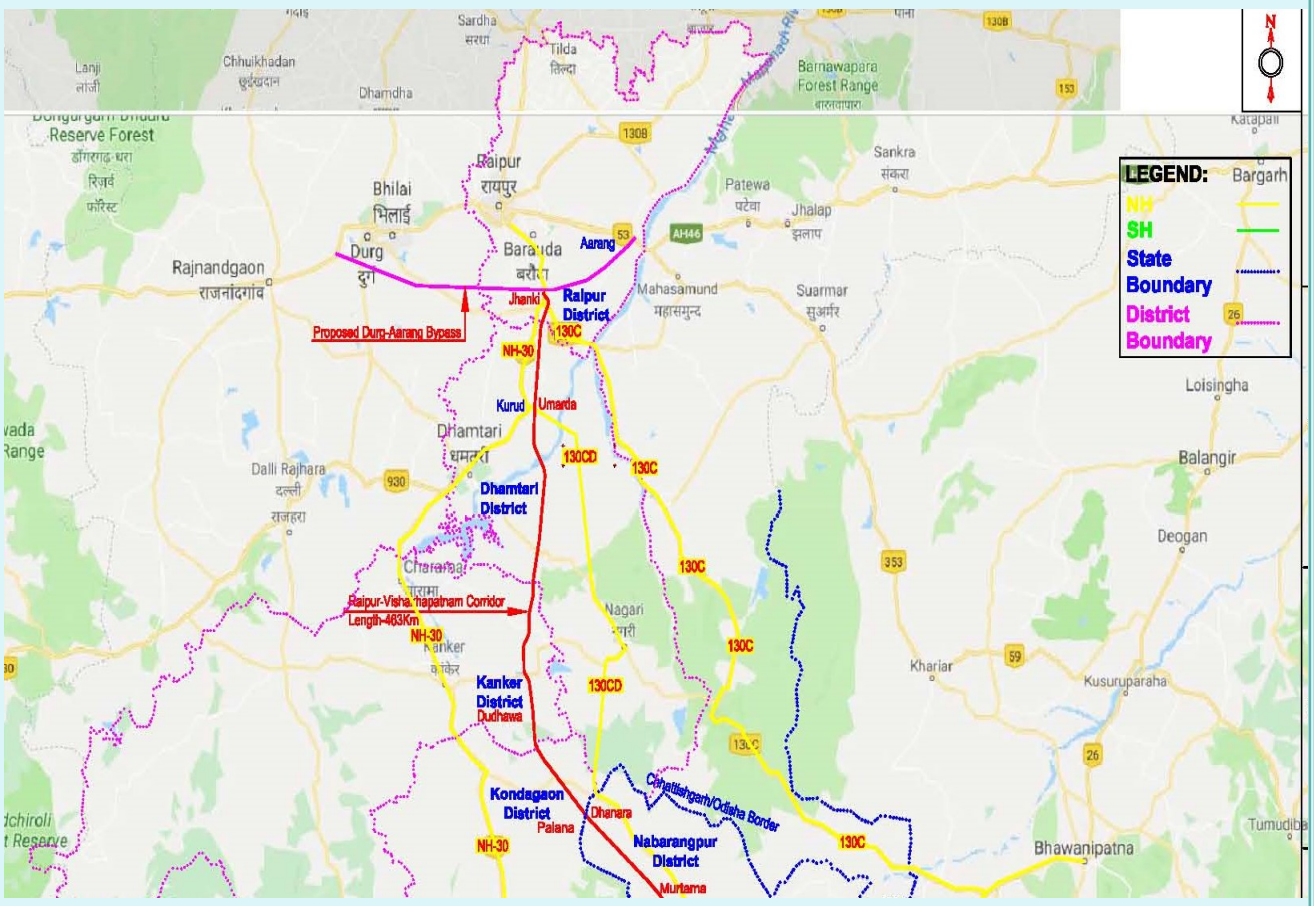
भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

National Highways Authority Of India

(Ministry Of Road Transport & Highways Government Of India)

सत्यमेव जयते

Consultancy Services for preparation of DPR for Development of Economic Corridors, Inter Corridors, Feeder Routes and Coastal Roads to improve the efficiency of freight movement in India (Lot-3/Odisha & Jharkhand/Package-2)



Application for Environmental Clearance (EC) of Chhattisgarh State, Length - 123.210 Km

Pre-Feasibility Report

August 2019

[주]용마엔지니어링 YONGMA ENGINEERING CO., LTD. JV with ARKITECHNO™

YONGMA Engineering Co. Ltd. JV With Arkitechno Consultants(I) Pvt.Ltd.

301-302 Times Centre, Golf Course Road,Sector-54 Gurgaon, Haryana

Phone:0124-4746202, Fax: 0124-4742955, Mob: 9818186242,

email: anilverma@ymeng.in,email:business@arkitechno.com

Web:www.ymeng.in,www.arkitechno.com

CHAPTER-1
EXECUTIVE SUMMARY

1. EXECUTIVE SUMMARY:

I. PROJECT DESCRIPTION:

Road projects are meant for improving the quality of life of people and developing the country's economy. Along with all positive impacts of the road projects, there may also be some significant detrimental impact on nearby communities and environment. To account for adverse impacts, environmental impact assessment is utmost necessary. These concerns for environmental issue in road projects have also become a part of legal requirements and requirements for obtaining financial support. Therefore Environmental Assessment is of prime importance in road projects.

The National Highways Authority of India (NHAI) has been entrusted with the assignment of Development of Economic Corridors, Inter-corridors and feeder routes and Coastal road primarily to improve the efficiency of freight movement in India under Bharatmala Pariyojna Lot-3/Odisha & Jharkhand/Package-2 having length of proposed alignment 463.265 km (which is totally green field) which starts from near Abhanpur (ch. 0.000)/ch. 61.600 of proposed Raipur-Durg Bypass and ends at Vishakhapatnam bypass (ch.463.265) of Existing section of SH-38.

The whole length of road is divided into 3 phases, i.e., phase-1, phase-2, and phase-3.

This Pre-feasibility report is for phase-1 i.e. from Ch 0.00 km to 123.210 km.

The phase 1 of this proposed project will start from Jhanki village of Abhanpur tehsil in Raipur district and passing through four districts such as Raipur, Dhamtari, Kanker and Kondagaon districts of Chhattisgarh state and ends at Marangpuri village of Baderajpur tehsil in Kondagaon districts.

NHAI as the employer and the executing agency has commissioned the services of M/s. YONGMA Engineering Co. Ltd. JV With Arkitechno Consultants (I) Pvt. Ltd. with its Office at Gurgaon in Haryana State for carrying out the work of Consultancy Services for preparation of DPR for development of Economic Corridors, Inter Corridors, Feeder Routes and Coastal Roads to improve the efficiency of freight movement in India (Lot-3/Odisha & Jharkhand/Package-2).

II. STATUTORY CLEARNCES:

FOREST CLEARANCES: Since 281.34 ha of forest land is involved in construction of this corridor so Forest Clearance is a must and to be obtained from MoEF&CC.

