Development of 6 Lane Kanpur Ring Road starting from NH-19 (Existing Ch. 506+820) near Sachendi village and ends at same point i.e. NH-19 (Existing Ch. 506+820) near Sachendi village in Kanpur Nagar district under NHDP Phase-VII in the state of Uttar Pradesh. Total Length – 93.209 km.

भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
National Highways Authority of India

SUBMITTED BY

National Highways Authority of India
Dwarka, Delhi

1.0 EXECUTIVE SUMMARY

National Highways Authority of India was set up by an act of the Parliament, NHAI Act, 1988 "An Act to provide for the constitution of an Authority for the development, maintenance and management of national highways and for matter connected therewith or incidental thereto". NHAI is mandated to implement National Highways Development Project (NHDP) which is India's largest ever Highways Project in a phased manner.

The National Highways Authority of India (NHAI) has been entrusted with the assignment of consultancy Services for preparation of Detailed Project Report (DPR) for Development of 6 Lane Kanpur Ring Road starting from NH-19 (Existing Ch. 506+820) near Sachendi village and ends at same point i.e. NH-19 (Existing Ch. 506+820) near Sachendi village in Kanpur Nagar district under NHDP Phase-VII in the state of Uttar Pradesh.

In pursuance of the above, the services have been entrusted to SAI Consulting Engineers to carry out the detailed engineering study and prepare the Detailed Project Report for the construction of the same.

The proposed highway starts from NH-19 (Existing Ch. 506+820) near Sachendi village and ends at same point i.e. NH-19 (Existing Ch. 506+820) near Sachendi village in Kanpur Nagar district in the State of Uttar Pradesh, passing through 66 revenue Villages of District Kanpur Nagar, 06 revenue Villages of District Kanpur Dehat and 52 revenue Villages of District Unnao in the State of Uttar Pradesh.

The proposed highway development is being envisaged for a business development, tourism hub and a sustainable Smart City. To meet the growing demand of road infrastructure the proposed road is essential for improving faster and economical transportation facilities.

Main objective of the proposed highway development is to decongest the growing traffic from the city. The proposed highway 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 roadside plantation shall further improve the ambient air quality and aesthetics of the region.

a. SALIENT FEATURES OF THE PROJECT

Project name	Development of 6 Lane Kanpur Ring Road starting from NH-19 (Existing Ch. 506+820) near Sachendi village and ends at same point i.e. NH-19 (Existing Ch. 506+820) near Sachendi village in Kanpur Nagar district under NHDP Phase-VII in the state of Uttar Pradesh. **Total Length – 93.209 km**
Location	The proposed highway starts from NH-19 (Existing Ch.

	506+820) near Sachendi village and ends at same point i.e. NH-19 (Existing Ch. 506+820) near Sachendi village in Kanpur Nagar district in the State of Uttar Pradesh, passing through 66 revenue Villages of District Kanpur Nagar, 06 revenue Villages of District Kanpur Dehat and 52 revenue Villages of District Unnao in the State of Uttar Pradesh
Latitude & Longitude	Start & End Location: 26°24'45.75"N 80°10'21.16"E
Land use	The existing land use around the project road primarily comprises of agricultural land followed by Built-up area, and waterbodies.
Nearest railway station	Kanpur Central Railway Station at approx. 7.8 kms aerial distance.
Nearest Airport	Kanpur Civil Airport at approx. 2.66 kms aerial distance.
Seismic Zone	The area of Kanpur Nagar district and Unnao district falls in Moderate Damage Risk Zone-III while Kanpur Dehat district falls in Low Damage Risk Zone-II.

b. PROPOSED PLANNING

Type of Project - National Highway (New)
Project cost - **Rs. 9482.79 Cr.**
Project Length - **93.209 km.**

2.0 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

a. IDENTIFICATION OF PROJECT PROPONENT

National Highways Authority of India was set up by an act of the Parliament, NHAI Act, 1988 “An Act to provide for the constitution of an Authority for the development, maintenance and management of national highways and for matter connected therewith or incidental thereto”. It has been entrusted with National Highways Development Project, which along with other minor projects. NHAI is mandated to implement National Highways Development Project (NHDP) which is India’s largest ever Highways Project in a phased manner.

