Proponent : National Highway Authority of India
Ministry of Road, Transport & Highways, Govt. of India

Environmental Consultant: Mantras Green Resources Ltd.

December 2021

For National Highway Authority of India
Mantras Green Resources Limited

TABLE OF CONTENTS

LIST OF TABLES

1.1 Introduction

National Highway Authority of India (NHAI) is responsible for management of national highways and is the nodal agency of Ministry of Road Transport and Highways (MoRTH), Government of India. NHAI aims at provision and maintenance of national highways network to meet user expectations in the most time-bound and cost-effective manner within the strategic policy framework. NHAI is the nodal authority/proponent for the Development of Economic Corridors, Inter Corridors and Feeder Routes to improve the efficiency of freight movement in India under Bharatmala Pariyojana (Lot-9/Package-1).

The proposed highway with new alignment has been envisaged through an area which shall have the advantage of simultaneous development as well as shall result in a shorter distance to travel. Proposed highwayfollows the greenfield alignment with 6 lanes carriageway configurations. The proposed project starts near Gogwan Jalalpur (Ch: 0+000) village in Shamli (district of Uttar Pradesh and ends at Sadopur village (Ch:120+970) in Ambala district of Haryana State. The RoW for the project is 60m. The proposed project is falling in the state of Uttar Pradesh, Haryana & Punjab.

1.2 Need of the Project

The proposed highway is essential as it connects the three major agriculture producing states of Northern India. This project is being developed as economic corridor to boost the industrial development and freight movement in the project area by National Highways Authority of India under Bharatmala Pariyojna. The key highlights of the scheme are:

- Improving the quality of existing roads
- Construction of direct new roads to complete 34000 km
- Better connectivity to ports, coastal regions, etc.
- The main stress will be given on the construction and development of Greenfield highway for better management of traffic and freight.

Further, the proposed project will have multi-fold benefits for the local and regional economies as follows:

- Connectivity to the important towns
- Lower transport costs for freight and passengers of motorized and non-motorised vehicles;
- Improved Road network connectivity to the villages in the vicinity of the road;
- Enhanced traffic facilities and volume in the project road;
- Enhancement in economic opportunities/activities of the local people;
- Enhanced basic amenities to the villages along the proposed road;
- Rural prosperity of the project influence area;
- Elevate tourism
- Improve the economy of the area like agriculture, commerce, education, health, social welfare and public safety

1.3 Project Area

Project section covers 120.970 Km of length distributed across Shamli & Saharanpur district of Uttar Pradesh State, Karnal, Yamunanagar, Kurukshetra & Ambala districts of Haryana & SAS Nagar district of Punjab State.

Table 1: Location of the Proposed Project

S. No.	Name of the District	State	Design Chainage (km)		Length (km)
			Start	End	
1	Shamli	Uttar Pradesh	0+000	14+422	14.422
2	Saharanpur		14+422	47+668	33.246
3	Karnal	Haryana	47+668	55+037	7.369
4	Yamunanagar		55+037	71+168	16.131
5	Kurukshetra		71+168	75+533	4.365
6	Ambala		75+533	108+450	32.917
7	SAS Nagar	Punjab	108+450	111+800	3.35
8	Ambala	Haryana	111+800	120+970	9.17

1.4 Project Proponent

National Highways Authority of India (NHAI), an autonomous agency of the Government of India, is responsible for management of the network of national highways across the country. It is a nodal agency of the Ministry of Road Transport and Highways (MoRTH), Government of India. NHAI vision is to meet the nation's need for the provision and maintenance of national highways network to global standards and to meet user expectations in time-bound and cost-effective manner, within the strategic policy framework set by the Government of India and thus promoting economic well-being and quality of life of the people.

NHAI is the nodal authority / project proponent for the development of the highway project under present study.

1.5 Environmental Impact Assessment (EIA) Study

The study methodology for the EIA employs a simplistic approach in which the important environmental issues have been identified before initiation of the baseline study. Based on the identification baseline data for proposed project was collected during the study period from January to March 2021. This data has analyzed to predict and quantify the impacts and suggest best suited mitigation measure to mitigate the identified impacts.