R&R CLEARANCE: The road is passing through a 66 nos. of villages. The R&R plan according to LARR Act 2013 will be prepared after completion of Social Impact assessment (SIA) study. These plans will be approved by respective state governments.

FINANCE CONCURRANCE: The central Government will consider budgetary support after completions of the statutory requirements.

ENVIRONMENTAL CLEARANCE: As per **MoEF&CC EIA notification, 2006**, the proposed project is covered under category **7 'f'**. As per the statutory requirements, the competent authority adheres to submit the Environmental Impact Assessment Report to MoEF&CC, Delhi in order to obtain Environmental Clearance.

III. PROJECT COST AND BENEFITS:

PROJECT COST:

The estimated cost of the project is about INR 4290.24 Crores. Detailed cost break-up and Project schedule shall be discussed in the EIA report.

PROJECT BENEFITS:

The benefits of the Project are multi-fold. It will substantially reduce the travel time and the other remote areas falling on the alignment. In addition to the improved connectivity, it will also provide a boost to the economic status of the villages / towns falling in the dedicated Project area.

Overall improvement will be expected in local area in terms of:

- Better connectivity to economic, social and political hubs of Chhattisgarh.
- Fast and safe connectivity resulting in savings in fuel, travel time and total transportation cost.
- Better approach to medical & educational services.
- Faster transportation of perishable goods like fruits, vegetables, dairy products and marketing of agricultural products.
- Development of local agriculture and handicrafts.
- Opening up of opportunities for new occupations and trade on the route.
- Better connectivity to rice mills of Chhatisgarh, industrial cities and vishakhapatna port.
- Indirect and direct employment opportunity to people from all skilled, semi-skilled and unskilled streams.

CHAPTER-2
INTRODUCTION OF PROJECT /BACKGROUND INFORMATION

2.1 IDENTIFICATION OF THE PROJECT AND PROJECTPROPONENT:

IDENTIFICATION OF THE PROJECT:

The proposed project pertains to Development of Economic Corridors, Inter-corridors and feeder routes and Coastal road primarily to improve the efficiency of freight movement in India under Bharatmala Pariyojna Lot-3/Odisha & Jharkhand/Package-2 having length of proposed alignment 463.265 km (which is totally green field) which starts from near Abhanpur (ch. 0.000)/ch. 61.600 of proposed Raipur-Durg Bypass and ends at Visakhapatnam bypass (ch. 463.265 km) of Existing section of SH-38.

The phase 1 of this proposed project will start from Jhanki village of Abhanpur tehsil in Raipur district and passing through four districts such as Raipur, Dhamtari, Kanker and Kondagaon districts of Chhattisgarh state and ends at Marangpuri village of Baderajpur tehsil in Kondagaon districts.

As per MoEF&CC EIA notification, 2006, the proposed project is covered under category 7 'f'.

PROJECT PROPONENT:

National Highways Authority of India (NHAI), an autonomous agency of the Government of India, is responsible for management of a network of national highways across the country. It is a nodal agency of the Ministry of Road Transport and Highways (MoRT&H), Government of India. Its 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 the most 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 shall be the nodal authority/proponent for the development of this Project.

2.2 BRIEF DESCRIPTION OF NATURE OF THE PROJECT:

The Phase 1 of the proposed economic corridor passes through Abhanpur-Kurud-Dhamtari-Magerload-Nagri-Naraharpur-Baderajpur. Salient features of the Project are as follows.

Table No. C2-1: Project Salient Features

Sl. No.	Particular	Details
1.	Project Name	Phase-1 of Development of Economic corridors, Inter-Corridors, Feeder routes and coastal road primarily to improve freight movement in the country,Lot-

		3/Odisha & Jharkhand/Package-2. Length-123.210 Km.
2.	Nature of Project	Highway Project
3.	Location of project stretch	The phase 1 of this proposed project will start from Jhanki village of Abhanpur tehsil in Raipur district and passing through four districts such as Raipur, Dhamtari, Kanker and Kondagaon districts of Chhattisgarh state and ends at Marangpuri village of Baderajpur tehsil in Kondagaon districts.
4.	Geographical Coordinates	14°48'14.03"N 83°08'38.23"E to 21° 5'19.00"N 81° 45'1.16"E
5.	Land details	Agricultural land and forest land
6.	Land use details	857.58 ha (Including Forest Area)
7.	Man power	1000
8.	Electric power Requirement	1000 kVA which shall be managed from State Electricity Boards and DG set.
9.	Nearest railway station	**Abhanpur Railway Station**, 4 km (approx.) in South direction from the starting point of the proposed stretch of Phase-1. Kurud Railway Station, approx. 5 Km.
10.	Nearest State Highway/ National Highway	The proposed project is itself a National Highway.
11.	Nearest Airport	Raipur Airport, 10.83 km in NNW Direction from starting point.
12.	Seismic zone	Zone II

2.3 Need of the Project and Its Importance to the Country of Region:

The existing direct route between the two points i.e. Visakhapatnam and Abhanpur which is not only long but also experiences heavy traffic during peak hours. Thus, the Phase-1 of this proposed project is to create a hassle free road within the state of Chhattisgarh.

The proposed route shall thus enhance the opportunity of transport and communication within the state of Chhattisgarh by saving both time and fuel.

The Project will further have following benefits at national and regional level:

- **High-speed connectivity and access:** The proposed economic corridor will avoid traffic congestion and speed-up the freight movement.
- **Aiding economic growth:** The seamless connectivity will provide better access to vehicles as a link to the National Highways. The Project will reduce travel time and provide boost to trade and commerce linked to the regions connected through this economic corridor.

- **Growth of backward areas:** The biggest strength of the alignment is that it plans to cover backward districts of Chhattisgarh. As a result of connectivity and access to other parts of the country, these backward areas will be aided to integrate with rest of the world. Further, freight and passenger traffic on the economic corridor will help promoting ancillary economy of these regions.
- **Decongestion of existing National and State Highways:** The proposed phase will take away traffic pressures from existing SH and NH passing through various cities thereby leaving the NH and SH for regional and local usage.
- **Improved safety**: Due to access control, the Roadway & Travel Safety of the traffic connecting the cities will be enhanced as there will be minimum distractions & conflict zones.
- **Support to industry**: Different types of industries like Manufacturing, Tourism and agricultural etc. along the proposed corridor will be facilitated in their business operation and reach ability.

2.4 Employment Generation (Direct and Indirect)

The proposed project shall generate a direct employment opportunity to about 1000 persons. It shall also generate additional employment opportunities in form of transportation of construction materials, greenbelt development and implementation of EMP.

During operations phase, the Project will largely have indirect employment benefits in form of highway amenities and through economic & social hubs developed around the Economic Corridor. Efficient reach and connectivity to distant markets will further enhance economy of the districts and create employment opportunities.

