Pre-Feasibility Report

NAME OF THE PROJECT- Construction of Eight lane road (newly declared NH 148N) from Kandarwasa village to Kher Khunta village in Ratlam district from CH:150+000 to 181+000 in the state of Madhya Pradesh (sub package-2) under Bharatmala Pariyojana (Lot-4/Package-5)

भा रा रा प्रा
NHAI
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
National Highways Authority of India

SUBMITTED BY

National Highways Authority of India
G- 5 & 6, Sector-10, Dwarka, Delhi, 110075

1.0 EXECUTIVE SUMMARY

The National Highways Authority of India (NHAI) has been entrusted with the assignment of consultancy Services for preparation of DPR for development of Economic Corridors, Inter Corridors and Feeder Routes to improve the efficiency of freight movement in India under Bharatmala Pariyojana.

In pursuance of the above M/s. Chaitanya Projects Consultancy Pvt. Ltd. has been appointed as Consultant for preparation of DPR for development of Access Control Economic Corridors, Inter Corridors and Feeder Routes to improve the efficiency of freight movement in India under Bharatmala Pariyojana (Lot-4/Package-5).

This part of Delhi-Mumbai Expressway (EW) starts from Kandarwasa village to Kher Khunta village in Ratlam district from CH:150+000 to 181+000 in the state of Madhya Pradesh. The length of the proposed alignment is 31.00 km approx.

The Delhi-Mumbai Expressway is a green field alignment, fully access control and is proposed for 8-Lane with partial service road and way side amenities. The main objective of the proposed project is to reduce the distance and travel time between Delhi and Mumbai and to give connectivity to remote area. The project lays emphasis on development of these areas and make them available with the resources.

The proposed access controlled expressway project 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. The junctions with existing road will be planned in the form of interchanges and flyover to ensure uninterrupted flow of traffic.

The proposed road would act as the prime artery for the economic flow to this region. It will enhance economic development, provide employment opportunities to locals, strengthen tourist development, ensure road safety, and provide better transportation facilities and other facilities such as way side amenities. Vehicle operating cost will also be reduced due to improved road quality. The compensatory plantation and road side plantation shall further improve the air quality of the region.

a. SALIENT FEATURES OF THE PROJECT

Project name	Construction of Eight lane road (newly declared NH 148N) from Kandarwasa village to Kher Khunta village in Ratlam district from CH:150+000 to 181+000 in the state of Madhya Pradesh. This is a part of Delhi Mumbai Express Way under Bharatmala Pariyojana. **Proposed Length**: 31.00 km approx.
Location	This part of Delhi-Mumbai Expressway (EW) starts from Kandarwasa village to Kher Khunta village in Ratlam district from CH: 150+000 to 181+000 in the state of Madhya Pradesh. This is a part of Delhi Mumbai Express Way under Bharatmala Pariyojana. The length of the proposed alignment is 31.00 km approx.

Latitude & Longitude	Start Location : 23°30'19.32"N 75° 2'31.39"E End Location: 23°17'49.32"N 74°51'12.16"E
Land use	Agricultural, Barren and forest land
Nearest railway station	Ratlam Railway Station (approx. 11.0 Km, aerial)
Nearest Airport	Indore Airport (Approx. 115.0 Km, aerial)
Seismic Zone	Zone-II (As per 1893:2002)

b. PROPOSED PLANNING

Type of project	-	National Highway (New)
Project cost	-	930 Cr approx.
Project Length	-	31.0 km approx.

2.0 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

a. IDENTIFICATION OF PROJECT PROPONENT

The Ministry of Road Transport and Highways (MoRTH) / National Highways Authority of India (NHAI) has decided to develop Expressway, Inter Corridors and Feeder Routes to improve the efficiency of freight movement in India under Bharatmala Pariyojana. The Expressway is planned to connect Delhi and Mumbai passing through 5 states and a Union territory (UT), that are, Delhi (UT), Haryana, Rajasthan, Madhya Pradesh, Gujrat and Maharashtra.

b. BRIEF INFORMATION ABOUT THE PROJECT

The proposed road has a total length of 31.0 km approx. The alignment starts from Kandarwasa village to Kher Khunta village in Ratlam district from CH:150+000 to 181+000 in the state of Madhya Pradesh.

c. NEED FOR THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY OR REGION

The proposed National Highway is part of an exclusive transport corridor from Delhi to Mumbai and our alignment is part this and is being planned from Kandarwasa village to Kher Khunta village in Ratlam district from CH:150+000 to 181+000 in the state of Madhya Pradesh.

The proposed access controlled project 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. The junctions with existing road will be planned in the form of interchanges and flyover to ensure uninterrupted flow of traffic.