1.6 Policy, Legal and Administrative Framework

As part of the project execution, the following clearances and NOCs has to be obtained by NHAI & the contractors:

- Prior Environmental Clearance from MoEF&CC under the purview of EIA Notification 2006 & its subsequent amendments, as the proposed project is a development of new national highway
- Prior permission for felling of trees from Forest dept. / District Authorities
- Compensate the affected households as per entitlement matrix based on Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act 2013

- Prior Environmental Clearance from MoEF&CC / SEIAA by the Contractors for sand and aggregate quarries, wherever and if required
- NOC and Consents under Air & Water Acts for establishing and operating the construction plants including but not limited to hot mix plants, WMM, crushers etc. from State Pollution Control Board
- NOC under the Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 from SPCB
- PUC certificate for use of vehicles for construction from Transport department
- NOC for water extraction for construction and allied works from Irrigation department
- Conversion of land use from the revenue department for setting camps and plants
- Approval of Monitoring Consultant / Supervision Consultant / Authority Engineer for location and layout of Camps & plants before start of Construction
- Approval of Monitoring Consultant / Supervision Consultant / Authority Engineer for Traffic Management Plan before start of Construction
- Approval of Monitoring Consultant / Supervision Consultant / Authority Engineer for the Emergency Action Plan for accidents responding to involving fuel & lubricants before the construction starts

1.7 Baseline Environmental Profile

1.7.1 Physical Environment

Climatology

The climate of the project area is generally hot. As per climatic conditions, the year may be divided into four seasons. The hot season is from March to May. From March onwards it is a period of continuous rise in the temperature and May is generally the hottest month of the year. Hot winds blow during summer, occasionally accompanied by dust storms. The temperature may touch 45°C or more on some days. Generally, pre-monsoon showers are experienced in the middle or end of June which may bring down temperature considerably. From early October, the weather becomes very pleasant as the winter season sets in. November and December are pleasant but nights are cold

Topography

The proposed alignment follows the 'plain' terrain. The elevation varies from ~240m to ~288m above msl at different locations. Average elevation of the project stretch is ~250m above msl.

Soil

The region slopes towards south-west. It is a plain area with relatively richer loamy soils. Khadar lies along Yamuna river, it is formed by deposition of alluvium sediments, clay and sand. Silty loam is easily workable and productive. The soil along the bank of river beds is usually light and sandy, while elsewhere it is mainly a productive loam stiffened by the action of water into clay in the lower levels. All along the old high bank of the Yamuna lies a belt of stiff-swampy clay of varying width producing excellent vice but elsewhere the Yamuna Khadar consists of light loam and in places includes patches of sand and reh. The light rich loam or sandy loam soil covers nearly three fourth of the area of the district. It is called by the local name of rausli and ranges from a light friable soil with a considerable admixture of sand to the softer kinds of clay in which

all crops can be grown with equal facility. Soil samples were collected from 9 representative locations for assessment of soil characteristics for the proposed highway.

Ambient Air Quality (AAQ)

Ambient air quality monitoring has been done at evenly distributed ten (10) locations along the proposed alignment. The results indicate that all air quality parameters are within the standards specified in the NAAQS in absence of any major pollution generation activities near study area.

Ambient Noise Level (ANL)

Noise monitoring has been carried out once during the entire study period at ten (10) locations along the proposed alignment for a period of 24 hours. Day & Night-time Leq has been computed from the hourly Leq values as per standards. The Noise quality result shows that Leq Day time varies from 48.4 to 51.0 dB(A) and Leq Nighttime varies from 38.4 to 40.9 dB(A). Noise level was found within the standards.

Surface Water

Surface water quality along the project stretch was monitored at four (4) representative locations along the proposed alignment as per the parameters laid down by Central Pollution Control Board for surface water quality criteria. The surface water in the project was found alkaline with pH varying from 7.25 to 7.54.

Ground Water

Keeping in view the importance of ground water to the local population, four (4) representative ground water sampling locations along the proposed alignment were identified and samples were analysed for assessment of ground water quality.

1.7.2 Biological Environment

Protected Areas

The proposed alignment is neither passing through nor falling within 10.0km radius of any National Park or Wildlife Sanctuary. Therefore, Wildlife clearance is not required under Wildlife (Protection) Act, 1972.

Forest Area

About 7.5 ha of protected forest land shall be diverted for the development of proposed project. The proposed alignment is passing through the strip plantation notified as protected forest along the roads & canals. Hence, diversion of forest land shall be applicable under Forest Conservation Act 1980.