CHAPTER-3
PROJECT DESCRIPTION

3.1 Type of the Project including Interlinked and Interdependent Projects, if any

Out of 44 economic corridors 9 economic corridors planned under the Union government's ambitious Bharatmala scheme will be linked through expressways. The alignments of economic corridors "Raipur-Vishakhapatnam" are completely access control and will considerably intends to facilitate seamless trade by reducing the distance between connecting cities, saving cost, time, fuel and carbon emissions.

The MoRT&H & NHAI has decided the proposed economic corridor alignment shall be as Crow fly line from Raipur to Visakhapatnam. The obligatory point of the section is Sunabeda due to major industries NALCO & HAL. In many disciplines a Greenfield project is one that lacks constraints imposed by prior work. The analogy is to that of construction on Greenfield land where there is no need to work within the constraints of existing buildings or infrastructure.

Economic corridors are meant to attract investment and generate economic activities within a contiguous region, on the foundation of an efficient transportation system. The Existing travel time from Raipur-Visakhapatnam is 14.00hours via Dhamtari, Kondagaon, Jagdalpur, Borigumma, Jeypore, Koraput, Sunabeda, Salur & Vizianagaram (Avg. riding speed 40kmph), Length-593Km. Proposed alignment (Option-3B, design Speed 100 Kmph for Plain/Rolling & Hilly terrain) of Economic corridor travel time will be 7.0hours via Kundei, Raighar, Umerkote, Nawrangpur, Borigumma, Koraput, Sunabeda in Odisha state (Avg. riding speed 70 kmph), Length- 463Km Savings in length 130km and in travel time is 7 hours. Vehicle operation cost (fuel, drivers, maintenance etc.) will efficiently improved due to smooth and signal free alignment. Safety of vehicles operating on EC will be improved due to advanced traffic management system, lighting arrangements and other safety arrangement. The PROW is taken as 70m in Plain & Rolling Terrain of this corridor.

3.2 Project Location

The length proposed for the phase-1 stretch measures 123.210 Km and starts at near Abhanpur village (Raipur) and terminates at Marangpuri village in the state of Chhatisgarh.

This phase of the Raipur-Vishakhapatnam economic corridor alignment starts at Jhanki village near Abhanpur and connecting Abhanpur of Raipur district Kurud, Magarlod, Dhamtari & Nagri of Dhamtari district, Naraharpur of Kanker District, Bade Rajpur (visrampuri) of Kondagaon District in Chhattisgarh.

Table No. C3-1: Project Coordinates

Sl. No.	Coordinates
Starting point	21° 05'19.00"N 81°45'01.46"E

3.3 Details of Alternative Sites to be considered and basis of selection of proposed site

Four alignment options were considered in order to finalize the proposed alignment. Both the alignments were compared and the final alignment has been selected after prior analysis on basis of minimum tree felling, minimum exorbitant cost, comparatively lower land degradation and lesser environmental impacts. The detailed alternative analysis is enclosed as **Annexure-2.**

The Project areas were studied in details and the existing road networks were analyzed to identify possible alternate alignments between the start and end points. Four different alignments have been identified in the project which also includes the alignment proposed earlier. The alternative alignments are given in **Table No. C3-2 & Table No. C3-3**:

Option-1 (Brown & Green Field): Length-138Km

In Chhattisgarh state, the alignment crosses the villages Kurud, Umarda, Mandraud, Megha, Mohandi, Kosamkhuta, Birjhuli, Singhpur, Dugli, Nayapara & ends near Ghutkel village, i.e. CG/Odisha Border with tunnel provision of length-4.350Km, design speed 100Kmph with smooth gradient in hilly terrain & permissible hill cutting. The option-1 has not been recommended due to project length is more than the all options.

Option-2 (Green Field): Length-132Km

In Chhattisgarh state, a Crow fly alignment was considered which starts from Jhanki near (Abhanpur) and follows Urla-2, Patewa, Dhuma, Chandna, Hasda, Nawagaon, Kapatphodi, Jarhidih & Bargaon villages. 28.200 Km length of option-2 crosses in between buffer area & some core area of Sitanadi & Udanti Tiger reserve forest. The alignment was discussed with CG state forest department and the department has denied for the alignment and suggested to change the alignment towards west side which is 48Km away. The option-2 has not been recommended due to the alignment passes through Sitanadi & Udanti Tiger Reserve Forest.

Option-3A (Green Field): Length-130Km

In Chhattisgarh state, the alignment starts from Jhanki follows Urla-2, Karga, Sirri, SivniKatln, Mendaraka, Sidhaurikhurd, Joratarai, Chiwarri, Maheshpur, Dudhawa, Sainunda, Machhali villages & ends near Palana village. The alignment passes beyond the Sitanadi Tiger Reserve wildlife. The option-3A has not been recommended due to the project length is more.

Option-3B(Green Field):Length-123.210Km

In Chhattisgarh state, the alignment starts at Jhanki village follows Urla-2, Karga, Sirri, SivniKalan, Mendaraka, Sidhaurikhurd, Joratarai, Chiwarri, Maheshpur, Dudhawa, Malgaon, Choria, Khalari, Thema, Tiriyarpani, Laxmikant, Machhali villages & ends near Marangpuri village. Design speed 100 Kmph has been considered with tunnel provision of length 4.350Km.The option-3B has been recommended due to less length.

Table No. C3-2: Detailed Alternative Analysis for Chhattisgarh State

Sl No	Description	Option-1 (Brown & Green Field)	Option-2 (Green Field)	Option-3A (Green Field)	Option-3B (Green Field)
1	Total Design Length (Km)	138	132	130	123.210
2	Plain Terrain (Km)	133.0	121.7	124.73	105.2
3	Hilly Terrain (Km)	5.3	10.5	5.5	18.0
4	Brown Field	22.1	NA	NA	NA
5	Green Field	116.1	132.2	130.2	123.2
6	Wild life Sanctuary Length(Km)	NA	28.2	NA	NA
7	RF/PF Length(Km)	38.6	52.6	41.8	37.6
8	Land Required(Hacter)	804.2	925.5	857.7	490.7
9	Land Cost(Cr.)	717.4	725.6	672.4	392.6
10	R&R Cost(Cr.)	72.2	27.6	35.3	25.8
11	Utility Cost(Cr.)	51.9	27.6	35.3	18.5
12	Tunnel Length(Km)	2.95	NA	NA	4.350
13	Tunnel Cost(Cr.)	737.5	NA	NA	1087.5
14	Viaduct Length(Km)	NA	NA	NA	NA
15	Viaduct Cost(Cr.)	NA	NA	NA	NA
16	Total Civil Cost (Cr.)	3890.6	2756.7	3534.1	2575.1
17	Per Km Civil Cost(Cr.)	28.1	20.9	27.1	20.9
18	Total Project Cost Including all (Cr.)	4680.2	3509.9	4241.9	4290.2
19	Per Km Cost Including All(Cr.)	33.9	26.5	32.6	34.8
20	Design Speed(Kmph)	100Kmph for both Hilly & Plain Terrain	100Kmph for both Hilly & Plain Terrain	100Kmph for both Hilly & Plain Terrain	100Kmph for both Hilly & Plain Terrain
21	Achieved Riding Speed(Kmph)	70	70	70	70
22	Travel Time(Hrs)	1.98	1.88	1.85	1.76
23	Remarks	Project Length is more than the all options	Alignment Passing through Sitanadi & Udanti Tiger RF	Project Length is more than the 3B	Project Length is less than the 3A
24	Recommendation	Not Recommended	Not Recommended	Not Recommended	Recommended