The proposed road would act as the prime artery for the economic flow to this region. It will enhance economic development, provide employment opportunities to locals, strengthen tourist development, ensure road safety, and provide better transportation facilities and other facilities such as way side amenities. Vehicle operating cost will also be reduced due to improved road quality. The compensatory plantation and road side plantation shall further improve the air quality of the region.

d. DEMAND-SUPPLY GAP

The Delhi-Mumbai Expressway is a green field alignment, fully access control and is proposed for 8-Lane with partial service road. Vehicle operating cost will be reduced due to improved road quality and transportation will improve. It will help in development of Madhya Pradesh and the Nation.

e. IMPORTS VS. INDIGENOUS PRODUCTION

Import/Indigenous production does not apply in the present case.

f. EXPORT POSSIBILITY

Not applicable in the present case.

g. DOMESTIC/ EXPORT MARKETS

Not applicable in the present case.

h. EMPLOYMENT GENERATION

During the construction of the road project around 150 persons would be employed temporarily for a period of 3 years. However due to construction of toll plazas approx. 30 persons will be employed on permanent basis. Preference will be given to local people for employment. The Project will enhance economic development in the area through industrial growth, agricultural, and commercial development and consequent employment generation, savings in travel time & shall provide easy access to social infrastructure.

3.0 PROJECT DESCRIPTION

a. TYPE OF PROJECT INCLUDING INTERLINKED AND INTERDEPENDENT PROJECTS, IF ANY

The proposed road is a part of Delhi Mumbai corridors falling in Madhya Pradesh. Two more packages of the alignment have been under taken for E.C. It is a part of Bharatmala Pariyojana of MoRTH.

b. LOCATION

The proposed road has a total length of 31.0 km approx. The alignment starts from from Kandarwasa village to Kher Khunta village in Ratlam district from CH:150+000 to 181+000 in the state of Madhya Pradesh

c. DETAILS OF ALTERNATE SITES

Three alternative green field alignments have been considered, option (i) on the extreme left hand side of the proposed alignment (ii) alignment on left side of proposed alignment. and (iii) Proposed alignment on RHS. The final alignment option (iii) is fixed avoiding major habitations, builtup areas, major forests and is passing through predominantly agriculture, barren, forest and waste land.

d. SIZE OR MAGNITUDE OF OPERATION

Length of the project: 31.0 Km approx. having proposed RoW of 100m.

e. GEOLOGY

The Geology of MP state alignment comprises of rocks of Archaeans and Protezoic formation. Soil type basically comprises of Alluvial and Red soils. The terrain of the alignment is basically flat to undulating in nature and some watershed areas.

f. PRODUCTION PARAMETERS

Not Applicable in the present context.

g. DESIGN PARAMETERS

The proposed road shall be constructed to **IRC:SP:99-2013, IRC:SP:37-2012, IRC:SP:58-2015, IRC:112-2011 "Manual of Specifications and Standards for Expressways"** design standards. The width of RoW will be 100 m in rural section.

h. PROJECT DESCRIPTION WITH PROCESS DETAILS

No process is applicable being a construction project.

i. BLASTING

No blasting is proposed to be done.

j. RAW MATERIAL REQUIRED ALONG WITH ESTIMATED QUANTITY, LIKELY SOURCE, MARKETING AREA OF FINAL PRODUCT/S, MODE OF TRANSPORT OF RAW MATERIAL AND FINISHED PRODUCT

Materials requirement are Cement- 75574 Tonne, Coarse sand- 32619 Cum, Coarse Aggregate- 659008 Cum, Fine Aggregate- 362855 Cum, Steel- 5045 Tonne, Bitumen emulsion- 1150 Tonne, Bitumen- 19740 Tonne, Borrow Earth- 796084 Cum, Fly Ash- 159216 Cum. EPC Contractor before the start of construction would assess the actual quantity required and take necessary approval, if required. However, Steel and Cement would be sourced from Authorized Vendor. Soil, Sand and Aggregate will be procured from operational licensed borrow areas and quarries located around nearby areas. If any new borrow area or quarry site require to be opened, requisite permission will be obtained from concerned department before extraction of materials.

k. RESOURCE OPTIMIZATION/ RECYCLING AND REUSE

Wanakbori Thermal Power Station, Galteshwar in Kheda district (160 km), Kalisindh Thermal Power Plant, Jhalawar (156 km) and Kota Super Thermal Power Station, Kota (200 km) are falling within 300 km of proposed project alignment and the fly ash will be used in the project depending upon their availability. As per fly ash notification 2016 of MoEF&CC.

l. AVAILABILITY OF WATER ITS SOURCE, ENERGY / POWER REQUIREMENT AND SOURCE

• Water Requirement

The average water requirements is anticipated at 2330 KLD approx. during construction stage and will be extracted from local surface water/ground water sources.