The National Highways Authority of India (NHAI) has been entrusted with the assignment of consultancy Services for preparation of Development of 6 Lane Kanpur Ring Road under NHDP Phase-VII in the state of Uttar Pradesh. Under NHDP Phase VII, CCEA has approved for 700 km of Ring Roads, Bypasses and flyovers and selected stretches at an estimated cost of Rs. 16680 crores.

b. BRIEF INFORMATION ABOUT THE PROJECT

The proposed greenfield highway is located around the Kanpur city. The proposed highway starts from NH-19 (Existing Ch. 506+820) near Sachendi village and ends at same point i.e. NH-19 (Existing Ch. 506+820) near Sachendi village in Kanpur Nagar district in the State of Uttar Pradesh, passing through 66 revenue Villages of District Kanpur Nagar, 06 revenue Villages of District Kanpur Dehat and 52 revenue Villages of District Unnao in the State of Uttar Pradesh.

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

Main objective of the proposed highway development is to decongest the growing traffic from the city. The proposed highway 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 roadside plantation shall further improve the ambient air quality and aesthetics of the region.

d. DEMAND-SUPPLY GAP

This is a green field alignment proposed for 6 Lane. Vehicle operating cost will be reduced due to improved road quality and transportation will improve. Travel time will be reduced due to new highway and smooth traffic. It will help in development of the State 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, around 2744 persons would be employed temporarily for a period of 2.5 years. During operation of Highway about 686 persons will be employed for highway patrolling, highway management & maintenance activities, etc. The total manpower requirement for the project is 3430. 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 project is independent project, and it is a part of the NHDP Phase-VII.

b. LOCATION

The proposed greenfield highway is located around the Kanpur city. The proposed highway starts from NH-19 (Existing Ch. 506+820) near Sachendi village and ends at same point i.e. NH-19 (Existing Ch. 506+820) near Sachendi village in Kanpur Nagar district in the State of Uttar Pradesh, passing through 66 revenue Villages of District Kanpur Nagar, 06 revenue Villages of District Kanpur Dehat and 52 revenue Villages of District Unnao in the State of Uttar Pradesh. List of Villages falling within the proposed alignment is as follows:

Table- 1: List of Villages

Sl. No.	District	Taluka	Name of village
1	Kanpur Dehat	Maitha	Barakheda
2	Kanpur Dehat	Maitha	Anne
3	Kanpur Dehat	Maitha	Nehuta
4	Kanpur Dehat	Maitha	Basousi
5	Kanpur Dehat	Maitha	Baghwat
6	Kanpur Dehat	Maitha	Fatehpur M. Nihutha
7	Kanpur Nagar	Kanpur Sadar	Binor
8	Kanpur Nagar	Kanpur Sadar	Chacheri-Sachendi-I
9	Kanpur Nagar	Kanpur Sadar	Katara Ghanshyam
10	Kanpur Nagar	Kanpur Sadar	Bhisar
11	Kanpur Nagar	Kanpur Sadar	Naktu
12	Kanpur Nagar	Kanpur Sadar	Dharmagandpur
13	Kanpur Nagar	Kanpur Sadar	Bhool
14	Kanpur Nagar	Kanpur Sadar	Dool

15	Kanpur Nagar	Kanpur Sadar	Rautepur
16	Kanpur Nagar	Kanpur Sadar	Mohammadpur
17	Kanpur Nagar	Kanpur Sadar	Barhat Kachhar
18	Kanpur Nagar	Kanpur Sadar	Barhat Bangar
19	Kanpur Nagar	Kanpur Sadar	Paigupur Bangar
20	Kanpur Nagar	Kanpur Sadar	Paigupur Kachar
21	Kanpur Nagar	Kanpur Sadar	Hingupur Bangar
22	Kanpur Nagar	Kanpur Sadar	Hingupur Kachar
23	Kanpur Nagar	Kanpur Sadar	Khushal ganj
24	Kanpur Nagar	Kanpur Sadar	Ramel kachhar
25	Kanpur Nagar	Kanpur Sadar	Ramel Bangar
26	Kanpur Nagar	Kanpur Sadar	Rooma
27	Kanpur Nagar	Kanpur Sadar	Chakeri
28	Kanpur Nagar	Kanpur Sadar	Ghisuri
29	Kanpur Nagar	Kanpur Sadar	Rautara
30	Kanpur Nagar	Kanpur Sadar	Bharu
31	Kanpur Nagar	Kanpur Sadar	Imlipur
32	Kanpur Nagar	Kanpur Sadar	Ramaepur
33	Kanpur Nagar	Kanpur Sadar	Magrasa
34	Kanpur Nagar	Kanpur Sadar	Oriyara
35	Kanpur Nagar	Kanpur Sadar	Neori
36	Kanpur Nagar	Kanpur Sadar	Sarnait Pur
37	Kanpur Nagar	Kanpur Sadar	Gadhewa Mohsinpur
38	Kanpur Nagar	Kanpur Sadar	Sainya Goujha
39	Kanpur Nagar	Kanpur Sadar	Kurouna Bahadur Nagar
40	Kanpur Nagar	Kanpur Sadar	Sen Purab Para
41	Kanpur Nagar	Kanpur Sadar	Sen Pashchim Para
42	Kanpur Nagar	Kanpur Sadar	Dande ka Purwa
43	Kanpur Nagar	Kanpur Sadar	Shivrampur
44	Kanpur Nagar	Kanpur Sadar	Gambhir Pur Dakshin
45	Kanpur Nagar	Kanpur Sadar	Kaindha
46	Kanpur Nagar	Kanpur Sadar	Bhairampur
47	Kanpur Nagar	Kanpur Sadar	Sona
48	Kanpur Nagar	Kanpur Sadar	Binour Duteey
49	Kanpur Nagar	Kanpur Sadar	Binour partham
50	Kanpur Nagar	Kanpur Sadar	Pakri
51	Kanpur Nagar	Bilhaur	Bani
52	Kanpur Nagar	Bilhaur	Pura Subansh
53	Kanpur Nagar	Bilhaur	Chak Govindpur
54	Kanpur Nagar	Bilhaur	Pachour
55	Kanpur Nagar	Bilhaur	Maharajpur
56	Kanpur Nagar	Bilhaur	Hardaspur
57	Kanpur Nagar	Bilhaur	Chaudharipur