1.7.3 Social Environment

Census Profile

The demographic features of Shamli& Saharanpur districts in the state of Uttar Pradesh, Yamuna Nagar, Karnal, Kurukshetra and Ambala districts in the state of Haryana and SAS Nagar district of Punjab State forming an immediate influence. As per Census 2011, the total population of Haryana is 2,53,51,462 with the density as 573 /km^2, Uttar Pradesh is 15,53,17,278 with a density of 829/km^2 and Punjab is 2,77,43,338 with a density of 551/km^2.

Table 2: Demographics of Project District

Sl. No	State	District	Population 2011		
			Persons	Male	Female
1.	Uttar Pradesh	Saharanpur	34,66,382	18,34,106	16,32,276
		Shamli	12,73,578	6,87,732	5,85,846
2.	Haryana	Yamuna Nagar	12,14,205	6,46,718	5,67,487
		Karnal	15,05,324	7,97,712	7,07,612
		Kurukshetra	9,64,655	5,10,976	4,53,679
		Ambala	11,28,350	5,98,703	5,29,647
3.	Punjab	SAS Nagar	9,94,628	5,29,253	4,65,375

1.8 Public Interactions & Consultation

Public Interactions & consultations were conducted during the project preparations. The main purpose of these consultations was to know the community's reaction to the perceived impact of proposed project on the people at individual and settlement level.

1.9 Potential Environmental Impacts

The environmental components are mainly impacted during the construction and operational stages of the project and must be mitigated for and incorporated in the engineering design. Environmental mitigation measures represent the project's endeavour to reduce its environmental footprint to the minimum possible. These are conscious efforts from the project to reduce undesirable environmental impacts of the proposed activities and offset these to the degree practicable. Enhancement measures are project's efforts to gain acceptability in its area of influence. They reflect the pro-active approach of the project towards environmental management. Slight change in the micro-climate of the area is expected due to heat island effect as unpaved area will be converted into the paved road. However, Impact on the climate conditions from the proposed road project will not be significant in long run as removal of vegetation will be compensated by compensatory plantation.

1.9.1 Impact on Air Quality

There will be rise in PM levels during the construction activities, which shall again be within prescribed limit after the construction activities are over. The level of CO is likely to be increased, however, level shall remain within prescribed standards.

1.9.2 Impact on Noise Levels

The area is likely to experience an increment in noise level due to increase in vehicle density after road strengthening. Construction camp shall be established at least 1000m away from nearest habitation and forest area. Temporary noise barriers should be provided surrounding the high noise generating construction equipment during work near to settlement area. Avenue plantation have been proposed on either side of the highway to control the associated air and noise pollution.

1.9.3 Impact on Water Resources and Quality

The construction and operation of the proposed project roads will not have any major impacts on the surface water and the ground water quality in the area. Design made to avoid physical loss to the water bodies to the extent possible. Contamination to water bodies may result due to spilling of construction materials, oil, grease, fuel and paint in the construction camp. This will be

more prominent in case of locations where the project road crosses drains, ponds, etc. Silt fencing shall be provided along the major canals and pond. Oil interceptors are proposed near fuel handling areas.

1.9.4 Impact on Ecological Resources

Trees within ROW are likely to be affected due to the proposed development leading temporally loss of micro ecosystem. However, on the long run the impacts will be compensated in terms of compensatory and avenue plantation.

1.9.5 Impact on Land

During the construction of the proposed project, the topography will change due to cuts & fills for project road and construction of project related structures etc. Provision of construction yard for material handling will also alter the existing topography. The change in topography will also be due to the probable induced developments of the project.

1.9.6 Social Impacts

About 824.285 ha of land shall be required for proposed highway

1.10 Analysis of Alternatives

Detailed analyses of the alternatives have been conducted taking into account both with and without project. The proposed development of greenfield highway is likely to have a positive impact on the economic value of the region. However, there are certain environment and social issue, these needs to be mitigated for sustainable development.