Table No. C3-3: Comparison of Options 3A & 3B

Sl No	Description	Option-3A (Green Field)	Option-3B (Green Field)
1	Total Design Length(Km)	130	123.210
2	Plain Terrain(Km)	124.73	105.2
3	Hilly Terrain(Km)	5.5	18.0
4	Brown Field	NA	NA
5	Green Field	130.2	123.2
6	Wild life Sanctuary Length(Km)	NA	NA
7	RF/PF Length(Km)	41.8	37.6
8	Land Required(Hacter)	857.7	490.7
9	Land Cost(Cr.)	672.4	392.6
10	R&R Cost(Cr.)	35.3	25.8
11	Utility Cost(Cr.)	35.3	18.5
12	Tunnel Length(Km)	NA	4.350
13	Tunnel Cost(Cr.)	NA	1087.5
14	Viaduct Length(Km)	NA	NA
15	Viaduct Cost(Cr.)	NA	NA
16	Total Civil Cost (Cr.)	3534.1	2575.1
17	Per Km Civil Cost(Cr.)	27.1	20.9
18	Total Project Cost Including all (Cr.)	4241.9	4290.2
19	Per Km Cost Including All(Cr.)	32.6	34.8
20	Design Speed(Kmph)	100Kmph for both Hilly & Plain Terrain	100Kmph for both Hilly & Plain Terrain
21	Achieved Riding Speed(Kmph)	70	70
22	Travel Time(Hrs)	1.85	1.76
23	Remarks	Project Length is more than the 3B	Project Length is less than the 3A
24	Recommendation	Not Recommended	Recommended

3.4 Size and Magnitude of Operation

- The total length of the proposed Phase-1 road is 123.210 Kms.
- Total Project Area is 857.58 ha

3.5 Project Description

The Phase -1 of the proposed project pertains to Development of Economic corridors, Inter-Corridors, Feeder routes and coastal road primarily to improve freight movement in the country, Lot-3/Odisha & Jharkhand/Package-2.

3.6 Starting and Ending Location

The phase 1 of this proposed project will start from Jhanki village of Abhanpur tehsil in Raipur district and passing through four districts such as Raipur, Dhamtari, Kanker and Kondagaon districts of Chhattisgarh state and ends at Marangpuri village of Baderajpur tehsil in Kondagaon districts.

3.7 Details of Major Town/Village/Built-Up Area along Phase-1 section of the Economic Corridor Road:

The Alignment Passes through Abhanpur of Raipur district Kurud, Magerload, Dhamtari & Nagri of Dhamtari district, Naraharpur of Kanker District, Bade Rajpur (visrampuri) of Kondagaon District in Chhattisgarh.

3.8 Details of District & State of Phase-1 of the Proposed Economic Corridor Road:

- The Alignment passes through the state of Chhatishgarh.
- In Chhattisgarh State alignment passes through four Districts Raipur, Dhamtari, Kanker and Kondagaon.

Table No. C3-4: Abstract of Project Road:

Sl. No.	State	Length (Km)
1	Chhattisgarh	123.210
	Total	**123.210**

Table No. C3-5: Details of Tunnel along the Proposed Alignment:

Sl. No.	Description	Location		State	Length (Km)
		From Ch.	To ch.		
1	Tunnel-1	103.900	108.250	Chhattisgarh	4.35
				Total	**4.35**

3.9 Raw Materials, mode of transportation of raw materials and finished product

The Project entails development of an economic corridor and will require road construction materials. Construction material like stone aggregates from Mandir Hsaud, Devpura, sand from Mahanadi, Indrāvati, soil from Govt. & Pvt. Land etc. cement from Raipur, Dhamtari and steel from Bhilai, Raipur shall be procured. Material will procured from Environmental approval quarry.

Table No. C3-5: Details of Raw Material

Construction materials	Quantity (Approx.)	Source
Stone (boulders)	617975 Cum	Mandir Hasaud, Devpura
Coarse aggregate	1853925 Cum	Mandir Hasaud, Devpura
Sand	203270 Cum	Mahanadi
Soil	3694185 Cum	Govt. & Pvt. Land
Cement	114772 Tonne	Raipur, Dhamtari
Steel	36678 MT	Bhilai, Raipur

3.10 Resource Optimization / Recycling and Reuse

Measures shall be taken to use the materials saved from other projects of NHAI. Also the soil excavated for the project shall be used for backfilling, site leveling and greenbelt development. Sewage shall be treated either in the bio-toilets or recycling chambers attached with septic tanks. Used oil generated from DG sets

shall be properly stored in HDPE drums and shall be sold to the government approved recycling agencies.

The Project will reuse the soil and other material in the following ways:-

- Topsoil from the agriculture land shall be stored separately for utilization in avenue and median plantation. The earth material excavated from the high-rise area shall be used for backfilling of low laying area and embankment.
- Sewage shall be routed through portable STP or diverted into the soak pit. Treated water from STP will be used for sprinkling or gardening.
- Oil generated from Diesel Generator (DG) sets shall be properly stored in HDPE drums and to be sold to State Pollution Control Board (PCB) approved recycling vendor.

3.11 Water and Energy- Source and Availability

In addition to the Sub-Clause 111.8.3 of MoRTH Specifications, The Contractor shall source the requirement of water preferably from surface water bodies, rivers, canals and tanks in the project area. Only at locations where surface water sources are not available, the Contractor can contemplate extraction of ground water, after intimation and consent from the CGWB.

To avoid disruption/disturbance to other water users, the Contractor shall extract water from fixed locations and consult the local people before finalizing the locations. The Contractor shall comply with the requirements of Ground Water Department and seek their approval for extraction of groundwater.

Bore wells installed and used for the project shall be left in good operating condition for the use of local communities. The Contractor shall prevent any interference with the supply to or abstraction from, and prevent any pollution of, water resources as a result of the execution of the Works.

The total water demand of the project is 3975916 KL, which is inclusive of

- 3929897 KL for Construction purpose
- 19263 KL for domestic consumption and utilities requirement
- 13378 KL for gardening/ green belt development
- 13378 KL for Dust Suppression

The water requirement for the construction phase will be met by water tankers from approved vendors. Bore-well, if required, will be operated after approval from the competent authority.

Power, during construction, will be sourced from local distribution company. DG sets as alternative arrangement will also be arranged in construction camp.

3.12 Quantity of wastes to be generated and scheme for their management and disposal

Waste management shall be done as per Solid Waste Management Rules, 2016 and Construction and demolition waste Management Rules 2016.