58	Kanpur Nagar	Bilhaur	Budhanpur
59	Kanpur Nagar	Bilhaur	Kishunpur
60	Kanpur Nagar	Bilhaur	Itra
61	Kanpur Nagar	Narwal	Koriya
62	Kanpur Nagar	Narwal	Tikariya
63	Kanpur Nagar	Narwal	Uchti
64	Kanpur Nagar	Narwal	Jarkala
65	Kanpur Nagar	Narwal	Kudhwa
66	Kanpur Nagar	Narwal	Baghara
67	Kanpur Nagar	Narwal	Dhuruwa Khera
68	Kanpur Nagar	Narwal	Pipargawan
69	Kanpur Nagar	Narwal	Kakrali
70	Kanpur Nagar	Narwal	KumhauPur
71	Kanpur Nagar	Narwal	Kathogar
72	Kanpur Nagar	Narwal	Kasigawan
73	Unnao	Unnao	Basdhana
74	Unnao	Unnao	Haji pur
75	Unnao	Unnao	Bhatpurwa
76	Unnao	Unnao	Agehra
77	Unnao	Unnao	Kanika mau
78	Unnao	Unnao	Gangouli
79	Unnao	Unnao	Arzhora mau
80	Unnao	Unnao	Sanni
81	Unnao	Unnao	Sikander Pur
82	Unnao	Unnao	Hafeezabad
83	Unnao	Unnao	Mustofa pur
84	Unnao	Unnao	Shankarpur Sarai
85	Unnao	Unnao	Pipri
86	Unnao	Unnao	Behta
87	Unnao	Unnao	Kanjaura
88	Unnao	Unnao	Bani
89	Unnao	Unnao	Pindokha
90	Unnao	Unnao	Dewra kalan
91	Unnao	Unnao	Dewra khurd
92	Unnao	Unnao	Saraiya
93	Unnao	Unnao	Sahjani
94	Unnao	Unnao	Khairaha Gair ahetmali
95	Unnao	Unnao	Khairaha ahetmali
96	Unnao	Unnao	Fatehpur
97	Unnao	Unnao	Maswasi
98	Unnao	Unnao	Magarwara
99	Unnao	Unnao	Ghonghi Rautapur
100	Unnao	Unnao	Mahadevna

101	Unnao	Unnao	Kader Patari
102	Unnao	Unnao	Poni
103	Unnao	Unnao	Banthar
104	Unnao	Unnao	Karmi Vizhlamau
105	Unnao	Unnao	Anta
106	Unnao	Unnao	Bhagwatpur
107	Unnao	Unnao	Ramchara mau
108	Unnao	Unnao	Dakary
109	Unnao	Unnao	Sathara
110	Unnao	Unnao	Badarka Harbansh
111	Unnao	Unnao	Supasi
112	Unnao	Unnao	Rawal
113	Unnao	Unnao	Garsar
114	Unnao	Unnao	Mawaiyya
115	Unnao	Unnao	Shukul Pur
116	Unnao	Unnao	Tikri Ganesh gair Ahetmali
117	Unnao	Unnao	Tikri Ganesh Ahetmali
118	Unnao	Unnao	Aluhapur Saresa
119	Unnao	Unnao	Manohar Pur
120	Unnao	Unnao	Gadari
121	Unnao	Unnao	Sarwagar
122	Unnao	Unnao	Tikry Padmara
123	Unnao	Unnao	Bairagar
124	Unnao	Unnao	Dudhaora

c. DETAILS OF ALTERNATE SITES

Three alternative alignments have been considered and compared to finalize the proposed alignment, map showing alternative alignment options is provided below.