1.11 Mitigation Avoidance & Enhancement Measures

Mitigation and enhancement measures have been planned for identified adverse environmental impacts. The construction workers camp will be located at least 1000 m away from nearby habitations. Hot mix plants, batching plants, etc. will also be located more than 1000 m away from habitations and in downwind directions. Existing cross drainage structures have been planned to maintain for proper cross drainage. In order to compensate negative impacts on flora due to cutting of trees the project plans compensatory plantation in the ratio of 1:10 i.e. for every tree to be cut, ten trees will be planted. The project shall also witness the plantation of trees for providing aesthetic beauty and shade. As the space for compensatory plantation might not be adequate along the project road, this plantation shall be taken up by the forest department, after payment of the cost for raising and maintaining the saplings for five years. The project will take an opportunity to provide environmental enhancement measures to improve aesthetics in the project area. The planned environmental enhancement measures include plantation in available clear space in ROW, enhancement of water bodies etc. In order to avoid contamination of water bodies during construction Silt fencing, oil interceptors at storage areas and at construction yard have been proposed. The affected households shall be compensated as per the entitlement matrix based on Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Act 2013.

1.12 Institutional Requirements & Environmental Monitoring Plan

The responsibility of implementing the mitigation measures lies with environment team duly appointed by the Contractor/Concessionaire. The overall supervision of Environmental

monitoring works during construction and operation stage shall be carried out by NHAI with the help of the Monitoring Consultant / Supervision Consultant / Authority Engineer. To mitigate the potential negative impacts of proposed development and measurement the performance of mitigation measures, an Environmental Monitoring and Management Plan is developed. The formulation of an appropriate environmental monitoring plan and its diligent implementation are keys to overall success for the project.

1.13 Environmental Management Plan

Project specific environmental management plan have been prepared for ensuring the implementation of the proposed measures during construction phase of the project, implementation and supervision responsibilities. The cost for environmental management during construction has been indicated in EMP. The project impacts and management plan suggested thereof are summarized in next section.

1.14 Environment Impact & Management Matrix

Table 3: Environment Impact & Management Matrix

Particulars	Stages	Potential Impacts	Mitigation Measures
Physiographic Environment			
Topography	Preconstruction & Construction	• Slight changes are expected due to development of the road • Impacts are marginal, but permanent.	• Proper planning to keep the land reformation upto bare minimum • No new quarry for the project
Geology	Preconstruction & Construction	• Impacts are moderate because of extraction of sand	-
Climate			
Temperature / Rain fall / Humidity	Preconstruction & Construction	• Tree felling will have an impact of micro-climate of the area • Heat island effect due to increase in paved roads • Low spatially restricted short-term impact	• Compensatory plantation in 1:10 ration of the trees to be cut • With the proposed avenue plantation scheme, the micro climate of the project corridor will be smoothened
Land			
Loss of Other Land	Design, Preconstruction & Construction	• Loss of Property & Livelihood	• Compensation as per LARR, 2013
Induced Development	Preconstruction & Construction	• Insignificant change in the land use pattern	• Civil authorities to plan and guide any induced development under regulatory framework
Soil			
Soil Erosion	Preconstruction,	• In Road slopes and	• Embankment protection

Particulars	Stages	Potential Impacts	Mitigation Measures
	Construction & Operation	spoils • Erosion in excavated areas	through pitching & turfing • Regular water sprinkling in excavated areas
Contamination of Soil	Preconstruction, Construction & Operation	• Scarified bitumen wastes • Oil and diesel spills • Emulsion sprayer and laying of hot mix • Production of hot mix and rejected materials • Residential facilities for the labour and officers	• Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 • Oil Interceptor will be provided in storage areas for accidental spill of oil and diesel • Rejected material to be laid as directed by monitoring consultant. • Septic tank to be constructed for waste disposal.
Water			
Impact on Water Resource	Design, Preconstruction, Construction & Operation	• Depletion of ground water recharge • Contamination from fuel and lubricants & waste disposal in camp area • Contamination of surface water system due to run-off from road construction area	• Provision of Storage/harvesting structure of water, wherever feasible • Oil Interceptor and Septic tank in construction camp • Enforcement of Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 • Both side drain facility to suitably divert the run-off from roads
Air			
Dust generation	Preconstruction& Construction	• Shifting of utilities, removal of trees & vegetation, transportation of material	• Regular Sprinkling of Water • Fine materials to be completely covered, during transport and stocking. • Hot mix plant to be installed in down wind direction with at least 1000m distance from nearby settlement. • Regular monitoring of particulate matter in Ambient Air
Gaseous pollutants	Preconstruction, Construction & Operation	• Operation of Hot mix plant and vehicle operation for material	• Air pollution Norms will be enforced. • Only PUC certified vehicle