The waste generated from the project shall be mostly food and construction waste which shall be generated by the workers.

The approximate quantity of wastes to be generated from the project is 1500 Kg per day. As per CPHEEO Norms, 500 grams of solid wastes are generated per unit employee/worker.

CHAPTER-4
SITE ANALYSIS

4.1 Site Connectivity:

The proposed road shall connect different parts of Chhattisgarh. The proposed stretch is directly connected to various important roads and railway stations.

The length proposed for the stretch measures 123.210 Kms and the Starting Point of phase-1 of Proposed Alignment of Economic Corridor is Abhanpur near ch. 61.600 of proposed Raipur-Durg Bypass. It is 23.000 Km away from Raipur city of Chhattisgarh State.

The nearby railway stations are **Abhanpur Railway Station**, 4 km (approx.) in South direction from the starting point of the proposed phase.

Raipur Airport is 10.83 km in NNW Direction from starting point of Highway. Hence the site is well connected to other parts of the country.

4.2 Land Form, Use & Ownership

The landform or the topography of the project stretch is undulating plain with varying elevations. The landuse of the proposed stretch is agricultural with patches of settlements. Majority of the land is owned by local farmers and other private stakeholders. However, there are patches which are owned by government as well.

Table No. C4-1: Details of Village wise Area Details

Sl No.	Name Of District	Name of Tahasil	Village Name	Chainage		Pvt. Plot No.	Pvt. Area (Hectare)	Govt. Plot No.	Govt. Area (Hectare)	Forest Plot No.	Forest Area (Hectare)	Total Plot No.	Total Area (Hectare)
				From	To								
1	Raipur	Abhanpur	Jhanki	0.000	0.640	3	0.5714	19	3.9087	0	0.0000	**22**	**4.4802**
2			Mudapur Oraf Bhelwadih	0.640	2.050	38	9.5792	4	0.2934	0	0.0000	**42**	**9.8725**
3			Urla	2.050	5.130	77	17.9145	23	4.1220	0	0.0000	**100**	**22.0365**
4			Nayak bandha	5.130	8.130	117	14.8503	17	5.1334	0	0.0000	**134**	**19.9837**
5			Tokro	8.130	9.150	59	7.0613	1	0.1330	0	0.0000	**60**	**7.1944**
6			Satapara	9.150	9.380	3	1.6015	1	0.1144	0	0.0000	**4**	**1.7159**
7	Dhamtari	Kurud	Bharda	9.380	10.020	1	1.4583	2	3.0216	0	0.0000	**3**	**4.4798**
8			Kodapar	10.020	10.520	23	3.1209	4	0.3701	0	0.0000	**27**	**3.4910**
9			Karga	10.520	13.700	121	20.5148	10	1.4534	0	0.0000	**131**	**21.9682**
10			Kotgaon	13.700	14.030	9	2.0809	2	0.3907	0	0.0000	**11**	**2.4716**
11			Dentha	14.030	15.140	45	6.8288	3	0.2899	0	0.0000	**48**	**7.1188**
12			Phusera	15.140	15.550	11	3.4702	2	0.1750	0	0.0000	**13**	**3.6453**
13			Sirri	15.550	17.710	75	13.0072	12	1.6938	0	0.0000	**87**	**14.7010**
14			Chinvari	17.710	19.450	87	11.7491	12	1.7010	0	0.0000	**99**	**13.4501**
15			Sibanikala	19.450	22.870	237	20.2162	21	2.7148	0	0.0000	**258**	**22.9310**
16			Paraswani	22.870	24.0990	29	7.9435	5	0.7006	0	0.0000	**34**	**8.6441**
17			Mendraka	24.099	26.400	71	14.5757	9	1.0569	0	0.0000	**80**	**15.6326**
18			Kuhkuha	26.400	26.560	10	1.0549	0	0.0000	0	0.0000	**10**	**1.0549**
19			Bharda	26.560	28.120	59	8.4889	6	2.2736	0	0.0000	**65**	**10.7625**
20			Kurud	28.120	29.470	45	9.0704	1	0.0790	0	0.0000	**46**	**9.1494**
21			Nawagaon	29.470	29.820	8	1.5516	3	1.1916	0	0.0000	**11**	**2.7432**
22			Umarda	29.820	31.600	79	11.3797	6	0.6741	0	0.0000	**85**	**12.0538**
23			Kamraud	31.600	32.960	44	6.0960	6	2.8639	0	0.0000	**50**	**8.9599**

24			Bangar	32.960	34.670	32	9.0119	8	2.4321	0	0.0000	**40**	**11.4440**
25			Sindhori kala	34.670	35.570	38	6.3437	3	0.2907	0	0.0000	**41**	**6.6344**
26			Sindhori khurd	35.570	36.860	46	8.6790	9	0.7669	0	0.0000	**55**	**9.4459**
27		Dhamtari	Siwanikhurd	36.860	37.490	28	4.3264	1	0.0289	0	0.0000	**29**	**4.3553**
28		Kurud	Joratarai	37.490	38.890	71	8.7416	4	0.4085	0	0.0000	**75**	**9.1501**
29		Dhamtari	Barna	38.890	39.345	48	3.1432	2	0.3230	0	0.0000	**50**	**3.4662**
30		Magerlod	Sargi	40.230	43.040	128	15.5239	9	1.8003	2	1.9161	**139**	**19.2403**
31		Magerlod	Rajpur	41.250 43.040	41.305 43.830	17	1.2411	1	0.4082	1	4.5376	**19**	**6.1869**
32			Kewaradih	45.710	46.500	13	1.4892	3	0.2694	4	3.7116	**20**	**5.4702**
33			Koterwahi	52.040	52.900	21	3.2862	1	0.0996	1	2.4193	**23**	**5.8051**
34			Palwadi	61.880	62.330	13	2.9206	0	0.0000	0	0.0000	**13**	**2.9206**
35	Dhamtari		Bedhwapathra	68.150	69.965	22	6.3219	1	3.2674	3	3.1459	**26**	**12.7352**
36			Khairabhari	70.000	71.350	36	6.7400	2	0.3170	2	2.4577	**40**	**9.5147**
37		Nagri	Sarangapuri	73.545	72.732	26	4.8564	12	3.2465	0	0.0000	**38**	**8.1029**
38			Karaiya	73.550	74.485	25	5.9945	2	0.1217	2	0.8686	**29**	**6.9848**
39			Sankara	74.810	75.915	24	5.8527	0	0.0000	2	1.8273	**26**	**7.6800**
40			Chivrri Rayat	75.915	75.990	2	0.5416	0	0.0000	0	0.0000	**2**	**0.5416**
41			Chivrri Mal	77.245	78.080	15	4.1834	8	0.6645	1	2.0829	**24**	**6.9307**
42			Dompadar	78.080	79.000	6	6.1701	1	0.2846	0	0.0000	**7**	**6.4547**
43			Jamgaon	79.000	81.000	65	11.9462	5	1.7474	2	0.2707	**72**	**13.9643**
44			Mandradarha	82.080	82.660	5	3.4263	2	0.1327	3	0.4811	**10**	**4.0401**
45			Dabbipani	82.660	83.970	28	8.8565	1	0.0200	1	0.0834	**30**	**8.9599**
46	Kanker	Naraharpur	Deodongar	83.970 85.300	84.510 85.500	25	6.5351	5	0.2940	0	0.0000	**30**	**6.8291**
47			Samtara	85.710	88.400	96	15.3384	4	3.6279	0	0.0000	**100**	**18.9663**
48			Dhanora	85.500	89.700	29	5.1714	6	1.9290	3	0.5654	**38**	**7.6658**
49			Sarwandi	89.700	91.190	15	5.8958	0	0.0000	4	4.2750	**19**	**10.1708**
50	Kanker	Naraharpur	Bhimadihi	91.190	92.510	17	5.1357	1	0.1463	2	0.1094	**20**	**5.3914**