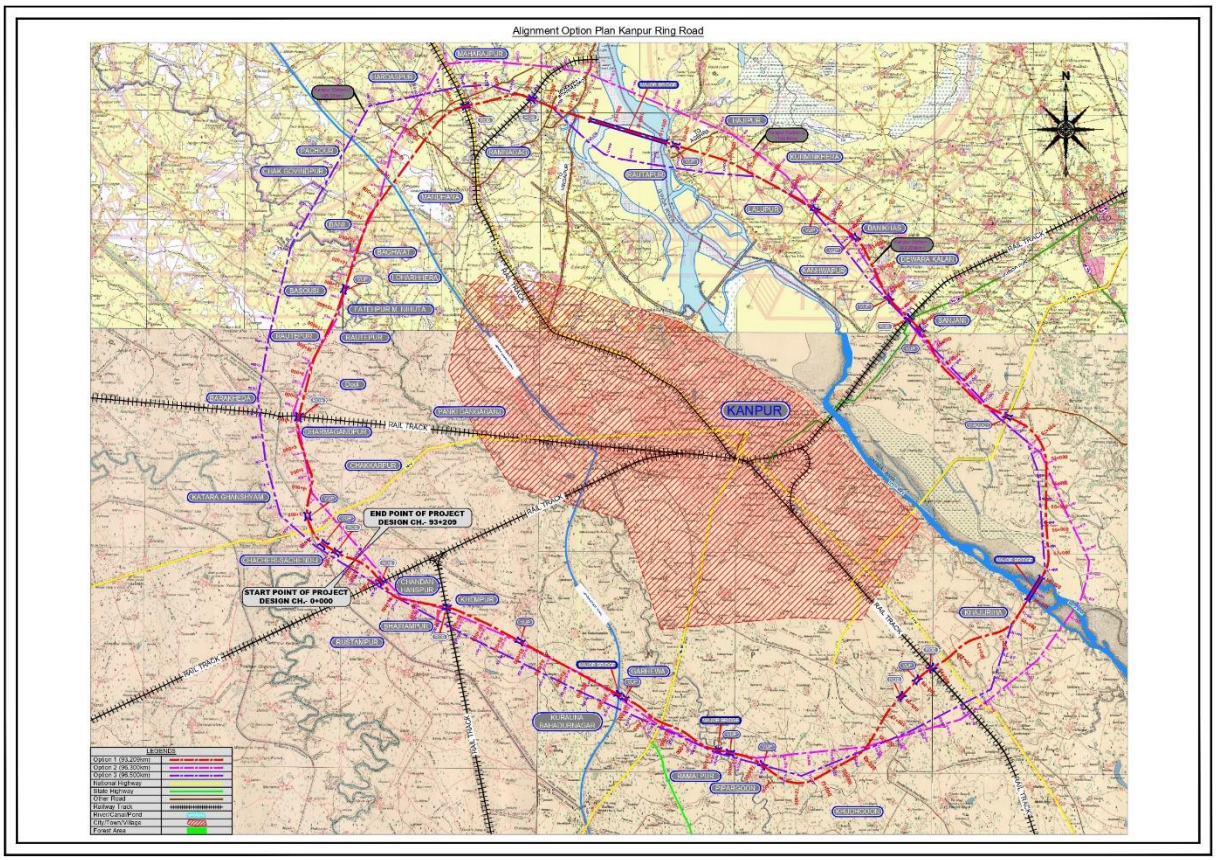

Figure-1: Map showing Alternative Alignment Options

Comparative analysis of the alternative options is provided in the following table.

Table- 2: Comparative Analysis of the Alternative Options

Sl. No	Parameters/Issues	Option 1 (Proposed Alignment-Red)	Option 2 (Pink)	Option 3 (Blue)
1	**Length (km)**	93.209	96.3	96.0
	RoW	60	60	60
2.	**Land Requirement (ha)**	721.0	739.55	711
	Forest land (ha)	4.11 (Protected Forest)	4.23 (4.23 Protected Forest)	22.41 (4.41 Protected Forest & 18 Reserve Forest)
3.	**Area under wildlife protected area / or eco sensitive zone**	The alignment does not pass through any wildlife protected area and its eco sensitive zone.	The alignment does not pass through any wildlife protected area and its eco sensitive zone.	The alignment does not pass through any wildlife protected area and its eco sensitive zone.
4.	**Approx. No. of**	2450	2950	3630