• Power

Diesel generator and temporary from SEB will provide electricity required for construction equipment. Labour camps will be provided with LPG as fuel sourced from GOI authorized Supplier.

m. QUANTITY OF WASTES TO BE GENERATED (LIQUID AND SOLID) AND SCHEME FOR THEIR MANAGEMENT/ DISPOSAL

• Solid Waste Generation & its Disposal

Solid waste will be generated from construction camp and dismantling of existing structures. Unproductive/wastelands shall be selected for dumping sites away from residential areas and water bodies. The following precaution will be taken for disposal:

- Dumping sites must be having adequate capacity equal to the amount of debris generated.
- Public perception and consent from the village Panchayats has to be obtained before finalizing the location.
- Develop waste management plan for various specific waste streams (e.g., reusable waste,
- Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach.
- Segregate and reuse or recycle all the wastes, wherever practical.
- Prohibit burning of solid waste
- Collect and transport non-hazardous wastes to all the approved disposal sites. Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route

- Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process.
- Provide refuse containers at each worksite.
- Request suppliers to minimize packaging where practicable.
- Place a high emphasis on good housekeeping practices.
- Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal

• Liquid Effluent

The sewage water generated in construction camp will be disposed through soak pits.

4.0 SITE ANALYSIS

a. CONNECTIVITY

The site is approachable by road by NH-79/NH 927A and SH-39 in MP state and Road from Shivgarh to Ratlam. Ratlam city in MP is at a distances of 10 kms from the alignment.

b. LANDFORM, LANDUSE AND LAND OWNERSHIP

• Land Use

The project area is mostly agricultural, forest and waste land.

• Land Ownership

The existing landuse around the proposed project primarily comprises of agricultural land both under private and government ownership and forest area under forest department.

TOPOGRAPHY

The project area is located in the state of Madhya Pradesh. The topography in the proposed project area is mainly plain and rolling area. The areas have an elevation ranging from 548 to 374 m.

EXISTING LAND USE PATTERN

The existing landuse around the proposed project primarily comprises of agricultural land both under private and government ownership, land for cattle grazing, forest.

e. EXISTING INFRASTRUCTURE & SENSITIVE ECOLOGICAL LOCATIONS

S.No.	Areas	Name / Identity	Aerial distance (within15km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Yes	Sailana Kharmor Wildlife Sanctuary comprises of three patches in three villages (i) Shikarwadi, (ii) Sherpur and (iii) Amba - The proposed road alignment is 3.2 km, 11.5 km and 12.5 km respectively from their boundary.
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Yes	Sailana Kharmor Wildlife Sanctuary comprises of three patches in three villages (i) Shikarwadi, (ii) Sherpur and (iii) Amba - The proposed road alignment is 3.2 km, 11.5 km and 12.5 km respectively from their boundary.
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	Yes	Sailana Kharmor Wildlife Sanctuary comprises of three patches in three villages (i) Shikarwadi, (ii) Sherpur and (iii) Amba - The proposed road alignment is 3.2 km, 11.5 km and 12.5 km respectively from their boundary.
4	Inland, coastal, marine or underground waters	Yes	2 canals and 15 streams are crossing the proposed alignment
5	State, National boundaries	No	-
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	No	-
7	Defense installations	No	-
8	Densely populated or built-up area	Yes	Namli- 5.0 km Ratlam- 11.0 km
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Yes	Namli- 5.0 km Ratlam- 11.0 km
10	Areas containing important, high quality or scarce resources. (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	No	Not applicable

11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	No	Not applicable
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions) similar	No	The area falls under seismic zone II which is categorized as low seismic zone.

a. SOIL CLASSIFICATION

The soil in the Project corridor comprises of medium and deep black soil. Medium and deep black colored soil contains about 20 to 60 percent of clay and has the capacity to hold a lot of moisture at a depth of about 1 to 2 meters. This soil is highly fertile for the production of wheat, oilseeds and jowar crops.

CLIMATIC DATA FROM SECONDARY SOURCES

A hot summer and general dryness characterize the climate of project area, except during the southwest monsoon season. The year can be divided in to four seasons. The winter commences from middle of November and lasts till the end of February. The period from March to about middle of June is the hot summer season. May is the hottest month of the year. The southwest monsoon starts from middle of June and lasts till end of September. October and middle of November constitute the post monsoon or retreating monsoon season. The temperature starts rising from the beginning of February and reaching maximum in the month of May. May is generally the hottest month with the mean daily maximum temperature at 39.80 °C and the mean daily minimum at 25.40 °C. Days are intensely hot in summer and hot dust-laden winds which below during this season add to the discomfort. On individual days in the summer session and in June before the onset of the monsoon the day temperatures often go up above 45 °C. January is the coldest month, with the mean daily maximum temperature at 35.00 °C and mean daily minimum at 9.30 °C.

b. SOCIAL INFRASTRUCTURE

The social infrastructure like educational facilities (primary and higher secondary schools, Degree College), drinking water supply, post office, public transportation are by and large are available in the study area.