51			Dudhawa	91.400	92.500	19	4.3647	2	0.1544	0	0.0000	**21**	**4.5191**
52			Nayapara	92.510	93.700	39	7.5241	3	0.4105	0	0.0000	**42**	**7.9346**
53			Anchhidongri	93.700	94.130	10	2.8152	0	0.0000	5	3.2289	**15**	**6.0441**
				94.600	94.960								
54			Musurputa	94.130	96.150	40	8.0430	5	0.4734	0	0.0000	**45**	**8.5164**
55			Mawlipara	96.150	97.500	42	8.4908	3	1.0949	1	0.1975	**46**	**9.7832**
56			Madabharri	97.500	98.250	31	5.1352	2	0.1211	0	0.0000	**33**	**5.2563**
57			Basanwahi	98.250	102.795	118	31.0697	5	0.7422	1	0.0041	**124**	**31.8160**
58	Kondagaon	Baderajpur	Gobindpur	108.200	108.750	28	3.3904	0	0.0000	0	0.0000	**28**	**3.3904**
59			Kosmi	108.750	110.600	28	11.0449	4	1.9996	0	0.0000	**32**	**13.0445**
60			Sargipal	110.600	112.000	11	4.4145	4	5.3971	0	0.0000	**15**	**9.8116**
61	Kondagaon	Baderajpur	Hatma	112.000	115.485	28	18.6138	7	5.6700	0	0.0000	**35**	**24.2838**
62			Manikpur	116.260	116.410	3	0.6293	0	0.0000	0	0.0000	**3**	**0.6293**
63			Machhli	118.110	119.125	0	0.0000	2	7.1050	0	0.0000	**2**	**7.1050**
64			Salna	119.125	121.450	11	2.1263	3	13.6717	0	0.0000	**14**	**15.7980**
65			Palana	121.320	123.145	34	12.2002	4	0.2670	0	0.0000	**38**	**12.4672**
66			Marangpuri	123.145	123.210	2	0.4319	0	0.0000	0	0.0000	**2**	**0.4319**
					Total	**2586**	**482.1522**	**304**	**94.0883**	**40**	**32.1826**	**2930**	**608.4231**

4.3 Existing Land-use Pattern

The land use of the proposed stretch is mostly agricultural with patches of settlements.

4.4 Existing Infrastructure

About 66 villages are falling in the proposed stretch. The details shall be provided in the EIA report.

4.5 Details of Major Town/Village/Built-Up Area along Economic Corridor Road:

The Alignment Passes through near Abhanpur, Kurud, Dhamtari, Magerload, Nagri, Naraharpur, Baderajpur Taluk.

4.6 Details of District in phase -1 of Proposed Economic Corridor Road:

- The Phase-1 Alignment passes through state of Chhatisgarh.
- In Chhattisgarh State alignment passes through four Districts Raipur, Dhamtari, Kanker and Kondagaon.

Table No. C4-2: Abstract of Project Road in the State:

Sl. No.	State	Length (Km)
1	Chhattisgarh	123.210
	Total	**123.210**

4.7 Soil Classification

Soils of Chhattisgarh are mainly developed by the action and interactions of relief, parent material and climate. Biotic features, mainly the natural vegetation follows the climatic patterns.

4.8 Climatic Data from Secondary Sources:

The climate of area around the proposed alignment is tropical. It is hot and humid because of its proximity to the Tropic of Cancer and its dependence on the monsoons for rains. Summer temperatures can reach 45.2 °C. The monsoon season is from late June to October and is a welcome respite from the heat. Chhattisgarh receives an average 1274.3 millimeters of rain. Winter is from November to January. Winters are pleasant with low temperatures and less humidity. About one third of the total rainfall is brought by the northeast monsoon. October and November see low-pressure systems and tropical cyclones form in the Bay of Bengal which, along with the northeast monsoon, bring rains to the southern and coastal regions of the state.

Table No. C4-3: Climate Data

State	Temperature		Humidity		Rainfall (mm)	Wind Speed (kmph)
	Max.	Min.	Max.	Min.		
Chhatisgarh	45.2	9.0	86	24	1274.3	9.6

4.9 Available Social Infrastructure

There are a 66 number of villages falling in the proposed stretch. The details shall be provided in the EIA report.

4.10 Forest & Wildlife Area

The proposed stretch doesn't pass through any eco-sensitive zone of Wildlife sanctuary or national park. However it passes at a distance of 0.7 km from the nearest border of the eco - sensitive zone of Sitanadi Sanctuary at ch 96.500.

Table No. C4-4: Details of Reserve/Protected Forest in Chhattisgarh State

Chhatisgarh State Forest Details						
Sl No.	**Name Of the District**	**Name of the Forest**	**Chainage**		**Length(Km)**	**Area in Hectre**
			From	**To**		
1	Dhamtari	Kewaradih Forest	43.830	45.710	1.880	13.181
2		Reserve Forest	46.500	52.040	5.540	38.772
3		Reserve Forest	52.900	61.880	8.980	62.411
4		Reserve Forest	62.330	68.150	5.820	40.775
5		Protected Forest	69.965	70.000	0.035	0.256
6		Protected Forest	71.350	73.545	2.195	1.340
7		Protected Forest	72.732	73.550	0.818	5.752
8		Protected Forest	74.485	74.810	0.325	2.264
9		Ghotgaon Kongera reserve Forest	75.990	77.245	1.255	8.755
10	Kanker	Protected Forest	81.000	82.080	1.080	7.583
11		Protected Forest	84.510	85.710	1.200	8.172
12		Reserve Forest	94.130	94.600	0.470	3.274
13		Protected Forest	102.795	105.500	2.705	18.937
14	Kondagaon	Protected Forest	105.500	108.200	2.700	19.947
15		Reserve Forest	115.485	118.110	2.625	17.742
Total Reserve Forest					**37.63**	**249.16**
Total Revenue Forest						**32.18**
Total Forest						**281.34**

4.11 Traffic Census Data

Table No. C4-5: Traffic Data

Abhanpur-Chhattisgarh/Odisha Border		
Year	**PCU**	**Project Warrants**
2019	18325	Base Year
2023	21062	Opening Year
2028	31120	5th Year
2033	42032	10th Year
2038	51775	15th Year
2043	65384	20th Year