Sl. No	Parameters/Issues	Option 1 (Proposed Alignment-Red)	Option 2 (Pink)	Option 3 (Blue)
	trees			
5.	**Area under water bodies**	14.00 (2 Rivers, 49 Drains, 26 Canals, 29 Nalas etc.)	28.79 ha (2 River, 63 Drains, 31 Canals, 37 Nalas etc.)	17.86 ha (2 River, 54 Drains, 28 Canals, 32 Nalas etc.)
6.	**No. of Structure to be Constructed**	• ROBs - 09 • Major Bridges – 04 (4590m) • Minor Bridges -21 • LVUP – 21 • VUP - 13 • Flyovers / Grade Separators/Trumpet - 06 • Viaduct – 01 • Culverts- 62	• ROBs - 08 • Major Bridges – 05 • Minor Bridges -22 • LVUP – 24 • VUP (Grade-II) - 21 • VUP/Flyovers/grade Separators-9 • Culverts- 74	• ROBs - 09 • Major Bridges - 05 • Minor Bridges -22 • LVUP – 22 • VUP (Grade-II) - 18 • VUP/Flyovers/grade Separators-8 • Culverts- 68
7.	**No. of structures / Buildings to be impacted**	256	485	353
8.	**Terrain**	Flat	Flat	Flat
9.	**Connectivity**	Nearest Highway – The project highway starts & ends at NH-19 Nearest railway station (Kanpur Central) – 7.80 km; Kanpur Civil Airport – 2.66 km	Nearest Highway – The project highway starts & ends at NH-19 Nearest railway station (Kanpur Central) – 11.81 km Kanpur Civil Airport – 4.76 km	Nearest Highway – The project highway starts & ends at NH-19 Nearest railway station (Kanpur Central) – 7.80 km; Kanpur Civil Airport – 2.66 km
10.	**Merits**	Shortest length. Minimum impact on trees, water bodies & existing Structures / Buildings. Lowest project cost.	Away from the city limits.	Short alignment than option II.
11.	**Demerits**	Passing through habitation area. Land acquisition is more than option 3.	Longest alignment. Maximum land acquisition and highest number of PAFs. No. of trees more than option 1. Project Cost is the highest.	Project affected families/ Project Cost is more than option 1. Maximum impact on trees. Passing through Reserve Forest.

Sl. No	Parameters/Issues	Option 1 (Proposed Alignment-Red)	Option 2 (Pink)	Option 3 (Blue)
			Maximum impact on water bodies. Length of major bridge on Ganga River is maximum.	
12.	**Civil Construction Cost including GST (Rs. In Crores)**	5352.13	5529.62	5512.4
13.	**Other Cost Environmental Mitigation, Shifting of Utilities & Land Acquisition, Contingencies, Agency charges & Supervision charges (Rs. In Crores)**	4130.66	4267.641	4254.346
14.	**Total Project Cost (Rs. In Crores)**	**9482.79**	**9797.259**	**9766.738**

Based on the above details, Alignment Option – 1 has been selected due to following reasons:

- Impact on trees and structures are less than option-2 & option-3
- Not passing through Reserve Forest like option 3.
- Number of Project Affected Families (PAF) in option-1 are lesser than option-2 & option-3.
- Total Project Cost of the Option-1 is the lowest.

d. SIZE OR MAGNITUDE OF OPERATION

The length of the project is approx. 93.209 Km having proposed RoW of 60 m.

e. GEOLOGY

District Kanpur Nagar is a part of middle Ganga plain-west which covers the area of 1,065 sq.km. The course of the Ganga lies in wide and sandy bed and changes occasionally. Apart from sand, a belt is formed by new deposits of Alluvium. Alluvium deposits are mostly above flood level known as 'Kachhar'. High cliffs along the Ganga bears many ravines. Pandu and the Rind are the other rivers which flow in the district.

Geologically the district belongs to Alluvium, Dun gravels of recent. On the basis of geology, soils, topography, climate and natural vegetation, the district has been divided into following three sub micro regions: - 1. Ganga Khadar, 2. Kanpur Plain and 3. Rind Plain.

Kanpur Dehat district lies in lower Doab of Ganga and Yamuna. The course of Ganga and Yamuna lies in wide and sandy bed of the shores and changes accordingly on the basis of the factor like geology, soils, topography, climate and natural vegetation, the district has been divided into following fine sub-micro regions. 1. Ganga Khadar, 2. Bilhaur Plain, 3. Rind Plain, 4. Sengar Plain and Yamuna Ravines.