PLANNING BRIEF

PLANNING CONCEPT

The state will have its own self-sustaining eco-system consisting of economic drivers through industrialisation, utility & logistic infrastructure, Social Infrastructure including education, healthcare and other public amenities. It will be connected with Delhi to Mumbai by a 8-lane access controlled expressway as an effective means of transportation between the cities.

a. ASSESSMENT OF INFRASTRUCTURE DEMAND (PHYSICAL & SOCIAL)

Only basic infrastructure facilities are available in the vicinity of in the study area. The proposed road is essential for improving faster and economical transportation facilities between the Raltam and Vadodara district and other major cities in the country.

b. AMENITIES/FACILITIES

Office, Workshop etc.

Proper site services such as First Aid, Rest Shelter, toilet with soak pits & drinking Water will be provided to the workers.

Rest Shelter

Rest shelter along with first-aid station complying with all the provisions of State Rules shall be provided by project proponent.

Water Supply

Water will be supplied for human consumption, dust suppression and for plantation from surface water sources.

Power Supply

The power supply for project and construction camp will be done through D.G. Sets and State Electricity Board.

Transport of Men and Material

Employee will report to the duty on own means. The material from the site will be transported by trucks / tractor trolleys.

Communication

Mobile phones shall be used for communication.

Security Arrangements

Appropriate security arrangement shall be made.

5.0 PROPOSED INFRASTRUCTURE

a. CONSTRUCTION SITE

Temporary arrangements like site office, rest shelters, & approach roads etc. shall be provided. No permanent infrastructure is proposed.

c. RESIDENTIAL AREA

As the local person shall be employed, no residential building / housing are proposed. However, temporary construction camp will be established.

d. SOCIAL INFRASTRUCTURE

In-line with the Social Responsibility Activities at other operational sites, relevant developmental assistance shall be rendered depending on the local needs identified through studies.

e. CONNECTIVITY

The site is approachable by road by NH-79/NH 927A and SH-39 in MP state and Road from Shivgarh to Ratlam. Ratlam city in MP is at a distances of 10 kms from the alignment.

f. DRINKING WATER MANAGEMENT

Local Water supply is used for drinking purpose.

g. SEWERAGE SYSTEM

Soak pits shall be provided to workers camp & construction site.

h. INDUSTRIAL WASTE MANAGEMENT

Not applicable, as the activity will not be generating any industrial waste.

i. SOLID WASTE MANAGEMENT

No industrial solid waste will be generated. However, municipal / construction waste generated during construction will be disposed in environmental friendly manner.

6.0 REHABILITATION AND RESETTLEMENT (R&R) PLAN

The Project requires approx. 310 ha. approx. land. Total 131 no. of structures are coming in the proposed RoW. The land will be acquired as per procedure laid down in RFCT LARR Act, 2013.

7.0 PROJECT SCHEDULE & COST ESTIMATES

a. LIKELY DATE OF START OF CONSTRUCTION AND LIKELY DATE OF COMPLETION

Project will be started after getting requisite statutory clearances. A construction period of 3 years (2019, 2020 and 2021) has been envisaged with a phasing of 30%, 40% and 30% respectively.

b. ESTIMATED PROJECT COST ALONG WITH ANALYSIS IN TERMS OF ECONOMIC VIABILITY OF THE PROJECT

The capital cost of proposed project is estimated to be INR 930 Cr approx.

8.0 ANALYSIS OF PROPOSAL

a. FINANCIAL AND SOCIAL BENEFITS WITH SPECIAL EMPHASIS ON THE BENEFIT TO THE LOCAL PEOPLE INCLUDING TRIBAL POPULATION, IF ANY, IN THE AREA

The proposed project is part of an exclusive transport corridor being planned Delhi and Mumbai and this package starts from Kandarwasa village to Kher Khunta village in Ratlam district from CH: 150+000 to 181+000 in the state of Madhya Pradesh by the Government of India. The proposed access controlled project 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. The junctions with existing road will be planned in the form of interchanges and flyover to ensure uninterrupted flow of traffic.

The proposed road would act as the prime artery for the economic flow to this region. It will enhance economic development, provide employment opportunities to locals, strengthen tourist development, ensure road safety, and provide better transportation facilities and other facilities such as way side amenities. Vehicle operating cost will also be reduced due to improved road quality. The compensatory plantation and road side plantation shall further improve the air quality of the region.