Table No. C4-6: Traffic Volume Count (TVC)

Sl. No.	Link	Section	Location	Road ID
1	CV01	Raipur-Dhamtari	Jhanki	NH-30
2	CV02	Raipur-Dhamtari	Kurud	NH-30
3	CV03	Kurud-Dugli	Pendra	SH-23
4	CV04	Dugli-Sihawa	Dugli	SH-23
5	CV05	Sihawa-Marangpuri	Sihawa	SH-6

Table No. C4-7: Origin-Destination Survey

Sr. No.	Link	Location	Section Details
1	OD01	**Outside sections**	Arang-Paragaon section on NH-6
2	OD02		Abhanpur-Raipur section on NH-30
3	OD03		Dhamtari-santipu beyond Bhatgaon(NH-43)
4	OD04	**Inside sections**	Dugli-Churiyara

4.12 Origin and Destination Survey

To estimate travel characteristics in the region and the traffic streams, Origin & Destination (O-D) survey was carried out for 24 hours respectively. Both passenger and commercial vehicles plying on the project corridor were stopped on a random sampling basis and interviewed. Along with the OD survey, volume count survey has been carried out at both locations to observe the sample size. Travel characteristics like origin, destination and frequency of trip collected for passenger vehicles. For goods vehicles, the survey elicited characteristics like origin, destination, frequency, and commodity being transported.

4.13 Zoning System

The zoning system has been defined by all important towns lying on the project road at the first stage and nearby districts having immediate influence on the project road at the second level. The remaining states beyond the influence area were aggregated broadly into northern, eastern and southern direction of the project highway. The details of the traffic zones adopted for the study are presented in table

Table No. C4-8: O-D Zone Code

Zone	Zone Name
Internal Zones	
1	Raipur
2	Abhanpur
3	Rajim, Nayapara, KatholiGhat,Katholi
4	BindraNawagarh, Deobhog
5	Rest of Raipur, Baloda Bazar, Bhatapara, Kasdol, Bilaigarh
6	Dhamtari
7	Kurud
8	Rest of Dhamtari, Nagri
9	Mahasamund, Saraipali
10	Kanker, Bhanupratappur,Antagarh, Pakhanjur
11	Durg, Dhamda, Nawagarh, Bhilai
12	Balod, Gurur, Dondi
13	Rajnandgaon

Zone	Zone Name
External Zones	
14	Kawardha
15	Bilaspur
16	Janjgir-Champa
17	Raigarh
18	Korba
19	Jashpur
20	Surguja, Ambikapur
21	Koriya
22	Keskal, Bhanpuri, Narainpur, Kondagaon (DistBastar)
23	Jagdalpur, Darba
24	Dantewada
25	Bihar
26	Madhya Pradesh
27	Maharashtra
28	Andhra Pradesh
29	Orissa
30	Jharkhand
31	Uttar Pradesh
32	Gujarat
33	Rajasthan
34	Delhi
35	Haryana
36	Punjab, Uttarakhand, Himachal Pradesh, J&K
37	West Bengal
38	Karnataka
39	Tamil Nadu, Kerala

4.14 Traffic Growth Rates

4.14.1 Past traffic growth rates

The project road route did not exist as a single corridor in the past, hence past information may not be relevant for the project road. Further, no time series data on adjoining routes/ existing roads along the project route could be availed for making an objective assessment of past trend. Growth of motor vehicles in the state is however considered in the econometric model.

4.14.2 Growth Estimate by Econometric Method

Table No. C4-9: Projected Traffic Growth Rates

Sl. No.	Year	2-wheeler	Car	Bus	Truck
1	2015-2025	13.5%	13.5%	11.3%	10.5%
2	2026-2035	10.5%	10.5%	8.8%	8.2%
3	2036 and beyond	8.0%	8.0%	6.7%	6.2%

High growth is estimated for the first 10-year block period as per the adopted Elasticities of demand. It's difficult to make an estimate of transport demand beyond 10 years. However, with growth of economy, elasticities are likely to shrink and a tapered down demand @ 10% per 10-year block is considered.

4.15 Growth Rates for Slow Vehicles

The slow-moving vehicles essentially cater to very short haul traffic, meeting localized demand for transportation of passengers and goods from rural areas to the nearest market towns and urban centers.

4.16 Traffic Forecast

The base year traffic flow is the primary input for determination of future traffic demand. In present study the base year for traffic has been taken as the year of project studies, i.e., 2018. Traffic on the project road would consist of 1) Normal Traffic, 2) Divertible Traffic, 3) Generated Traffic, and 4) Induced Traffic, if any.

4.16.1 Normal Traffic

Normal traffic is derived from primary survey (Classified Volume Count) on the existing road network and adjusted to seasonal variation of traffic, if any. The annual average daily traffic, AADT as reported in the sections above makes the normal traffic for the project road links.

4.16.2 Divertible Traffic

Divertible traffic is derived from OD surveys undertaken on the parallel and competing routes. This dealt in detail in the previous section of this Chapter. As project road section of Kurud-Vizag not part of a trunk route very few freight movements takes place. Potential divertible traffic from existing road network has been identified and an assignment thereof is discussed as part of OD analyses.

4.16.3 Generated Traffic

Enhanced infrastructure facility promotes economic activity in the project influence area. Benefits derived from lower operating costs partially translate to additional vehicular trips. Therefore, generated traffic is expected on the project road once

existing road is developed and opened to traffic in the year 2022. A generated/ Induced traffic of @10% of normal and diverted traffic is considered for the proposed expressway, for a period of 10 years since 2015.

4.16.4Induced Traffic

The planned development of New Raipur is to bring huge boost to the economy of Chhattisgarh and Raipur at its centre place. There are potential developments by augmentation of capacity and/ or new industries in and around mining belts. Mining has been major contributor in the State's economy. Mining and industry has however grown at a bit lesser rate compared to State Income. While planned activities are likely to boost transport demand, the same will be shared by the road network under development in parallel corridors too. Therefore, No additional traffic on account of Industry is assigned to the project corridor.

CHAPTER-5
PLANNING BRIEF

5.1 Planning Brief

The proposed project is in the feasibility study stage. After the completion of feasibility studies and grant of ToR the Detailed Project Report shall be completed which shall comprise of the complete planning brief of the project. The highlights of the same shall be provided in the EIA report.

CHAPTER-6
PROPOSED INFRASTRUCTURE

6.1 Industrial Area

Not applicable

6.2 Residential Area

Not applicable

6.3 Green Belt

Avenue plantation on both sides of the highway for improvement of landscape and aesthetic view of the area as per IRC:SP:21. It shall be made sure that the species to be chosen shall be local and no alien species shall be introduced. The area to be earmarked for greenbelt development shall be provided in the EIA report.

6.4 Social Infrastructure

Bus & truck lay Bye and rest areas with toilet facilities shall be developed along the proposed Project.