Unnao district comprised of the watershed of the Gomti except the southern area whereas the latter lies in the catchment area of the Sai. It is a part of Gangetic alluvial tract and the surface is generally flat except by side of river Gomti and its tributaries. The slope is very gradual from north-west to south-east. South of the Gomti, the area of the district is characterized by ravine tract along the banks of streams. Geologically this district reveals the recent formations of ordinary Gangetic Alluvium.

f. PRODUCTION PARAMETERS

Not Applicable in the present context.

g. DESIGN PARAMETERS

The proposed road shall be constructed to IRC:SP:87-2019, “Manual of Specifications and Standards for Six Laning of Highways” and other relevant IRC specifications on design manual. The width of RoW will be 60 m.

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 Fly Ash-8875134.12 Cum, Aggregate-3113571.54 Cum, Sand-195368.64 Cum, Cement-234420.37 MT, Bitumen-35023.63 MT, Emulsion-3471.7 MT, Stone-154954.32 Cum, Steel (Bars)-35369.4 MT, HT Strands-783.81 MT, Structural Steel-1762023.36 MT, Excavation-778237.71 Cum and Earthwork with Soil-3803628.91 Cum. The 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**

NTPC Thermal Power Plant at Panki is located at a distance of 15 km from proposed project alignment and the fly ash will be used in the project depending upon their availability as per MoEF&CC's Fly Ash Notification dated 22 April 2021. MoRTH letter dated 23 Oct 2020 for Use of Fly-ash in road/flyover embankment construction on NH works and IRC:SP:58-2001 "Guidelines for Use of Fly Ash in Road Embankments" shall be followed.

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

- **Water Requirement**

The average water requirement is anticipated at 5600 KLD approx. during construction stage and will be extracted from suitable surface sources (river/canals) after obtaining necessary permissions from the competent authority.

- **Power**

Diesel generator sets and State Electricity Board connection shall be utilized for power requirement. Labor camps will be provided with LPG as fuel sourced from GOI authorized Supplier.

m. QUANTITY OF WASTES TO BE GENERATED (LIQUID AND SOLID) AND SCHEMEFOR 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 proposed highway starts from NH-19 (Existing Ch. 506+820) near Sachendi village and ends at same point i.e. NH-19 (Existing Ch. 506+820) near Sachendi village in Kanpur Nagar district in the State of Uttar Pradesh, passing through 66 revenue Villages of District Kanpur Nagar, 06 revenue Villages of District Kanpur Dehat and 52 revenue Villages of District Unnao in the State of Uttar Pradesh.

Kanpur Nagar city is basically known as an industrial city since long. Besides, it is home to several most prestigious educational institutions of the country, including one of the Indian Institutes of Technology (IIT), Harcourt Butler Technological Institute (HBTI), CSJM University, University Institute of Engineering and Technology, Chandrasekhar Azad Agricultural University, and GSVM Medical College.

Kanpur is well-connected with most of the other cities of India by Rail and Roads. Kanpur Railway station is one of the most important railway stations on Delhi-Howrah Trunk Line of Indian Railways. There are direct trains from this station to almost all-important stations in India.

The project influence area is being served by a detailed network of rural Highways and urban arterial roads. The major highways connecting the city are detailed below.

Table- 3: Major Highways Connecting the City of Kanpur

Sl. No	Road Type	Road Number	Important Connecting Cities / Towns
1	National Highway	NH – 19 (Old No.: NH - 2)	Delhi – Mathura – Agra – Kanpur – Allahabad – Varanasi – Dhanbad - Kolkata
2	National Highway	NH - 34 (Old Nos.: NH – 91 & 86)	Gangotri – Haridwar Ghaziabad - Aligarh - Eta - Kanpur – Hamirpur – Mahoba – Damoh – Jabalpur - Lakhnadon
3	State Highway	SH - 58	Kanpur - Unnao
4	National Highway	NH - 27 (Old No.: NH - 25)	Porbandar – Udaipur – Jhansi – Shivpuri – Kanpur - Lucknow – Unnao – Muzaffarpur – Dalkhola – Siliguri – Nagaon – Haflong - Shilchar
5	Major District Road	MDR -78C	Kanpur – Shivli

b. LANDFORM, LANDUSE AND LAND OWNERSHIP

- **Land Use**

The existing land use around the project road primarily comprises of agricultural land followed by Built-up area, waterbodies and forest.