Particulars	Stages	Potential Impacts	Mitigation Measures
		transportation	shall be deployed • Labourers will be provided with mask. • Regular gaseous pollution monitoring in ambient air
Ambient air quality	Operation	• Air pollution from traffic • CO level is likely to increase	• Compliance with statuary regulatory requirements
Noise			
Pre-Construction Activity	Pre-Construction	• Man, material and machinery movements • Establishment of labour camps, onsite offices, stock yards and construction plants	• No Horn Zone sign, Speed Barriers near sensitive receptors • Camps will be setup more than 1000m away from settlements.
Construction Activity	Construction	• Operation of high noise equipment like hot mix plant, diesel generators etc. • Community residing near to the work zones.	• Camp will be setup more than 1000m away from the settlements, in down wind direction. • Noise pollution regulation to be monitored and enforced.
Operation Stage	Operation	• Indiscriminate blowing of horn near sensitive area	• Restriction on use of horns • No Horn Zone sign.
Ecology			
Flora	Preconstruction, Construction	• Loss of vegetation cover • Felling of appprox. 7966 of trees	• Felling of only unavoidable trees • Compensatory Plantation in the ratio of 1:10
Fauna	Preconstruction, Construction & Operation	• Loss of insect, avian and small mammalian species due to felling of trees • Accidental run over	• Compensatory Plantation • Speed breaker, Signage and limit in sensitive areas
Social			
Socio Environment	Design, Preconstruction & Construction	• Loss of Property & Livelihood • Loss of CPRs, Religious Structures	• Compensation as per LARR, 2013 • Relocation of CPRs, Religious Structures to suitable place
Public Health and Road Safety			
Health and safety	• Preconstruction, Construction & Operation	• Psychological impacts on project affected people	• Continued consultation with PAPs and the competent authority for speedier

Particulars	Stages	Potential Impacts	Mitigation Measures
		• Migration of worker may lead to sanitation problem creating congenial condition for disease vectors • Discomfort arising of air and noise pollution • Hazards of accident	settlements of appropriate compensation package and resettlement. • Ensuring sanitary measures at construction camp to prevent water borne disease and vector borne disease. • Provision for appropriate personal protective equipment like earplugs, gloves gumboot, and mask to the work force. • Safe traffic management at construction area. • Drive slow sign and speed barriers near community facilities like school, hospital, etc.

1.15 Conclusions

Based on the EIA study and surveys conducted for the Project, it can be safely concluded that associated potential adverse environmental impacts can be mitigated to an acceptable level by adequate implementation of the measures as stated in the EIA Report. Adequate provisions shall be made in the Project to cover the environmental mitigation and monitoring requirements, and their associated costs as suggested in environmental budget. The proposed project shall improve trade efficiency and bring economic growth. In terms of air and noise quality, the project shall bring considerable improvement to possible exposure levels to population.

To
Sh. Dharamvir Tolikar
Team Leader
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Sub: - Submission of Draft EIA Report for the development of 6 lane access controlled greenfield highway of Shamli-Ambala Sec. from Ch. 0+000 to Ch. 120+970 in the States of Uttar Pradesh, Haryana and Punjab under Bharatmala Pariyojana Phase II (Lot-9/Package-I)
Ref.: - Terms of Reference (TOR) Issued by MOEF&CC, vide File No.10-33/2021-IA.III on dated 22nd Sept, 2021 and amended 6th Dec 2021.

Respected Sir,

With reference to the above subject matter, we are submitting herewith the draft EIA/EMP report along with English and Hindi Summary in accordance with the terms of reference prescribed by MOEF&CC. This is for your reference and onwards submission to the Authority for conducting the public hearing.

1. Hardcopy of draft EIA /EMP report
2. Hardcopy of executive summary in Hindi & English
3. Soft copies of above documents in CD

We requesting to your good office that acknowledge the above-mentioned documents.

Assuring you of our best professional services at all time and thanking you.

Yours faithfully,

For Ambient Envirotech Pvt Ltd.

Authorized Signatory

Encl: As above