6.5 Connectivity

The phase-1 of the proposed project will improve the connectivity amongst various cities.

6.6 Drinking Water Management

Drinking water shall be arranged from Tanker Supply and thus no permanent installation shall be required for the labourers. It is estimated that a total of approximately 19263 KL water will be required for consumption of construction workers.

6.7 Sewerage System

Portable bio-toilets or septic tanks shall be provided for construction and operational workers.

6.8 Industrial Waste Management

Defunct machineries or parts of the mixing plants shall be stored at designated place before selling the scrap to an approved vendor.

6.9 Solid Waste Management

The solid waste generated by the workers shall be only municipal solid waste which shall be segregated at site itself by provision of coloured bins. The wastes shall be collected from there and dumped as per provision of Municipal Solid waste rules. Waste management shall be done as per Solid Waste Management Rules, 2016 & and Construction and demolition waste Management Rules 2016.

In addition to the Sub-Clause 111.4 of MoRTH Specifications, The Contractor shall adopt the following Mitigation Measures.

- Control of Soil Erosion and sedimentation (Clause306.3)
- Control of Water Pollution

The Contractor shall avoid construction works close to the streams or water bodies during monsoon. All precautionary measures shall be taken to prevent the wastewater that is generated during construction from entering into streams, water bodies or the irrigation channels. Oil interceptors shall be provided for vehicle parking, wash down and refuelling areas.

The Contractor shall adopt the following rules and regulations for effective Control of Solid and Liquid water Management

- Schedule VI - General Standards for Discharge of Environmental Pollutants, CPCB
- The Environment (Protection) Rules, 1986 and Water Act, 1974.
- Petroleum Act, 1934 and subsequent amendments
- Rules and Environment (Protection) Rules, 1986 (Standards for Emission or Discharge of Environmental Pollutants Schedule-I)
- Annexure 'A' to Clause 501 (Protection of Environment) of MoRTH Specification.
- Construction and Demolition Waste Management Rule 2016
- Municipal Solid Waste Management Rule 2016

The Contractor is to ensure that there is good drainage at all construction areas, to avoid creation of stagnant water bodies especially in urban/industrial areas, including water in old types.

6.10 Power Requirement-Supply & Source

The power required for the project shall be 1000 kVA per day.

Required power will be sourced through the local distribution company of the State Electricity Board and DG sets will also be installed as power backup source.

CHAPTER-7
REHABILITATION & RESETTLEMENT (R & R) PLAN

7.1 Rehabilitation and Resettlement Plan

The land coming under the Project area is agricultural and forest land. Along with this, the alignment of corridor passes through forest land and barren land. The land required for the construction of economic corridor will be acquired by NHAI before the commencement of construction work.

The identification of the private and government structures are in progress and the drafting of Rehabilitation and resettlement plan shall be commenced after the identification of structures and consultation with stakeholders.

Land acquisition shall be undertaken as per the provision of National Highway Acts, 1956 & subsequent amendments but determination of compensation will be done as per RFCTLARR Act, 2013 in close accordance with respective state R&R Rules. Rehabilitation and resettlement plan will be prepared after detailed census survey during EIA Study and will be submitted in EIA Report.

CHAPTER-8
PROJECT SCHEDULE & COST ESTIMATES

8.1 Project Schedule and Cost Estimates

The Project shall start its construction work after fulfillment of the following activities:

- Finalization and approval of Detailed Project Report. Receipt of Environmental clearance from MoEF&CC.
- Selection and on-boarding of Contractor for implementation works the completion period of the construction is estimated to be about 36 months.
- The estimated cost of the project is about INR 4290.24 Crores. Detailed cost break-up and Project schedule shall be discussed in the EIA report.

CHAPTER-9
ANALYSIS OF PROPOSAL (FINAL RECOMMENDATIONS)

9.1 Analysis of Proposal

The benefits of the Project are multi-fold. It will substantially reduce the travel time and the other remote areas falling on the alignment. In addition to the improved connectivity, it will also provide a boost to the economic status of the villages / towns falling in the dedicated Project area.

Overall improvement will be expected in local area in terms of:

- Better connectivity to economic, social and political hubs of Chhattisgarh
- Faster growth and outreach to better and improved facilities
- Fast and safe connectivity resulting in savings in fuel, travel time and total transportation cost
- Reduction in accidents.
- Better approach to medical & educational services
- Faster transportation of perishable goods like fruits, vegetables, and dairy products
- Better opportunities for transporting, processing and marketing of agricultural products
- Development of local agriculture and handicrafts
- Development of tourism and pilgrimage
- Opening up of opportunities for new occupations and trade on the route
- Indirect and direct employment opportunity to people from all skilled, semi-skilled and unskilled streams
- Improved quality of life for people and soon
- Development of backward areas through rapid industrialization and access to distant markets
- Creation of ancillary ecosystem through highway amenities, support services and industrial / manufacturing areas

The project shall benefit the commuters travelling between Vishakhapatnam and Raipur. Thus, the project shall save fuel and time of commuters. The areas through which the proposed road passes is highly remote and thus the implementation of the project shall enhance connectivity of the villagers to the highly developed cities of the Chhattisgarh.

The felling of trees and structures to be affected are minimal.

Thus, as per the preliminary analysis and secondary data collected, the proposed project is financially, socially and environmentally feasible.

Annexure-1

Village & Tehsil List

Sl. No.	Name of District	Name of Tahasil	Village Name
1	Raipur	Abhanpur	Jhanki
2			Mudapur Oraf Bhelwadih
3			Urla
4			Nayak bandha
5			Tokro
6			Satapara
7	Dhamtari	Kurud	Bharda
8			Kodapar
9			Karga
10			Kotgaon
11			Dentha
12			Phusera
13			Sirri
14			Chinvari
15			Sibanikala
16			Paraswani
17			Mendraka
18			Kuhkuha
19			Bharda
20			Kurud
21			Nawagaon
22			Umarda
23			Kamraud
24			Bangar
25			Sindhori kala
26			Sindhori khurd
27		Dhamtari	Siwanikhurd
28		Kurud	Joratarai
29		Dhamtari	Barna
30		Magerlod	Sargi
31		Magerlod	Rajpur
32			Kewaradih
33		Nagri	Koterwahi
34			Palwadi
35			Bedhwapathra
36			Khairabhari
37			Sarangapuri
38			Karaiya
39			Sankara
40			Chivrri Rayat

41	Dhamtari		Chivrri Mal
42	Kanker	Naraharpur	Dompadar
43			Jamgaon
44			Mandradarha
45			Dabbipani
46			Deodongar
47			Samtara
48			Dhanora
49			Sarwandi
50			Bhimadihi
51			Dudhawa
52			Nayapara
53			Anchhidongri
54			Musurputa
55			Mawlipara
56			Madabharri
57			Basanwahi
58	Kondagaon	Baderajpur	Gobindpur
59			Kosmi
60			Sargipal
61			Hatma
62			Manikpur
63			Machhli
64			Salna
65			Palana
66			Marangpuri