- **Land Ownership**

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

c. TOPOGRAPHY

Terrain of the project road is plain. The altitude of the project road alignment varies from 105 meter to 132 meter above Mean Sea Level.

d. EXISTING LAND USE PATTERN

The existing land use around the project road primarily comprises of agricultural land followed by Built-up area, waterbodies and forest.

e. EXISTING INFRASTRUCTURE & SENSITIVE ECOLOGICAL LOCATIONS

S. No.	Areas	Name / Identity	Aerial distance (within 10 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	No	None
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Yes	The proposed alignment is crossing strip plantations along existing roads and railway lines declared as Protected Forest.
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	No	None. Further detailed assessment on flora and fauna shall be taken up during EIA studies.
4	Inland, coastal, marine or underground waters	Yes	The proposed alignment is passing through 2 rivers, 49 drains, 26 canals, 29 nalas and other waterlogged areas. In addition to this there are several minor drains and seasonal waterlogged areas for which 62 nos. of cross drainage structures / culverts are proposed.
5	State, National boundaries	No	None
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	Yes	The public uses the route to reach major tourist and historical attractions in the area such as Bithoor, Sankissa, Etawah Safari Park, Kalinjar Fort, Kalpi, National Chambal Sanctuary etc.
7	Defense installations	No	None
8	Densely populated or built-up area	Yes	Kanpur Nagar City – 6 km
9	Areas occupied by sensitive man-made	Yes	Some religious structures are

	land uses (hospitals, schools, places of worship, community facilities)		present along the proposed alignment. The details shall be provided in the EIA report.
10	Areas containing important, high quality or scarce resources. (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	No	None
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Yes	Kanpur. Mitigation measures will be taken as per applicable laws for any anticipated pollution.
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 effects	Yes	The area of Kanpur Nagar district and Unnao district falls in Moderate Damage Risk Zone-III while Kanpur Dehat district falls in Low Damage Risk Zone-II. The project area is vulnerable to flood hazard.

f. SOIL CLASSIFICATION

Kanpur Nagar district: The major part of the district consists of ordinary soils known locally as Bhur and Sand on ridges, Matiyar or clay in depressions and Domat or Loam in the Plains. The 'Reh' prevails in the clay dominant areas.

Kanpur Dehat district: The major area (about 90%) falls under Yamuna sub basin which is covered by older alluvial soils consisting broadly of 'Bhur' or sandy soil occupying high mounds, Matiyar or clay rich soil in depressions and 'Domat' or loam in the plains.

Unnao district: The main soil types of the district are Bhur or Sandy soils, Matiar or clayey soils and Dumat or Loam. The Loam or Dumat soils are occurring in the plain, Bhur on the ridges and the Matiar in the topographic lows. The 'Reh' or Usar-soil patches are frequently occurring mainly in the Matiar or clay dominating soils.

g. CLIMATIC DATA FROM SECONDARY SOURCES

The climate of Kanpur Nagar district is characterized by a hot summer and general dryness except in monsoon season. The period from March to about the middle June is summer season which is followed by monsoon season till about the end of September, October and first half of November is transition period. The cold season spreads from about the middle of November to February. During the monsoon season, the humidity

generally exceeds 70 percent, but after that it decreases. The driest part of the year is the summer season when in the afternoon the humidity is less than 30 percent. Winds are generally light with some strengthening in force during the summer and early monsoon season. In the non-monsoon months, winds blow mostly from direction between south-west and north-west and north westerly predominating in the afternoon. From May winds from directions between north-east and south-east begin to blow and in south-west monsoon season they are either from directions between south-east and north-east or between south-west and north-west.

The climate of the Kanpur Dehat district is characterized by hot summer with hot winds and general dryness except in the south-west monsoon seasons. The year may be divided in to four seasons. The period from March to about middle of June is summer season. This is followed by the southeast monsoon season, which lasts till the end of September. October and first half of November forms the post monsoon or transition period. The cold seasons spreads from about the middle of November to February. Around the beginning of April there is rapid rise in temperature. May and early part of June constitute the hottest part of the year. Hot, dry and dust laden westerly winds are common in hot season. The district has maximum temperature 470C and minimum temperature is 300 C. The average annual rainfall of the district is 950 mm.

The climate of Unnao district is characterized by a hot summer and a pleasant cold season. The maximum temperature in the district touched 44.70 C, while a minimum of 1.80 C was recorded. The year may be divided into four seasons. The cold season from about the middle of November to February is followed by the hot season from March to about the middle of June. The south-west monsoon season which follows, continues up to about the end of September, October and the first half of November constitute the post monsoon season. May is generally the hottest month with the mean daily maximum at 40.60 C and the mean daily minimum at 25.50 C whereas January is usually the coldest month with the mean daily maximum at 22.90 C and mean daily minimum at 8.60 C. Winds are generally light to moderate with some strengthening during later part of the summer and monsoon season. Winds are mostly from the east or south-east during the period from May to September. In the post monsoon season winds are light and variable in direction. Westerly winds begin to blow by November. Westerly or north westerly winds predominate during the rest year. The average annual rainfall is 1005 mm.

h. SOCIAL INFRASTRUCTURE

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

5.0 PLANNING BRIEF

a. PLANNING CONCEPT

The state will have its own self-sustaining eco-system consisting of economic drivers through industrialization, utility & logistic infrastructure, Social Infrastructure including education, healthcare and other public amenities. It will be connected with by a 6 lane highway as an effective means of transportation in the region.

b. ASSESSMENT OF INFRASTRUCTURE DEMAND (PHYSICAL & SOCIAL)

The Kanpur Nagar district lies in middle of Uttar Pradesh State. It lies between 25°55' and 27° North latitude and 79°30' and 80°35' East longitudes. The major part of the area is almost a flat plain with some minor undulations. The river Ganga and Yamuna with their tributaries form the drainage system (Dendritic type).

Kanpur city is basically known as an industrial city since long. Among the industrial activities, the leather industry attains important status, where mostly weaker sections of the sociely have got jobs. Shoes, sandals, chappals, shoe-uppers and other leather items make the city famous. Of the total exports of the city, more than 90% is from this sector. The saddlers item is produced only at Kanpur in the country and the value of the export is more than 200 crore per annum as per census data, 2011. Kanpur was once also Known as Manchester of the East due to many textile mills established here and items like belts, suitcases, bags, winter jerseys and trousers etc. are manufactured.

The city development is being envisaged as a leather industry hub, tourism hub and a sustainable Smart City. To meet the growing demand of road infrastructure, the proposed road is essential for improving faster and economical transportation facilities.

c. 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.

6.0 PROPOSED INFRASTRUCTURE

a. CONSTRUCTION SITE

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

b. RESIDENTIAL AREA

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

c. 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.

d. CONNECTIVITY

The proposed highway starts from NH-19 (Existing Ch. 506+820) near Sachendi village and ends at NH-19 (Existing Ch. 506+820) near Sachendi village in Kanpur Nagar district in the State of Uttar Pradesh, passing through 66 revenue Villages of District Kanpur

Nagar, 06 revenue Villages of District Kanpur Dehat and 52 revenue Villages of District Unnao in the State of Uttar Pradesh. The proposed highway will bypass the Kanpur city to the commuters of nearby areas from Etawah, Farrukhabad, Kannauj, Unnao and Lucknow districts.

e. DRINKING WATER MANAGEMENT

Local water supply will be used for drinking purpose.

f. SEWERAGE SYSTEM

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

g. INDUSTRIAL WASTE MANAGEMENT

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

h. SOLID WASTE MANAGEMENT

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

7.0 REHABILITATION AND RESETTLEMENT (R&R) PLAN

The proposed project requires approx. 721.0 ha. of land. Approx. 247 nos. of building and structures and 09 religious structures are coming in the proposed RoW. The land will be acquired as per the procedures laid down in NH Act, 1956 and RFCT LARR Act, 2013.

8.0 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 2.5 years (Jan 2023 to June 2025) has been envisaged.

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

The estimated cost of proposed project is estimated to be approx. **Rs. 9482.79 Crores.**

9.0 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 highway starts from NH-19 (Existing Ch. 506+820) near Sachendi village and ends at NH-19 (Existing Ch. 506+820) near Sachendi village in Kanpur Nagar district in the State of Uttar Pradesh, passing through 66 revenue Villages of District Kanpur Nagar, 06 revenue Villages of District Kanpur Dehat and 52 revenue Villages of District Unnao in the State of Uttar Pradesh.

Main objective of the proposed highway development is to decongest the growing traffic in and around the city.

The Project will augment better connectivity and it will lead to the easy accessibility of the local people to essential socio-economic services such as health care, education, administrative services and trade centre's enhancing the general quality of life. Better road, free and fast movement of goods and traffic, direct link with the adjoining places of the district will not only earn economic benefits to the district but also bring in many more inputs towards social development. Some of socio-economic benefits of the project are being enumerated out as below:

- Travel times will greatly reduce, and local communities will enjoy enhanced accessibility to socio-economic services (health centers, markets, employment opportunities), with reduction in travel time.
- Reduced travel times will reduce vehicle operating costs (VOCs) for local communities and auto rickshaw, bus, and truck operators, thereby reducing maintenance costs and increasing profits.
- Income and employment opportunities will increase as a result of the diversification of commercial enterprises.
- Improved connectivity will give better access to opportunities in non-agricultural work, including the ability to commute every day.
- Opening of new enterprises with new job opportunities for locals.
- Roadside land values will increase as a result of better accessibility and new business opportunities in the area.
- Easy mobility and access to marketplaces will increase forward and backward linkages to rural micro-enterprises.